Research Bulletin 186
January 2015

2014 Small Grains Report

Southcentral and Southeastern Idaho Cereals Research and Extension Program

Juliet Marshall, Chad Jackson, Tod Shelman, Linda Jones, Katherine O'Brien

University of Idaho
College of Agricultural and Life Sciences

Cover: Clockwise from top left: sprouted wheat from Idaho Falls area, plot planting, Google Earth image of 2013 Rupert winter location. Map data © 2013 Google.

Southcentral and Southeastern Idaho Cereals Research and Extension Program is online at http://www.uidaho.edu/extension/cereals/scseidaho

Published and distributed by the Idaho Agricultural Experiment Station, Donn Thill, Director, University of Idaho College of Agricultural and Life Sciences, Moscow, Idaho 83844-2337.

ACKNOWLEDGEMENTS

Idaho wheat and barley producers, through cooperative research and extension grants from the Idaho Wheat and Barley Commissions, provided partial funding for these small grain performance evaluations. Support was also provided by the University of Idaho Cooperative Extension System, the Idaho Agricultural Experiment Station, and by fees paid by plant breeding companies. This report represents the collective efforts of many individuals. Idaho Cooperative Extension System County Educators coordinated many of the off-station nurseries and field days. Grower-cooperators provided their time, land, and other inputs for management of these trials and appreciation is expressed to them for their support. The UI Wheat Quality Laboratory at Aberdeen analyzed the quality for harvested wheat samples. Appreciation is also expressed to the numerous support personnel who assisted with trial establishment, maintenance, harvest, grain processing, and data analysis. Finally, cereal breeders throughout the Northwest are recognized for their contributions since the nurseries would not be possible without their entries. The authors wish to thank all who have contributed to the success of this project.

Grower Cooperators

Sid Cellan - Soda Springs
Mark and Craig Ozburn - Soda Springs
Gilbert and Carl Hofmeister - Rockland
Trevor Davey - Ririe
Duane Grant and Alan Mohlman - Rupert
Don Marotz - Ashton
Ned Moon and Melvin Barfuss of Jentzsch-Kearl Farms - Rupert
Marc Thiel - Idaho Falls
Doug Nelson- Idaho Falls

Cereals Research and Extension Employees

Juliet Marshall, Chad Jackson
Tod Shelman, Linda Jones
Ester Serna, Martha Carrillo
Suzette Arcibal

Other UI Employees

Randy Gamble, Kristi Copeland
Javier Uribe, Lisa Pankau
Kevin Park, Lyona Anderson
Bonnie Grover, Ericka Ziebarth
Dan Henningsen, Sherrie Mauroner

UI Extension Educators

Ben Eborn - Teton County
Lance Ellis - Fremont County
Reed Findlay - Power County
Joel Packham - Minidoka County
Steve Harrison - Caribou County
Wayne Jones - Bonneville County
Stuart Parkinson - Franklin County
Jon Hogge - Jefferson County

About the Authors

Juliet Marshall is the Cereals Cropping Systems Agronomist & Pathologist with the UI SC & SE Idaho Cereals Extension Program.
Chad Jackson is a Research Specialist with the UI SC & SE Idaho Cereals Extension Program.
Tod Shelman is a Scientific Aide II with the UI SC & SE Idaho Cereals Extension Program.
Linda Jones is a Technical Aide II with the UI SC & SE Idaho Cereals Extension Program.
Katherine O'Brien is the Lab Manager of the UI Wheat Quality Laboratory at Aberdeen.

Peer Reviewed by

John Burns – Washington St Univ., prof. emeritus
Jim Berg – Montana State University
Pamela Hutchinson – University of Idaho
David Hole – Utah State University

Disclaimer Statement

This report represents research in progress and results may change with additional testing. Recommendations for use or non-use of any variety tested in these trials is not stated or implied. Inclusion of a variety in these trials cannot be construed as recommending that variety over varieties not included in the trials.

ALWAYS read and follow the instructions printed on pesticide labels. The pesticide recommendations in this UI publication do not substitute for instructions on the label. Due to constantly changing pesticide laws and labels, some pesticides may have been cancelled or had certain uses prohibited. Use pesticides with care. Do not use a pesticide unless both the pest and the plant, animal, or other application site are specifically listed on the label. Store pesticides in their original containers and keep them out of the reach of children, pets, and livestock. Trade names are used to simplify information; no endorsement or discrimination is intended.

℘ Table of Contents ☙

2014 Agronomic Data

Yield Percentage of Location Averages

Quality and End-use Data From 2013 Growing Year

Disease Rating Addendums

2014 Small Grains Report Table & Chart List

2014 Small Grains Report Table & Chart List

2014 Small Grains Report for Southcentral and Southeastern Idaho

Juliet Marshall, Chad Jackson, Tod Shelman, Linda Jones, and Katherine O'Brien

Additions and Changes:

In fall 2013 a winter trial of combined hard winter and soft white winter wheats was planted in Idaho Falls. Due to a custom harvester error eliminating a significant number of our plots in our Rupert Winter nurseries, there are no yield or test weight data for that location.

Introduction

Increases in cereal grain yields result from a combination of genetic improvements in varieties and from improved agronomic practices. Studies have shown that genetic improvements have contributed more than 50 percent of the total improvement in yield over the past 30 or 40 years. The objective of the University of Idaho Small Grain Performance Trials is to provide an unbiased appraisal and evaluation of currently available varieties and advanced experimental lines. This information will assist Idaho growers in comparing and selecting varieties best suited to their particular area and growing conditions.

Varietal development programs strive not only for greater yield potential, but also for improved end-use quality, better disease and insect resistance, yield stabilization through improved winter hardiness, better straw strength, etc. Bringing a new variety to the market place is a cooperative effort by many individuals.

Varieties are best evaluated by comparing performance over a number of locations and preferably over more than one year. Varietal performance can change in response to both environmental and cultural/management conditions. This report summarizes small grain trials conducted throughout Southcentral and Southeastern Idaho that were harvested in 2014, as well as milling and baking data from trials harvested in 2013.

Materials & Methods

Locations

Cereal trials were established at seven winter and five spring locations throughout SC and SE Idaho during the fall of 2013 and the spring of 2014. For location details, please see the descriptions on pages 5 to 12. The Ririe, Rockland & Soda Springs winter and Soda Springs spring trials were grown under dryland conditions and all other trials were grown under irrigation. The trials at Aberdeen and Kimberly were grown at UI Research and Extension Centers, and the remaining trials were grown in producers' fields.

Agronomic Practices

Untreated seed was planted at the following rates:

- Irrigated Wheat: 1,000,000 seeds per acre or approximately 95 pounds per acre.
- Irrigated Barley: 800,000 seeds per acre or approximately 80 pounds per acre.
- Dryland Wheat: 700,000 seeds per acre or approximately 65 pounds per acre.
- Dryland Barley: 600,000 seeds per acre or approximately 60 pounds per acre.

Row spacing was set at 7 inches using double disk openers for all irrigated locations and the Soda Springs winter and spring dryland locations. The Ririe dryland location used a 10-inch row spacing and hoe-type openers and the Rockland location used a 12-inch row spacing with shanks preceding double disk openers. Plots at all

locations except for Aberdeen were planted 5 feet wide by 14 feet long then reduced back to 10 feet long using glyphosate herbicide or tillage. Aberdeen plots were planted 5 feet wide by 13.3 feet long then sprayed back to 9.3 feet long. All entries were replicated 4 times at each location in a randomized complete block design, except Soda Springs winter and Idaho Falls winter, which had 3 replications. Except for planting and harvest operations, nitrogen fertilization, and miscellaneous maintenance, trials established in producers' fields received the same "grower management" or cultural operations as applied to the surrounding commercial wheat or barley field.

Nitrogen fertilizer in irrigated locations was managed according to the following methodology: Yield goals (bu/A) were set for each class at each location using historical yield data. These yield goals were used to calculate optimal fertility amounts according to the following methods: Soft white winter, soft white spring, and winter barley; lbs/acre nitrogen needed = 2 times yield goal. Hard winter and hard spring wheat; lbs/acre nitrogen needed = 2.5 times yield goal, plus 40 lbs nitrogen/acre topdressed at flowering. Spring 2 row and 6 row barley: lbs/acre nitrogen needed = 1.7 times the yield goal. Hard wheat nurseries received the remaining balance of nitrogen in urea (46-0-0) topdressed at heading using hand broadcast spreaders. Fertilizers and pesticides applied are listed on pages 6 to 12. Planting and harvesting operations by university personnel were timed to approximately coincide with corresponding cooperator operations.

Description of Agronomic Data

Each entry at each location was measured for grain yield, test weight, plant height, heading date, and lodging (when present).

- Yield is calculated at 60 pounds per bushel for wheat, and 48 pounds per bushel for barley.
- Test weight is reported in pounds per standard bushel.
- Plant height is reported in inches from the soil surface to the tip of the heads, awns excluded.
- Heading date is reported as the date when 50 percent of heads are fully emerged from the boot.
- Lodging is reported as the percent of the plot area that was not standing straight prior to harvest.

Description of End-use Quality Data

Grain protein for each variety in 2014 was analyzed with a Foss 6500 NIR grain analyzer. Protein data are found in conjunction with the agronomic data noted above in tables 4 to 59. These protein values are best utilized in comparisons between varieties within a nursery.

Due to the time necessary to complete milling and baking evaluations, test results from the Idaho Wheat Quality Laboratory are not available for the 2014 harvest in this report. Data are given for these characteristics from the 2013 harvest and are found in tables 68-79.

Milling and baking tests and plump seed evaluations use standardized testing methods and are described below:

- Flour protein: this is the flour protein content, measured on a fixed 14 percent moisture basis. Lower numbers are better for soft wheat; higher numbers are preferred for hard wheat.
- Break flour yield: represents ease of milling or kernel softness; higher numbers are preferred.
- Flour yield: the percent of flour obtained from a sample of wheat; higher percentages are better.
- Whole grain protein percent: protein content of the whole grain on a 12 percent moisture basis. Lower percentages are preferred for soft wheat; higher

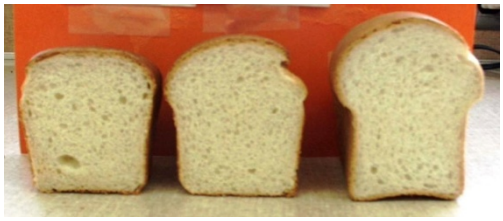
percentages are preferred for hard wheat.

- Hardness value: a measure of kernel hardness; generally soft white wheats are below 35, hard white wheats are between 40-55 and hard red wheats are above 40.

Additional evaluations include the following:

Hard Wheats

Bake volume: This is the volume of an experimental loaf of bread measured in cubic centimeters and reflects protein quality per unit of protein; higher volume is preferred.



Soft Wheats

Cookie diameter: Diameter of a cookie in centimeters; larger numbers are better.

Barley

- Plump: Percent plump is the percent of a sample that stayed on top of a 5.5/64 screen after shaking and consists of the 6/64 and 5.5/64 percentages combined. Both screen percentages are included in the report for increased precision.
- Thins: the percent of a sample that passed through a 5.5/64 screen after shaking.

Statistical Analyses

Data from each nursery were analyzed using SAS 9.2 software with the PROC GLM procedure. Fisher's protected LSD (α=.05) was used for mean comparisons.

Statistical Interpretation

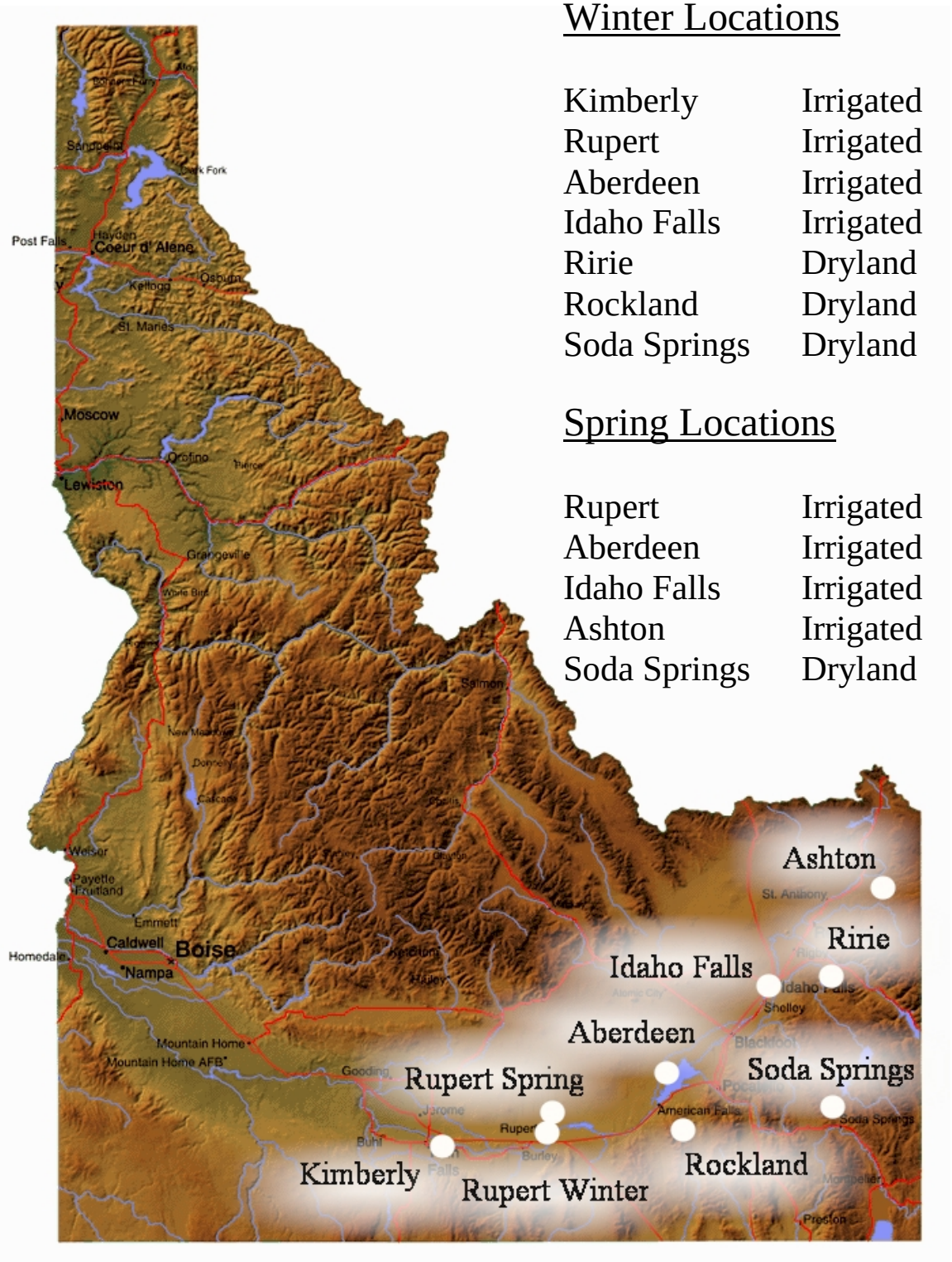
Most tables have a least significant difference (LSD) statistic at the bottom of the table. This statistic is given at the 5 percent error level and is an aid in comparing varieties. If the measured values of any two varieties within a table differ by the LSD value or more, they may be considered different with a confidence level of 95 percent. If the measured values are less than the LSD value, the differences may be due to random error rather than real differences. Coefficient of variation (CV percent) statistic is a general measurement of the precision of each experiment. Lower CV values indicate less experimental variation and greater precision. Most tables that do not have the LSD and CV statistic are averages over locations or years where specific statistical analyses were not run on the combined data or are from data obtained from only one replication or are from a composite sample of all replications (e.g. quality data). Most tables from individual locations also contain yield data from two previous years. The average, LSD, and CV for these data represent the original data set, not just the selected varieties presented in these tables. The Pr>F value shows the validity of the LSD value above it; if the Pr>F value is equal to or greater than .05 (e.g. .1504; .6250), then the LSD value is void. This does not mean there are not differences between the varieties in a category with a void LSD, it simply means differences cannot be determined at the 95% confidence level we set.

Varieties Tested

A list of released varieties tested in 2013-2014 is given in Table 1. Included in this table are seed size, number of seeds per pound, and the adjusted seeding rate. Information is also given on the year of release and the releasing agency or company. A short description of newer varieties is given in Table 2. Additional information is available from the releasing agency or company.

Seasonal average measurements of several plant growth characteristics from the variety trials are shown in Table 3 for the time period of 2004-2014.

Southcentral & Southeast Idaho Cereal Variety Trial Locations



Winter Locations

Kimberly	Irrigated
Rupert	Irrigated
Aberdeen	Irrigated
Idaho Falls	Irrigated
Ririe	Dryland
Rockland	Dryland
Soda Springs	Dryland

Spring Locations

Rupert	Irrigated
Aberdeen	Irrigated
Idaho Falls	Irrigated
Ashton	Irrigated
Soda Springs	Dryland

Location Descriptions

Kimberly Winter Irrigated:

Kimberly Research & Extension Center
3825 N. 3600 E. Kimberly, ID

Coordinates: 42° 33’ 17.48” N., 114° 20’ 33.19” W.
Elevation: 3890 ft.
Soil Type: #10 Bahem silt loam 1-4% slopes
Previous Crop: Dry Beans
Planting Date: October 8, 2013
Harvest Date: August 20, 2014
Chemicals applied: 1 1/2 pt/A Maestro MA, 6 oz/A Starane Ultra

Fertility:

	Organic matter	pH	Free Lime %	Hard winter wheat N#/A	Soft white winter wheat & winter barley N #/A	P	K	S
12" soil test results (N & S= 0-24")	1.4	8.2	6.5	166	166	26 ppm	200 ppm	27 ppm
Fertilizer applied (#/A)				224	115	60#	50#	
Total	**1.4**	**8.2**	**6.5**	**390**	**281**	**26+ppm**	**200 ppm**	**27 ppm**

Rupert Winter Irrigated:

Cooperator: Jentzsch-Kearl Farms
Located at approximately 50 N. 500 E. Rupert, Idaho

Coordinates: 42° 37' 32.55"N., 113° 34' 09.70"W.
Elevation: 4182 ft.
Soil Type: #56 Somsen fine sandy loam 3-7% slopes
Previous Crop: Potatoes
Planting Date: September 27, 2013
Harvest Dates: not harvested
Chemicals applied: MCPE 12 oz/A, Bison 22 oz/A, Preference 16 oz/A Interlock 4oz/A Topaz 4 oz/A

Fertility:

	Organic Matter	pH	Free Lime %	Hard winter wheat N#/A	Soft white winter wheat & winter barley N #/A	P	K	S
12" soil test results (N & S= 0-24")	1.2	7.2	<1.0	116	116	26 ppm	141 ppm	43 ppm
Fertilizer applied (#/A)				225	185			
Total	**1.2**	**7.2**	**<1.0**	**341**	**301**	**26 ppm**	**141 ppm**	**43 ppm**

Location Descriptions

Aberdeen Winter Irrigated:

Aberdeen Research & Extension Center
1693 S. 2700 W. Aberdeen, ID

Coordinates: 42° 57’ 34.33” N., 112° 49’ 15.38” W.
Elevation: 4407 ft.
Soil Type: DeA Declo Loam, 0-2%slopes
Previous Crop: green manure oats
Planting Date: September 24, 2013
Harvest Dates: August 11-13, 2014
Chemicals applied: 1 pt/A Maestro MA, 6 oz/A Starane Ultra
Fertility:

	Organic Matter	pH	Free Lime %	Hard winter wheat N#/A	Soft white winter wheat & winter barley N #/A	P	K	S
12" soil test results (N & S= 0-24")	1.1	8.2	8.6	194	194	18 ppm	189 ppm	91 ppm
Fertilizer applied (#/A)				239	130	100#	50#	100 # S, 20# SO_4
Total	**1.1**	**8.2**	**8.6**	**433**	**324**	**18+ppm**	**189 ppm**	**91+ ppm**

Idaho Falls Winter Irrigated:

Cooperator: Doug Nelson
Approximately 100 N. 5th W.

Coordinates: 42°35'30.57"N., 112°02'33.32"W
Elevation: 4763 ft.
Soil Type: #47 Stan sandy loam
Previous Crop: wheat
Planting Date: September 13, 2013
Harvest Date: September 3, 2014
Chemicals applied: Maestro MA 3/5 pt/A, Maverick 2/3 oz/A
Fertility:

	winter wheat N#/A	P	K	S	Zn
Fertilizer applied (#/A)	120	60	40	0	10

Location Descriptions

Ririe Winter Dryland:

Cooperator: Trevor Davey
Approximately 2 miles south of Ririe Reservoir Dam on Meadow Creek. Rd. Ririe, ID

Coordinates: **43° 33’ 25.84”N., 111° 43’ 10.54” W.**
Elevation: **5535 ft.**
Soil Type: **#42 Ririe silt loam, 4-12% slopes**
Previous Crop: **wheat**
Planting Date: **October 1, 2013**
Harvest Date: **August 19, 2014**
Chemicals applied: **16 oz/A Goldsky, 10 oz/A MCP ester**
Fertility:

	Organic Matter	pH	Free Lime %	Hard winter wheat N#/A	Soft white winter wheat & winter barley N #/A	P	K	S
12" soil test results (N & S= 0-24")	1.3	7.6	1.5	97	97	26 ppm	309 ppm	37 ppm
Fertilizer applied (#/A)				6	6	30 #		
Total	**1.3**	**7.6**	**1.5**	**103**	**103**	**26+ppm**	**309 ppm**	**37 ppm**

Rockland Winter Dryland:

Cooperators: Gilbert and Carl Hofmeister
1/5 mile west of Rock Creek Rd on Deeg Rd Rockland, ID

Coordinates: **42°39'43.08"N., 112°55'54.96"W**
Elevation: **4667 ft.**
Soil Type: **#51 Newdale silt loam, 4-12% slopes**
Previous Crop: **fallow**
Planting Date: **September 11, 2013**
Harvest Date: **July 25, 2014**
Chemicals applied: **Maestro MA 3/5 pt/A, Maverick 2/3 oz/A**
Fertility:

	Hard winter wheat N#/A	P	K	S
Fertilizer applied (#/A)	35	0	0	23

Location Descriptions

Soda Springs Winter Dryland:

Cooperators: Mark and Craig Ozburn
1.6 miles west of Govt Dam Rd on Ten Mile Pass Rd Soda Springs, ID

Coordinates: **42° 45’ 52.99” N., 111° 40’ 24.63” W.**
Elevation: **6189 ft.**
Soil Type: **485AA - Foundem-Rexburg complex, cool, 1 to 8 percent slopes**
Previous Crop: **wheat**
Planting Date: **September 13, 2013**
Harvest Date: **September 2, 2014**
Chemicals applied: **Axial-Star, Husky**
Fertility:

	Organic Matter	pH	Free Lime %	winter wheat N#/A	P	K	S	Zn
12" soil test results (N & S= 0-24")	**2.2**	**6.8**	**1.2**	54	**43 ppm**	**326 ppm**	**17 ppm**	**1.2 ppm**
Fertilizer applied (#/A)				50	20#	20#	20#	10#
Total	**2.2**	**6.8**	**1.2**	**104**	**43+ppm**	**326+ ppm**	**17+ppm**	**1.2+ppm**

Location Descriptions

Rupert Spring Irrigated:

Cooperator: Grant 4-D Farms
Approximately 825 N 700 E., Rupert, ID

Coordinates: 42° 43' 12.02"N., 113° 30' 27.35"W.
Elevation: 4256 ft.
Soil Type: #36 Sluka silt loam 1-4% slopes
Previous Crop: sugar beets
Planting Date: March 26, 2014
Harvest Dates: August 27, 2014
Chemicals applied: 1 pt/A Maestro MA,
6 oz/A Starane Ultra, 9 oz/A Achieve
Liquid 1 ½ pt/A Maestro MA

Fertility:

	Organic Matter	pH	Free Lime %	Hard Spring wheat N#/A	Soft white spring wheat & spring barley N #/A	P	K	S
12" soil test results (N & S= 0-24")	1.5	8.0	2.4	54	54	34 ppm	202 ppm	51 ppm
Fertilizer applied (#/A)				310	200			
Total	**1.5**	**8.0**	**2.4**	**364**	**254**	**34ppm**	**202 ppm**	**51 ppm**

Aberdeen Spring Irrigated:

Aberdeen Research & Extension Center
1693 S. 2700 W. Aberdeen, ID

Coordinates: 42 ° 57’ 54.08” N., 112° 49’ 15.38” W.
Elevation: 4407 ft.
Soil Type: DeA Declo loam, 0-2% slopes
Previous Crop: Green manure oats
Planting Date: April 8, 2014
Harvest Date: September 2, 2014
Chemicals applied: 1 pt/A Brox M, 6 oz/A Starane Ultra
Fertility:

	Organic Matter	pH	Free Lime %	Hard Spring wheat N#/A	Soft white spring wheat & spring barley N #/A	P	K	S
12" soil test results (N & S= 0-24")	1.1	8.1	10.6	209	209	32 ppm	273 ppm	50 ppm
Fertilizer applied (#/A)				155	65	30#		100# S, 20# SO_4
Total	**1.1**	**8.1**	**10.6**	**364**	**274**	**32+ppm**	**273 ppm**	**50+ppm**

Location Descriptions

Idaho Falls Spring Irrigated:

Cooperator: Marc Thiel
0.4 miles south of Hwy 20 on 55th West Idaho Falls, ID

Coordinates: 43° 28’ 56.38” N., 112° 07’ 32.76” W.
Elevation: 4678 ft.
Soil Type: #23 Pancheri silt loam, 2-4% slopes
Previous Crop: potatoes
Planting Date: April 14, 2014
Harvest Date: August 29, 2014
Chemicals applied: 1 ½ pt/A Maestro MA, 6 oz/A Starane Ultra, 9 oz/A Achieve Liquid

Fertility:

	Organic Matter	pH	Free Lime %	Hard Spring wheat N#/A	Soft white spring wheat N #/A	P	K	S
12” soil test results (N & S= 0-24”)	1.6	7.8	6.0	151	151	35 ppm	198 ppm	69 ppm
Fertilizer applied (#/A)				139	55	30#	20#	24#
Total	**1.6**	**7.8**	**6.0**	**290**	**206**	**35+ppm**	**198+ppm**	**69+ppm**

Ashton Spring Irrigated:

Cooperator: Don Marotz
Approximately 1460 N 4000 E Ashton, ID

Coordinates: 44° 05' 37.28" N., 111° 21' 18.34" W.
Elevation: 5518 ft.
Soil Type: #62 Lostine silt loam 1-4% slopes
Previous Crop: spring barley
Planting Date: May 12, 2014
Harvest Date: September 12, 17, 24, 2014
Chemical applied: 1 ½ pt Maestro MA, 9oz Achieve Liquid, 6 oz/A Starane Ultra

Fertility:

	Organic Matter	pH	Free Lime %	Hard Spring wheat N#/A	Soft white spring wheat & spring barley N #/A	P	K	S
12" soil test results (N & S= 0-24")	2.5	5.8	<1.0	50	50	27 ppm	235 ppm	27 ppm
Fertilizer applied (#/A)				175	125			20#
Total	**2.5**	**5.8**	**<1.0**	**225**	**175**	**27 ppm**	**235 ppm**	**27+ppm**

Location Descriptions

Soda Springs Spring Dryland:

Cooperator: Sid Cellan

1 mile north of Meadowville Rd on Hubbard Pit Rd. Soda Springs, ID

Coordinates: 42° 45' 53.76" N., 111° 37' 24.04" W.
Elevation: 6126 ft.
Soil Type: 485AA - Foundem-Rexburg complex, cool, 1 to 8 percent slopes
Previous Crop: spring barley
Planting Date: May 21, 2014
Harvest Date: September 2, 2014
Chemicals applied: Axial-Star, Husky
Fertility:

	Organic Matter	pH	Free Lime %	Hard Spring wheat N#/A	Soft white spring wheat N #/A	P	K	S
12" soil test results (N & S= 0-24")	1.9	6.1	<1.0	97	97	36 ppm	303 ppm	19 ppm
Fertilizer applied (#/A)				60	60			
Total	**1.9**	**6.1**	**<1.0**	**157**	**157**	**36 ppm**	**303 ppm**	**19 ppm**

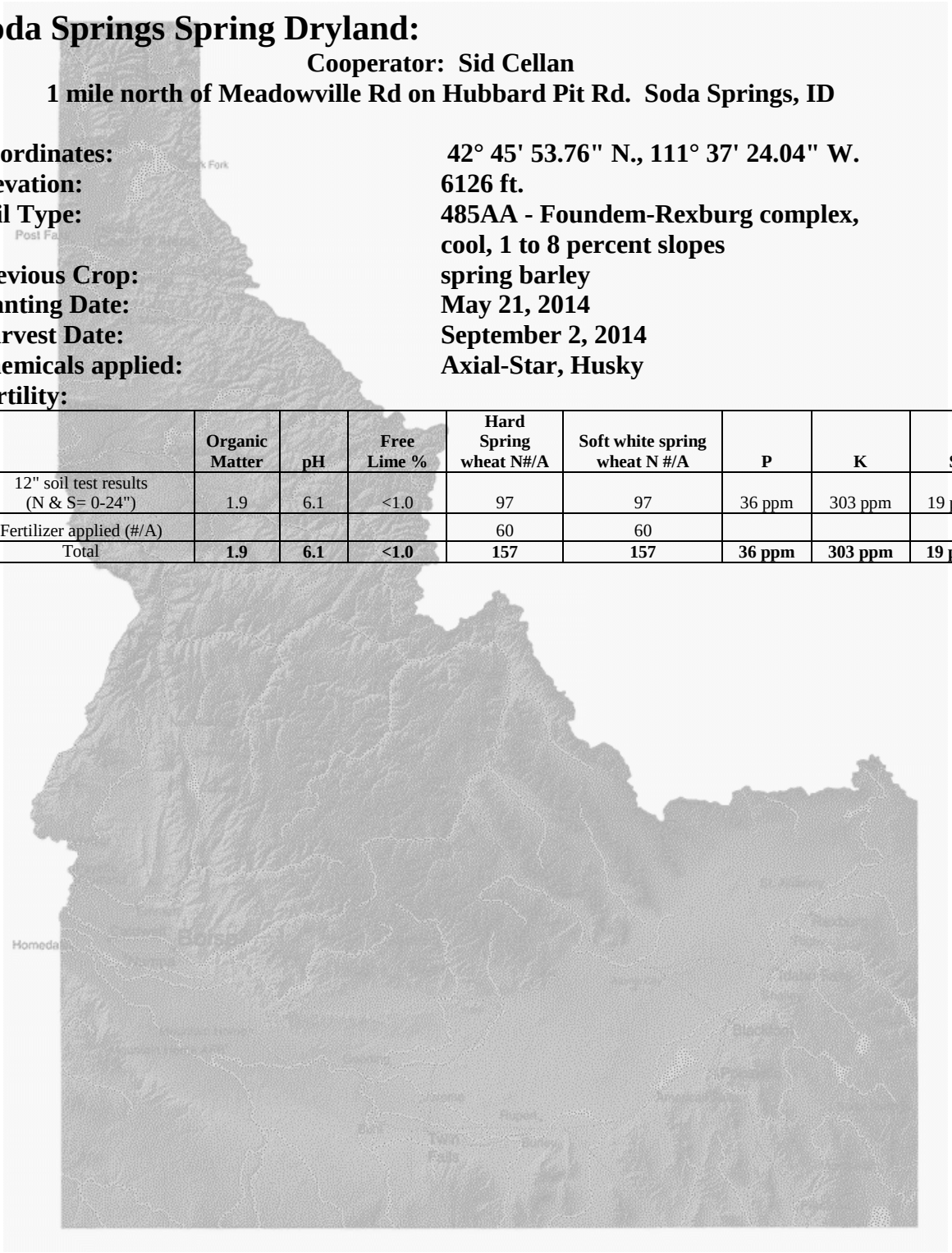


Table 1. Released varieties tested in 2013-2014 with seed size and adjusted seeding rate.

Variety	Exp. No.	1000 Kernel Weight (g)	Seeds per Pound	Adjusted Seeding Rate[1] (lb/A)	Year Released	Developer(s)/Distributor of variety
Soft White Winter Wheat						
Bobtail	OR208047P94	41	11,063	90	2013	Oregon AES, USDA
Brundage	ID86-14502B	45	10,080	99	1996	Idaho AES
Bruneau	93-64901A	40	11,340	88	2009	Idaho AES
Eltan	WA7431	38	11,937	84	1990	Washington State University and USDA-ARS
Kaseberg	OR2071628	39	11,782	85	2012	Oregon State University
Ladd	OR2070870	48	9,450	106	2012	Oregon AES, USDA
LCS Artdeco	NSA06-2153A	40	11,484	87	2011	Limagrain Cereal Seeds, LLC
LCS Biancor		41	11,063	90	2013	Limagrain Cereal Seeds, LLC
Madsen	WA7163	41	11,200	89	1988	Washington, Idaho & Oregon AES, USDA
Mary	OR2040726	43	10,673	94	2011	Oregon State University
Otto	WA008092	33	13,745	73	2011	Washington State University and USDA-ARS
Rosalyn	OR2071071	42	10,800	93	2013	Oregon AES, USDA
Skiles	ORH010085	43	10,673	94	2007	Oregon AES, USDA
Stephens	OR65-116	55	8,247	121	1977	Oregon AES, USDA
SY 107	03PN107#03	44	10,428	96	2013	Syngenta Cereals
SY Ovation	03PN108#21	51	8,894	112	2011	Syngenta Cereals
UI-WSU Huffman	IDN-03-29902A	37	12259	82	2014	UI, WSU / Limagrain Cereal Seeds
UICF Brundage	02-859	40	11,340	88	2009	Idaho AES
WB-1070CL	BZ6WM04-1070	49	9,257	108	2012	WestBred / Monsanto
WB1376CLP	WB-1038CL	47	9,651	104	2015	WestBred / Monsanto
WB-Junction	BZ6W02-616	42	10,930	91	2011	WestBred / Monsanto
WB1529	BZ6W07-436	50	9,164	109	2014	WestBred / Monsanto
WB 456	BU6W99-456	44	10,428	96	2008	WestBred / Monsanto
WB-528	BZ6W98-528	43	10,549	95	2005	WestBred / Monsanto
Hard Red and White (W) Winter Wheat						
Bearpaw	MTS0721	32	14,175	71	2011	Montana State AES
Curlew	UT9325-55	35	12,960	77	2009	Utah AES, USDA
Deloris	UT2030-32	35	12,960	77	2002	Utah AES, USDA
Garland	UT1706-1	36	12,600	79	1992	Utah AES, USDA
Golden Spike (W)	UT1944-158	35	13,148	76	1999	Utah AES, USDA
Greenville	UT9743-42	41	11,200	89	2011	Utah AES, USDA
Judee	MTS0713	39	11,782	85	2011	Montana State AES
Juniper	IDO 575	39	11,631	86	2005	Idaho AES, USDA
Keldin	ACS55017	49	9,353	107	2011	WestBred / Monsanto
LCS Azimut	NSA97-2365	39	11,631	86	2007	Limagrain Cereal Seeds, LLC
LCS Colonia		37	12,259	82	2013	Limagrain Cereal Seeds, LLC
LCS Evina		44	10,309	97	2013	Limagrain Cereal Seeds, LLC
Lucin-CL	UT10322	39	11,782	85	2011	Utah AES, USDA
Manning	UT89099	35	13,148	76	1979	Utah AES, USDA
Moreland	IDO517	34	13,341	75	2003	Idaho AES, USDA
Norwest 553	ORN00B553	39	11,782	85	2007	Oregon State AES, USDA-ARS, Nickerson U.K.
Promontory	UT1567-51	37	12,259	82	1990	Utah AES, USDA
SY Clearstone CL2	MT CL1077	37	12,259	82	2014	Syngenta Cereals
UI Silver (W)	IDO658B	34	13,540	74	2011	Idaho AES, USDA
UI SRG	IDO656B	42	10,930	91	2012	Idaho AES, USDA
UICF Grace (W)	IDO651B	39	11,631	86	2009	Idaho AES, USDA
Utah 100	UT1650-150	38	11,937	84	1997	Utah AES, USDA
WB-Arrowhead	ML9W05-2501	41	11,200	89	2011	WestBred / Monsanto
Weston	ID74-55/20	44	10,428	96	1978	Idaho AES, USDA
Whetstone	W98-344	32	14,400	69	2009	Syngenta Cereals
Yellowstone	MT00159	36	12,600	79	2005	Montana State University

[1]Adjusted to plant 1 million seeds per acre under irrigation according to the number of seeds per pound for each variety.

Table 1 (cont'd). Released varieties tested in 2013-2014 with seed size and adjusted seeding rate.

Variety	Exp. No.	1000 Kernel Weight (g)	Seeds per Pound	Adjusted Seeding Rate[1] (lb/A)	Released	Developer(s)/Distributor of variety
Soft White Spring Wheat						
Alpowa	WA7677	36	12,600	79	1993	Washington, Oregon, & Idaho AES, USDA
Alturas	IDO526	36	12,600	79	2002	Idaho AES, USDA
Babe	WA008039	31	14,632	68	2009	Washington AES, USDA
Penawawa	WA6920	33	13,745	73	1985	Washington AES, USDA
Seahawk	WA 8162	37	12,259	82	2014	Washington AES, USDA
UI Pettit	IDO632	34	13,341	75	2006	Idaho AES, USDA
UI Stone	IDO599	37	12,259	82	2012	Idaho AES / Limagrain Cereal Seeds
WB6121	BZ608-121	40	11,340	88	2014	WestBred / Monsanto
WB6430	BZ608-125	34	13,341	75	2014	WestBred / Monsanto
Hard Red Spring						
Buck Pronto		48	9,450	106	2004	Trigen
Bullseye	B02-0081	41	11,063	90	2009	Syngenta Cereals
Cabernet	95WV10616	43	10,549	95	2007	Syngenta Cereals
Jefferson	IDO462	36	12,600	79	1998	Idaho AES, USDA
Kelse	WA007954	37	12,259	82	2008	Washington AES, USDA
SY Basalt	04W40240R	33	13,745	73	2014	Syngenta Seeds, Inc
UI Winchester	IDO578	36	12,600	79	2009	Idaho AES, USDA
WB-Rockland	SJ908-247	36	12,600	79	2010	WestBred / Monsanto
WB9229	SJ907-229	37	12,259	82	2013	WestBred / Monsanto
WB9668	BZ908-552	36	12,600	79	2014	WestBred / Monsanto
WestBred 936	PH986-61	27	16,800	60	1992	WestBred / Monsanto
Hard White Spring Wheat						
Dayn	WA8123	41	11,063	90	2012	Washington AES, USDA
Klasic	NK77S1817	40	11,340	88	1982	Northrup-King Co., Minneapolis, MN
LCS Atomo	06SB086-B	38	11,937	84	2013	Limagrain Cereal Seeds, LLC
LCS Star	08SB0658-B	36	12,600	79	2013	Limagrain Cereal Seeds, LLC
Snow Crest	BZ998-247W	39	11,631	86	2004	WestBred / Monsanto
UI Platinum	IDO694C	43	10,549	95	2014	Idaho AES, USDA
WB-Paloma	BZ904-331WP	46	9,861	101	2010	WestBred / Monsanto
Spring Durum Wheat						
Utopia	DOI-933	37	12,259	82	1997	World Wide Wheat
Alzada	YU894-75	41	11,063	90	2004	WestBred / Monsanto
Winter Barley						
Alba	OR77	47	9,651	83	2010	Oregon AES, USDA
Charles (malt)	94Ab1274	42	10,800	74	2005	USDA-ARS, Aberdeen
Eight-twelve	79Ab812	36	12,600	63	1988	Idaho AES, USDA
Endeavor (malt)	95Ab2299	39	11,631	69	2008	Idaho AES, USDA
Kamiak	WA2084-63	34	13,341	60	1971	Washington AES, USDA
LCS Saturn		47	9,651	83		Limagrain Cereal Seeds, LLC
LCS Violetta		52	8,723	92	2009	Limagrain Cereal Seeds, LLC
Schuyler	NY5619B-3B	34	13,341	60	1969	Cornell AES, USDA
Sprinter	BU583-50	37	12,259	65	1987	WestBred / Monsanto
Streaker	OR85	41	11,063	72	2011	Oregon AES, USDA
Strider	ORW6	37	12,259	65	1998	Oregon AES, USDA
Sunstar Pride	SDM204-B	33	13,745	58	1995	Sunderman Breeding, Twin Falls, ID

[1]Adjusted to plant 1 million (800,000) seeds per acre for wheat (barley) under irrigation according to the number of seeds per pound for each variety.

Table 1 (cont'd). Released varieties tested in 2013-2014 with seed size and adjusted seeding rate.

Usage:	Variety	Exp. No.	1000 Kernel Weight (g)	Seeds per Pound	Adjusted Seeding Rate[1] (lb/A)	Year Released	Developer(s)/Distributor of variety
feed/malt	**Two-Row Spring Barley**						
m	ABI Voyager	B3719	42	10,800	74	2011	Busch Agricultural Resources, LLC, Ft. Collins, CO
m	AC Metcalfe	TR232	43	10,549	76	1994	Agriculture Canada
f	Baronesse	NS078054	41	11,063	72	1992	Highland Specialty Grain
m	CDC Copeland	TR150	45	10,080	79	1999	CDC University of Saskatchewan, Saskatoon
food	CDC Fibar	HB373	39	11,631	69	2003	CDC University of Saskatchewan, Saskatoon
food	CDC McGwire	HB335	42	10,800	74	1999	CDC University of Saskatchewan, Saskatoon
m	CDC Meredith	TR05104	40	11,340	71	2008	CDC University of Saskatchewan, Saskatoon
f	Champion		48	9,450	85	2007	Highland Specialty Grain
f	Clearwater	01ID435H	42	10,800	74	2007	Idaho AES, USDA
m	Conrad	B5057	42	10,800	74	2004	Busch Agricultural Resources, LLC, Ft. Collins, CO
m	Harrington	S76333	43	10,549	76	1981	University of Saskatchewan
m	Hockett	MT910189	45	10,080	79	2010	Montana AES
f	Idagold II	C32	42	10,800	74	2002	Coors Brewing Co. Inc., Burley, ID
food	Julie	03AH6561-94	43	10,549	76	2010	Idaho AES, USDA
m	LCS Genie		44	10,309	78	2011	Limagrain Cereal Seeds, LLC
f	Lenetah	01Ab11107	45	10,080	79	2008	Idaho AES, USDA
m	Merem	02Ab17271	46	9,861	81	2014	USDA ARS, Idaho AES
m	Merit 57	2B99-2657	40	11,340	71	2009	Busch Agricultural Resources, LLC, Ft. Collins, CO
m	Moravian 69	C69	51	8,894	90	2005	Coors Brewing Co. Inc., Burley, ID
m	Pinnacle	2ND21863	50	9,072	88	2007	North Dakota AES, USDA
f	RWA 1758	RWA 1758	44	10,309	78	2014	Highland Specialty Grain
f	Tetonia	98AB11720	43	10,549	76	2007	Idaho AES, USDA
food	Transit	03AH3054-51	44	10,309	78	2010	Idaho AES, USDA
f	Vespa		42	10,800	74	2013	Limagrain Cereal Seeds, LLC
f	Xena	BZ594-19	44	10,309	78	2000	Highland Specialty Grain
	Six-Row Spring Barley						
m	Celebration	6B01-2218	36	12,600	63	2008	Busch Agricultural Resources, LLC, Ft. Collins, CO
f	Goldeneye	UT95B1216-4087	36	12,600	63	2005	Utah AES, USDA
f	Herald	00ID1550	36	12,600	63	2006	Idaho AES, USDA
m	Lacey	M98	40	11,340	71	2000	Minnesota AES, USDA
m	Legacy	6B93-2978	37	12,259	65	1998	Busch Agricultural Resources, LLC, Ft. Collins, CO
f	Millennium	UT004603	40	11,340	71	2000	Utah AES, USDA
m	Morex	M25	39	11,631	69	1978	Minnesota AES, USDA
m	Quest	M122	37	12,259	65	2010	Minnesota AES, USDA
m	Tradition	6B95-2482	37	12,259	65	2003	Busch Agricultural Resources, LLC, Ft. Collins, CO

[1]Adjusted to plant 800,000 seeds per acre under irrigation according to the number of seeds per pound for each variety.

Results and Discussion

Planting Conditions

In the Fall of 2013, irrigated nurseries were planted into good soil moisture. Dryland plots were planted into dry conditions. Late precipitation helped provide moisture to the emerging crops and assisted in stand establishment and improving subsoil moisture.

Spring planting conditions were adequate for good stand establishment. However, following planting, the dryland areas did not receive much additional precipitation, leading to dry conditions and an increase in problems with the Haanchen barley mealy bug (*Trionymus haancheni* McKenzie).

Weather Conditions

The fall was relatively warm and good for stand establishment. Temperatures reached sub-zero in December, in some locations reaching -30°F, reducing the stands of some varieties. While October and March had more precipitation than average, the rest of the growing season was very dry.

Limited snow cover established in some high elevation areas for insulating the winter crop, and snow mold occurred in isolated areas. March precipitation was slightly greater than average (see Chart 1 below).

While very windy, the relatively cool spring and summer tempertaures resulted

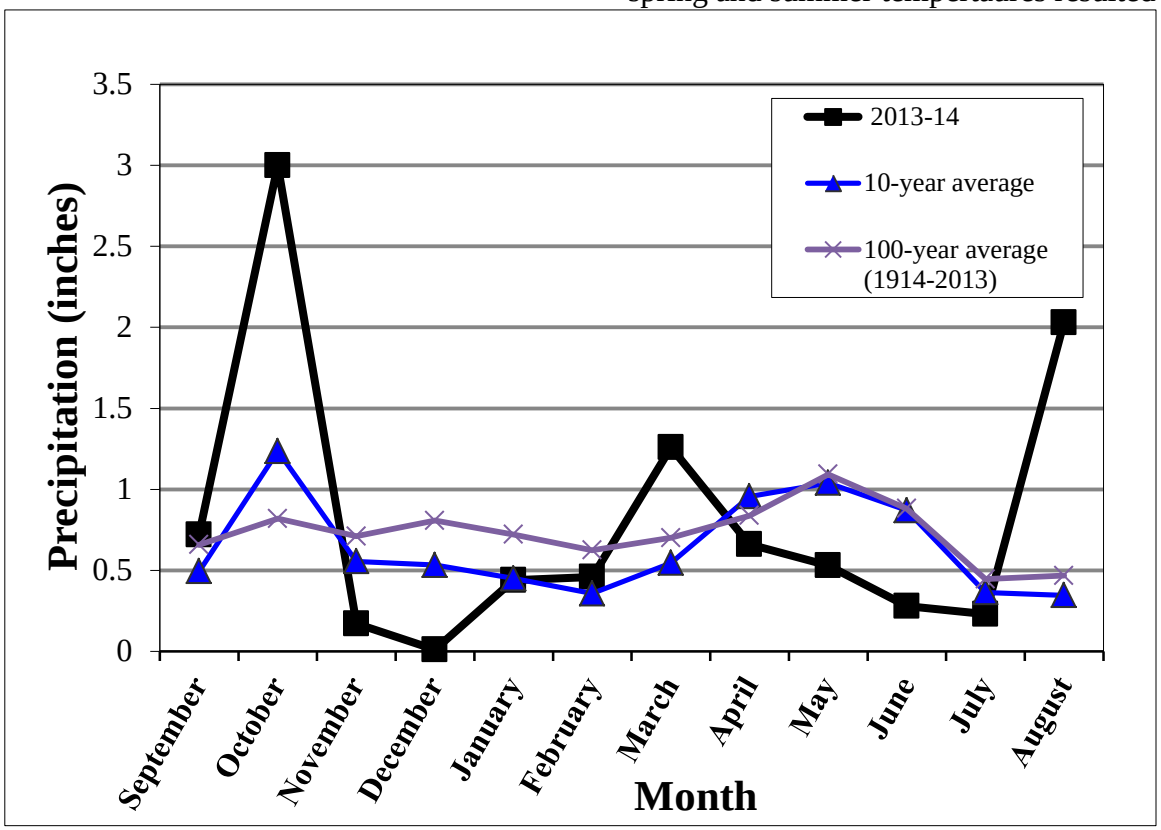


Chart 1. 2013-2014 growing year precipitation recorded at Aberdeen, ID, versus 10-year and 100-year averages. Source: Agrimet data.

in irrigated conditions promoting record yields. This delayed harvest slightly, and harvest ran into unseasonably wet conditions at the beginning of August. Abnormally high precipitation delayed harvest and led to extensive sprout damage. The amount of precipitation in Aberdeen was the second highest on record, with only 1968 being higher. Cool, foggy temperatures and the extended duration of the precipitation contributed to sprout damage in barley and wheat. The number of days recording precipitation was the highest on record with 16 days recording at least a trace of precipitation. A simple statistical analysis was performed on the 101-year Aberdeen weather dataset in comparison with August 2014. The likelihood of as much rain or more occurring as in August 2014 is 0.12%. Looking at the number of days with precipitation occurring, the probability of 16 or more rainy days occurring is 0.04%. In other words, the precipitation amount and duration are rare and shouldn't be looked at as frequent events.

Disease and Insect Problems

Wireworms were very damaging in many areas across the entire region, reducing stand and yield of spring wheat and barley in dryland production. Winter grain could be used to avoid wireworm damage as wireworms are less active in warm, dry soils when winter wheat would be planted. However, emergence when soils are dry is a problem, and wheat may not survive the winter conditions in these areas. Wireworm damage was more widespread than in 2010 and 2011 and was similar to 2012 and 2013, especially in spring wheat. Wireworms were prevalent in some areas in plant crowns throughout the entire spring and were found in traps throughout the season. Insecticides applied as seed treatments reduced but did not control wireworms and the resultant feeding damage.

In addition to wireworms, wheat stem sawfly (*Cephus cintus* Norton) was severely damaging in dryland spring grain, reducing yields by over 50% in some areas of Antelope Flats east of Ririe. Use of wheat stem sawfly resistant varieties (such as hard red spring wheat Gunneson and solid-stemmed varieties like Choteau) protected yields.

Stripe rust (*Puccinia striiformis* f.sp. *tritici*) likely did not overwinter and was found in a few fields in the spring in the susceptible soft white winter wheat Brundage, but not becoming a widespread issue as in previous years. The infection spread from areas to the southwest, and caused damage in a few fields of spring wheat, especially in the upper valley region. In one fungicide study in Aberdeen, stripe rust reduced yield by 13% (18 bu/A) and test weight by 1 lb/bu, showing that even in years where stripe rust comes in late (heading up to flowering), significant losses can occur in susceptible varieties. Actively scouting fields of susceptible varieties is recommended in order to identify infection as early as possible. Fungicides can then be applied to prevent yield loss especially should stripe rust infect wheat plants prior to flowering.

The barley disease "Spot Form of Net Blotch" (SFNB) *Pyrenophora teres* f. *maculata* was first diagnosed in a few fields near Blackfoot in 2013. In 2014, SFNB became severe in many areas throughout Idaho and Montana. This disease occurs widely in North Dakota

and can reduce yields by up to 50% and grain weight by 20%. Areas that have reduced tillage and low crop diversity are at increased risk as this disease survives in barley stubble. Some varieties are more susceptible than others. Crop rotation and fungicide applications significantly reduce the impact of this disease. Fields that had been sprayed with fungicides at herbicide timing were observed to have significantly less disease. Additional testing to develop control recommend-dations in our environment is required.

Barley scald (*Rhynchosporium secalis*) did not reach the damaging levels of the previous years and was frequently seen at low levels. In most years, low levels of early season scald infection do little to affect the barley crop and yield, and can be ignored. Previous years (2009-2011) were not by any means typical, and scald ran rampant in fields in 2009 where application of fungicides would have prevented significant crop loss. This will be a disease to watch in future years, especially as production of winter barley increases the chances of high levels of disease developing in winter barley then affecting early development in spring barley.

Fusarium **spp.** causing foot rot, some ***Rhizoctonia*** **spp.** and **Take-all** (*Gaeumannomyces graminis* var. *tritici*) were prevalent in areas where grain followed grain and where irrigation was not increased to compensate moisture deficits occurring from February through June. A significant problem in 2009, **Fusarium head blight** (also called Head Scab, causal organisms *Fusarium graminearum* and other *Fusarium* spp.) reduced yields and contaminated grain with toxins in 2011, 2012, 2013 and again this year. *Fusarium graminearum* was widespread but **was not** restricted to where wheat follows corn production. This disease was also severe where spring wheat followed corn in 2013, as the fungus reproduces extensively on corn residue. It is highly recommended that irrigated spring wheat be treated with an appropriate fungicide at flowering to reduce infection, especially when a hard white or hard red spring wheat follows corn production. It is essential that a **triazole** fungicide be utilized, as strobilurin fungicides are ineffective in reducing the accumulation of toxins (i.e. deoxynivalenol abbreviated as DON and also called VOM, short for vomitoxin) that are a by-product of the fungal infection process. There are two soft white spring wheats that have significantly reduced infection and DON potential – that is the soft white spring wheats UI Stone and UI Pettit. The hard red spring wheats BZ908-41, IDO1202S and LL 3378 (advanced lines not yet released) also showed the highest levels of resistance to FHB, however, even the most resistant lines will become infected under the right environmental conditions.

Green Bridge, 2013 to 2014.
A "green bridge" is generally defined as the overlap of different cropping cycles (or crop generations) within a year. This means there is a constant availability of living, green host material of a given crop. This occurs in many locations in southern and southeast Idaho for several reasons: 1) late maturing tillers of winter wheat stay green and growing even after harvest; 2) windy conditions caused shattering of spring grains prior to complete maturity of the crop; 3) hail storms (2010) induced shattering of grains prior to crop maturity; 4) late rains at harvest caused rapid germination

of grain in harvested residue and/or grain shattering and sprouted grain prior to harvest. Shattered grain germinated and grew, even prior to harvest of the current year's crop. This resulted in the continuous presence of living host material, which means there is a constant supply of host plant material for disease-causing organisms and insects. In 2014, volunteer grain that was blown out of the combine at harvest germinated and provided a green bridge, increasing the likelihood and risk of higher disease and insect problems for the 2015 growing season. Because of the green bridge, aphids and certain disease causing organisms can jump to the emerging (2014-2015) winter crop, causing direct damage and / or transmission of viruses.

Corn is a 'silent' host of barley yellow dwarf virus, hosting high concentrations of the virus without symptoms or damage in corn. Late-season aphids (especially English grain aphids and bird cherry oat aphids) move from corn to winter cereals, landing on the newly emerged grain, and transmit the virus to the new crop. Aphid populations can build to high levels before a killing frost. Severe stunting and yellowing of infected grain in the spring become apparent, resulting in yield reductions of over 50% in the most severely affected fields. Corn is also a host of wheat curl mite and the Wheat Streak Mosaic virus (WSMV) transmitted by mites. Vivid WSMV symptoms were present in fields of winter wheat adjacent to corn fields in the Declo area in 2014.

Location Conditions and Results Winter Trials, 2014

Overall, the winter trials yielded slightly above average, with dryland yields depressing the overall high yields attained under irrigation (see Table 3, Ten Year Averages of Selected Agronomic Characteristics, 2004-2013 compared to 2014). Test weights were the lowest of the previous ten years, (as with the spring barley and spring wheat) reflecting extensive rain and sprout damage.

Kimberly Research and Extension Center, Irrigated Winter Grain

The Kimberly winter wheat nurseries were planted into moisture Oct 8, 2013 following dry beans. Soils were very dry and plots were irrigated after planting to improve emergence. There was no winter damage and overall growing conditions and irrigation were good. Stripe rust was not present. Soft white winter wheat yields were about 40 bu/A greater than the previous year, while hard winter wheat yields were about 35 bu/A greater than 2013. Plots were harvested August 20, 2014, after rain had damaged test weights and lowered protein.

The hard winter wheat group (Table 24) yielded from 115 to 174 bu/A. The WB-Arrowhead/Keldin blend, Whetstone and Moreland were the highest (named) yielding varieties, yielding 163, 161 and 160 bu/A, respectively. Site average for yield of the hard winter group was 149 bu/A. Test weight average was 56.6 lbs/bu indicating a substantial reduction in test weight due to rains prior to harvest, and grain protein average for the location was 11.8%. **Averaged over all locations**, the highest yielding hard winter wheat varieties in 2014 (Table 16) were the WB-Arrowhead/Keldin blend (165 bu/A), Keldin (165 bu/A), and Norwest 553 (165 bu/A). **Three year averages** over all locations (Table 4) put Keldin and Yellowstone at the top

with 146 and 142 bu/A, respectively, followed by Norwest 553, Utah 100, and WB-Arrowhead, at 141, 141, and 137 bu/A.

In the soft white winter group (Table 29), yield varied from 125 to 157 bu/A. SY 107 (157 bu/A), SY Ovation (155 bu/A), WB-Junction (148 bu/A), WB-1070CL (145 bu/A), and Bruneau (145 bu/A) were the highest yielding varieties. Test weight averaged 54.9 lbs/bu, and grain protein average for the location was very low at 9.1%. SY 107, SY Ovation, LCS Biancor, Bobtail, and Bruneau were the top named varieties in the **combined irrigated trials in 2014** at 169, 166, 164, 164 and 164 bu/A, respectively (Table 17). The top yielding soft white winter varieties **over the last three years** over all locations (Table 5) are Bruneau (143 bu/A), Bobtail (142 bu/A), SY Ovation (141 bu/A), and Kaseberg (140 bu/A).

Rupert, Jentschz-Kearl Farms, Winter Grain

Winter wheat and barley plots were planted Sept 27, 2013 in very soft sand following potatoes into good soil moisture. There was no winter injury and spring stand averaged 98%. Plot location was great with sandy soils, excellent irrigation and fertility; however there was extensive lodging (77%) and rain damage. Plots were not harvested.

Combined over three years (Table 6), the winter barley lines yielded 171 bu/A (Eight-twelve), 168 (Sunstar Pride) and 165 bu/A (Strider), with an overall average of 153 bu/A. Lodging was high, averaging 31%, and spring stand averaged 91%.

Aberdeen R&E Center, Winter Grain

The winter trials in Aberdeen were planted September 24, 2013 and harvested August 11-13, 2014. The preceding crop was green manure oats. The winter barley at Aberdeen (Table 36) had winter damage this year, and average spring stands were at 80%, ranging from 65 to 91%. Even with 20% winter kill, average yields were 196 bu/A, and some varieties were as high as 236 bu/A. High yielding varieties included Sunstar Pride (236 bu/A), Strider (222 bu/A), Eight-Twelve (221 bu/A), and Alba (215 bu/A). Endeavor and Charles, two winter malt varieties, yielded 173 and 169 bu/A, respectively. Test weight averaged greater than 50 lbs/bu, with high plumps, no lodging, and 14.6% protein.

The hard winter wheat survival (Table 26) was a little lower than average, but at 91% stand, did not seem to be detrimental to yield. Average spring stand for both the hard and soft winter wheat nursery ranged from 86-98%. In the hard winter group, overall yields were up from 2013 by 32 bu/A. Lodging was low at 3%. Stripe rust did not overwinter in the plots or cause yield loss. UI Silver (180 bu/A), LCS Colonia (176 bu/A), and Keldin (171 bu/A), were the top yielding hard varieties with lodging at 8, 0, and 0%, respectively. Test weights were 58.2 lbs/bu overall, showing damage from late-season rain. Grain protein averaged 12.7%.

The overall yield average in the soft white winter trial (Table 31) was 172 bu/A, 24 bu/A greater than 2013, ranging from the low of 140 bu/A (WB-456) to a high of 187 bu/A (advanced UI line IDN-03-29902A). The highest yielding named varieties were LCS Biancor (183 bu/A), Bobtail (183 bu/A),

Bruneau (182 bu/A) and SY 107 (181 bu/A). The test weights averaged at 56.3 lbs/bu and the overall grain protein was 12%. Lodging averaged 2%.

Idaho Falls, Doug Nelson, Irrigated Winter Wheat

A new irrigated location was added in cooperation with the USDA-ARS winter barley nurseries to reflect the northern locations of winter grain production, and to provide a better winter-hardiness screening location for winter barley. The nursery was planted following winter wheat September 13, 2013 and harvested September 3, 2014. Twenty soft white and hard winter varieties were planted. Survival of winter barley was very poor, but winter wheat survival was good, with spring stands at 98%. Tillering was poor and the nursery suffered wind, hail and rain damage prior to harvest. Overall yields do not reflect typical production in most years, averaging on 70 bu/A (Table 34). WB-Arrowhead, UI Silver and Keldin were the highest yielding varieties, at 101, 92, and 91 bu/A. The CV's are high, a reflection of the tough environmental conditions at this location.

Ririe, LDS Church Farm, Trevor Davey, Winter Grain

This is a high elevation location (5500 ft) and for the previous three years, the coefficients of variation (CV measured as a percent) for yield and other agronomic measures have been high, therefore the data at this location is unreliable. We usually plant only one rep of winter barley here to roughly test for winter survival. In 2014, the survival rates for winter barley (Table 37) was again poor (31%), and yields were very low, averaging about 8 bu/A. In 2014, the spring stand for winter wheat (Tables 27 and 32) was excellent (95-100%), and yields were much improved over the previous several years to an average of 21 bu/A for hard and 24 bu/A for soft winter wheat. The location was planted October 1, 2013 into adequate moisture following wheat and the trials were harvested August 19, 2014.

The hard winter wheat group (Table 27) had reduced CV's from the previous years, and average yields (21 bu/A) in comparison to 2010 at 28 bu/A, 2011 at 12 bu/A, 2012 at 18 bu/A), and 2013 at 15.5 bu/A. The 2014 yield range went from a low of 16 bu/A to a high of 26 bu/A. Juniper, UI Silver, LCS Colonia, and Yellowstone were the top yielding hard winter wheat varieties, at 26, 25, 25, and 24 bu/A, respectively. Average grain protein was 14.4%, and test weights averaged 55 lbs/bu, reflecting pre-harvest rain damage. Dryland yields **averaged over all locations and 3 years** (Table 7) averaged 24 bu/A, with the top yielding varieties including Keldin, Yellowstone, UI SRG, Deloris, and Utah 100, (27, 26, 26, 26 and 26 bu/A, respectively).

The soft white winter wheat (Table 32) yields varied from 20 bu/A to 28 bu/A, with the site averaging 24 bu/A. Average proteins were very high for this soft group at 15.3%, and test weights averaged 50.7 lbs/bu, 5 lbs/bu less than the hard red wheats, reflecting the greater susceptibility of soft white wheat (and hard white) to sprout damage. There was no lodging. In addition to SY Ovation, the top-yielders were Eltan, the Madsen/Eltan blend, SY 107 and UICF Brundage (26, 26, 25, and 25 bu/A). Over the **past three years**, the top yielding soft white winter varieties at this location (Table 8) were Eltan, Bitterroot, Bruneau and UICF Brundage,

yielding 24, 23, 22, and 20 bu/A, respectively. The three-year average for grain protein was very high at 14.8%. Test weights were 55.2 lbs/bu, and average plant height was 19 inches.

Rockland, Gilbert and Carl Hofmeister, Hard Winter Wheat

The hard red and white winter wheat trial at the Hofmeisters' was planted September 11, 2013 and harvested July 25, 2014, the only location harvested prior to the August rains. Snow mold diseases were not a significant problem (as they were in 2011), and spring stands were good (Table 28). Dwarf bunt was not a problem this year. When using varieties that are susceptible to dwarf bunt, it is highly recommended that appropriate seed treatments are used to prevent dwarf bunt infection. The yield average was 37 bu/A, higher than the 2013 yield average of 18 bu/A, and higher than 2012 (30 bu/A). The yield ranged from 27to 46 bu/A (Juniper/Deloris blend). The top yielding varieties this year were UI SRG (44 bu/A), Whetstone (43 bu/A), Keldin (43 bu/A), Curlew (43 bu/A) and Yellowstone (43 bu/A). Grain protein average was low at 10.1%, test weight average was 61 lbs/bu, and there was no lodging. Two soft white winter wheats were planted at this trial location, Eltan (37 bu/A) and Otto (42 bu/A). Grain protein for Otto was 8.9% and Eltan at 9.5%, with overall site protein at 10.1%, indicating there was not enough nitrogen to meet the yield and protein requirements for hard red and white winter wheat.

Soda Springs, Mark and Craig Ozburn, Dryland Winter Wheat

One small dryland winter wheat trial containing both hard and soft winter wheat was repeated at Soda Springs again this year at the request of area growers. The trial was planted at the elevation of 6189 feet on September 13, 2013 and harvested September 2, 2014. Twenty-two varieties of hard red, hard white, and soft white winter wheat were included. Fall germination was good and spring stand averaged 90% (Table 33). Norwest 553 had the lowest spring stand at 70% and Stephens also had a reduced spring stand at 80%. Utah 100, Yellowstone, Madsen/Eltan blend, Eltan, Promontory, and the Juniper/Promontory blend had the highest yields (86, 84, 82, 81, 76, and 76 bu/A, respectively). Yields averaged 68 bu/A, 45 bu/A better than the previous year, which had poor emergence in dry soils in the fall of 2012. Test weight was low (56.5 lbs/bu), and grain protein high (13.5%). If risking planting winter wheat, it is highly recommended that varieties with snow mold tolerance and dwarf bunt resistance be grown in this area. Varieties susceptible to dwarf bunt should only be grown following appropriate seed treatments for dwarf bunt control.

Spring Trials, 2014

Spring wheat and barley yields were some of the highest of the past ten years (see Table 3, Ten Year Averages of Selected Agronomic Characteristics, 2004-2013 compared to 2014). Heading date was the latest for spring wheat, plant height was the tallest for both wheat and barley, indicating excellent conditions for plant growth and grain fill. Lodging was also the highest, but test weight was the lowest. This is a result of very high yields but also rain at harvest, resulting in high lodging and low test weights due to the rain. Except for this year at Ashton, all hard spring wheat nurseries are topdressed at flowering

with an additional 40 lbs N/A to increase grain protein.

Rupert, Duane Grant and Alan Mohlman, Spring Grain

The variety trials in Rupert were planted March 26th and harvested August 27th. The preceding crop was sugar beets. There were no major weather-related problems during the season and growing conditions were excellent; however, August rains delayed harvest and destroyed crop quality with extensive sprout damage.

Lodging was high - about 37% - for the hard spring wheat nursery (Table 38). Average yield was 132 bu/A, compared to 111 bu/A in 2010, 92 bu/A in 2011, 108 in 2012, and 90 bu/A in 2013. Test weight average was 56.2 lbs/bu, and average protein was at 14.7%. The top yielding named varieties were UI Platinum (a hard white at 149 bu/a and 13.7% protein), Dayn (a hard white at 147 bu/A and 14.1% protein), WB-Paloma (a hard white at146 bu/A and 15.0% protein), and Kelse (145 bu/A and 15.2% protein). UI Winchester (16.1%), Buck Pronto (15.8%), WA 8166 (15.8%), and WB9668 (15.5%) had the highest grain protein. The high proteins are often reflective of high nitrogen fertilization and lower yields. Nitrogen application rates were for high expected yields, and excess nitrogen went towards protein accumulation in the grain. The highest yielding (named) hard red spring wheat's were Kelse (145 bu/A), WB9411 (144 bu/A), and Cabernet (141 bu/A).

Over **three years over all locations**, the highest yielding varieties under irrigation (Table 9) were Dayn (hard white at 120 bu/A), Kelse (hrs at 109 bu/A), Alzada (durum at 104 bu/A), WB-Paloma (hard white at 104 bu/A), and Cabernet (104 bu/A). The average 3-year test weight was 60.1 lbs/bu, and the average grain protein was 14.4%. The irrigated average yield for 2014 (Table 19) was 122 bu/A with the highest yielding varieties including Dayn 141 bu/A), Utopia (135 bu/A), UI Platinum (131 bu/A), WB9411 (130 bu/A), Kelse (129 bu/A) and WB9668 (129 bu/A).

The soft white spring wheat yield (Table 43) average was 130 bu/A in Rupert, 2014. In 2010 it was 116 bu/A, in 2011 it was 101 bu/A, in 2012 it was 114, and in 2013 the average yield at the Rupert location was 112 bu/A. In 2014, UI Stone yielded 150, UI Pettit yielded 142 and WB6430 yielded 139 bu/A. Grain protein average was at 12.8%. **Three-year averages over all locations** (Table 10) put UI Stone at 119 bu/A, followed by Alpowa (115 bu/A), and UI Pettit (109 bu/A). The 2014 combined irrigated average (Table 20) was 125 bu/A. UI Stone averaged 139, Alpowa 130, and WB6430 was 129 bu/A.

The six-row spring barley trial at Rupert (Table 48) yielded an average of 150 bu/A, with a range from 131 to 181 bu/A. Lodging was high at this location, averaging 36% for the spring barley. Tradition six-rowed malt was the top yielding barley (150 bu/A) of the named varieties. Test weights averaged 47.7 lbs/bu, proteins were very high at 16.4%, and percent plumps were 98%. **Over three years**, Millennium and Goldeneye were the highest yielding feed varieties (Table 11) at 145 and 138 bu/A, respectively, and Tradition was the highest yielding malt variety at 127 bu/A. In 2014 irrigated trials (Table 21), the top yielding varieties were Millennium (159 bu/A), Herald (138 bu/A),

Goldeneye (134 bu/A), and Tradition (127 bu/A).
Two-rowed malt barley yields (Table 52) averaged 140 bu/A, compared to the 2010 average of 122 bu/A, the 2011 average of 108 bu/A, 2012 average of 135 bu/A, and the 2013 average of 120 bu/A. Yields varied from 124 (Harrington) to 152 bu/A (Moravian 69). The variety Moravian 69 was greatest followed by LCS Genie (147 bu/A), Meredith (145 bu/A), Merit 57 (143 bu/A), and ABI Voyager (142 bu/A). **Three year averages** for the malt varieties (Table 12) puts Pinnacle, ABI Voyager, LCS Genie, Copeland and Moravian 69 at the top (133, 131, 128, 128, and 128 bu/A, respectively). Taking a look at irrigated averages for 2014 (Table 22), Pinnacle yielded 135 bu/A, LCS Genie yielded 134 bu/A, and ABI Voyager 131 bu/A.

The high yielding two-rowed feed varieties (Table 56) were Vespa (175 bu/A), Lenetah (163 bu/A), Champion (161 bu/A), Xena (158 bu/A), and RWA 1758 (156 bu/A). The hulless, high beta-glucan food barleys CDC McGwire, Julie, Clearwater, Transit, and CDC Fibar yielded 124, 117, 105, 103 and 97 bu/A but also had high test weights (52.4, 50.2, 53.4, 54.8 and 51.7 lbs/bu, respectively). Test weights were considerably lower than usual due to the damaging late season rain. The feed varieties Champion, Xena and Lenetah were the top yielding lines **over three years** and all irrigated locations (Table 13) at 150, 142, and 140 bu/A, respectively. In 2014, the highest yielding varieties under irrigation (Table 23) included Champion (153 bu/A), Vespa (151 bu/A), and Tetonia (144 bu/A).

Aberdeen R&E Center, Spring Grain
Spring variety trials were planted April 8 and harvested September 2nd. The preceding crop was green manure oats. Stripe rust of wheat was present late in the season but environmental conditions prevented rapid spread. There were some yield impacts in the susceptible varieties, resulting in an approximately 25% yield reduction. The top three varieties for yield (Table 39) were Dayn, LCS Atomo, and Kelse at 168, 155, and 153 bu/A, respectively. Test weights for the hard spring wheat's averaged 58.5 lbs/bu and grain protein was 14.5%. High protein wheats included WB9668 (16.2%), Buck Pronto (16%) and WB-Paloma at 15.8% grain protein.

The soft white spring wheat yields at Aberdeen (Table 44) averaged 162 bu/A, 55 bu/A greater than 2013, with a range from 148 (Alturas) to 183 bu/A (UI Stone). Highest yields of named varieties were obtained from UI Stone (183 bu/A), WB6430 (163 bu/A) and Alpowa (162 bu/A). Test weights averaged 57.5 lbs/bu and grain protein averages were 11.7%.

Six-row barley in Aberdeen (Table 49) averaged 145 bu/A, similar to 2011 (148 bu/A), 2012 (142 bu/A), and 2013 (147 bu/A). Yields ranged from 120 bushels (Morex) to 194 bu/A (Millennium). Millennium and Herald were the two top yielding feed barley varieties, at 194 and 151 bu/A. For the six-row malt lines, Lacey, Legacy, and Celebration yielded 139, 139, and 134 bu/A, respectively. Grain protein for the malt lines was very high, ranging from 13.8% to 16.9%. Test weight was 47.7 lbs/bu.

Two-rowed malt barley lines averaged 142 bu/A (Table 53), lower than 2012 (152 bu/A) and higher than 2013 (134

bu/A), and ranged from 121 (Harrington) to 168 bu/A (LCS Genie). The top yielding released lines were LCS Genie, Pinnacle, Moravian 69 and ABI Voyager (168, 162, 151, and 145 bu/A, respectively). Grain protein was too high, averaging 16.9%. For the feed varieties (Table 57), Idagold II, Vespa, Champion, and RWA 1758 yielded 167, 163, 163 and 155 bu/A, respectively. Test weight averaged 51.2 lbs/bu which is inflated by the number of hulless lines included in the trial. Hulless lines Julie, CDC McGwire, Clearwater, Transit, and CDC Fibar yields were 131, 125, 121, 110, and 108 bu/A, respectively. Lodging averaged 75% and grain protein 16.5%. These trials were not treated with growth regulators.

Idaho Falls, Marc Thiel, Spring Grain

The Idaho Falls location followed potatoes, was planted April 14th and harvested August 29th. The surrounding field was in barley. Two-rowed malt barley yields (Table 54) averaged 136 bu/A. Harrington yielded 117 bu/A while the highest yielding variety hit 162 bu/A. Top yielding named varieties included Pinnacle (149 bu/A), LCS Genie (147 bu/A), and ABI Voyager (141 bu/A). Test weights were low and proteins were high. Two-rowed feed trial (Table 58) averaged 128 bu/A, with the top yielding lines averaging 157 bu/A (Vespa), 156 bu/A (Tetonia), and 153 bu/A (Champion). The test weight average was skewed upward due to the presence of hulless food barleys, but all test weights were damaged by excessive rains at harvest. Lodging was also high at this location.

The six-rowed barley (Table 50) averaged 140 bu/A, with Millennium at 148 bu/A, Herald at 145 bu/A, and Goldeneye at 140 bu/A. Test weight averaged 45.6 lbs/bu, lodging averaged 65% and proteins were averaging 14.4%.

Average yield for the Idaho Falls hard spring wheat (Table 40) was 103 bu/A, which was 16 bushels higher than the average in 2013 of 87 bu/A. Hard spring wheat ranged in yield from 73 (IDO1202S) to 125 bu/A (Dayn). Average grain protein was at 12.7%, and test weight was low at 56.5 lbs/bu. The four highest yielding named varieties were Dayn hard white (125 bu/A and 12% protein), WB9411 (116 bu/A and 13.1% protein), Snowcrest hard white (114 bu/A and 12.7% protein), Alzada (durum at 113 bu/A and 11.4% protein) and WB-Paloma (113 bu/A and 13.9% protein.

UI Stone, UI Pettit, Penawawa and WB6430 topped the yield chart (Table 45) for the soft white spring wheat varieties at Idaho Falls at 131, 122, 119 and 115 bu/A, respectively. Yields ranged from 99 bu/A (Alturas) to 131 bu/A. Test weights were poor at 56.5 lbs/bu, and grain proteins were at 9.8%.

Ashton, Don Marotz, Spring Grain

The Ashton location was planted May 12 with the preceding crop being barley, and the surrounding field was also spring barley. Stripe rust was present in most areas of the upper valley areas, coming in late but significantly affecting susceptible spring wheat varieties. Plots were harvested September 12th, 17th and 24th, following extensive rain resulting in sprout damage and low falling numbers, as at all spring locations in 2014.

The average yield for the hard spring wheat (Table 41) was 100 bu/A,

compared to 2010 at 54 bu/A, 2011 at 94 bu/A, 2012 at 55 bu/A and 2013 at 73 bu/A. The range in yield varied from 27 bu/A to 126 bu/A. The extremely low yields were found in the varieties most susceptible to stripe rust. Test weights were at 56.1 lbs/A, and protein averaged 13.6%. The high yielding varieties were Dayn (57 bu/A), followed by WB9668 (118 bu/A), and UI Platinum (117 bu/A) and SY Basalt (116 bu/A). The highest proteins were seen in WB9668 (15%), WB9411 (14.8%), and Snowcrest (14.6%). There was lodging in two of the hard spring wheats at this location: UI Winchester (25%) and Buck Pronto (18%).

In the soft spring wheat trial (Table 45), UI Stone yielded 131 bu/A, followed by UI Pettit (122 bu/A) and Penawawa (119 bu/A). The average yield for the soft white spring trial was 114, higher than in 2013, and ranged from a low of 99 bu/A to a high of 131 bu/A. The test weight average was a 56.5 lbs/bu, with lodging in WB6121 (20%), Alpowa (5%) and Alturas (1%). Grain protein averaged 9.8%. Stripe rust impacted yield in this trial.

In the six-rowed barleys at Ashton (Table 51), the yield average was 92 bu/A, similar to 2013, 16 bu/A greater than 2012. The site-average for protein was 12.2%, and lodging was at 78%. In the feed barley, Millennium out-yielded the others at 113 bu/A, 48.1 lb test weight and 94% plumps. Goldeneye was the closest next variety at 92 bu/A, 48.8 lb test weight and 95% plumps. The malt line Tradition yielded 99 bu/A, with 50.5 lb test weight and 99% plumps.

Two-rowed malt barley yields (Table 55) ranged from 60 (Harrington) to 97 bu/A. The average was 83 bu/A, with the highest named lines being ABI Voyager (97 bu/A), Merem (91 bu/A), Hockett (90 bu/A), and Pinnacle (88 bu/A). Protein was at 11.8%, and plumps were 96%. Champion, RWA 1758 and Xena were the top yielding feed varieties (Table 59) at 135, 129 and 123 bu/A, respectively. Test weights were low this year, averaging 52.0 lbs/bu (biased upward due to the inclusion of hulless food barleys) and proteins averaged 12.6%.

Soda Springs, Sid Cellan, Spring

The only spring dryland extension trials were spring wheat trials in Soda Springs. The nursery was planted May 21st and harvested September 2nd. The previous crop was barley.

Yield averages for the hard red and hard white spring nursery (Table 42) were 45 bu/A, lower than 2013 (59 bu/A) but better than previous years (2010 was 32 bu/A, 2011 was 37 bu/A, and 2012 was 29 bu/A). The range in yield went from 35 (Klasic) to 54 bu/A (Jefferson). The four highest yielding named varieties were Jefferson, Kelse (47 bu/A), Dayn (47 bu/A) and UI Platinum (45 bu/A). Test weights averaged 56.8 lbs/bu, and proteins were averaging 14.9%, with the highest proteins in WB9668 (16.5%), Kelse (15.7%), and WB9411 (15.7%).

For the soft white spring wheat (Table 47), the nursery averaged 45 bu/A, 14 bu/A less than 2013, 11 bu/A better than 2012. The yield ranged from 38 to 56 bu/A. Alturas, WB6121, and Alpowa, were the three top yielding varieties at 50, 44, and 43 bu/A, respectively. Test weight average was 55.4 lbs/bu, and proteins were at 13.4%.

Table 2. Variety Descriptions
SPRING BARLEY

ABI Voyager (B3719) – a recent release from Busch Agricultural Resources, Voyager was tested for the first time in 2011 as B3719, out yielding other two-rowed malt varieties. Three-year average yields were equivalent to Pinnacle, Baronesse (feed check), Copeland and Moravian 69, and higher than average two-rowed malt lines. In 2013, Voyager was the top-yielding (named) variety under irrigation. Voyager was very similar to Conrad in test weight, heading date, plumps, and protein, but a little taller (2 inches) with less lodging.

AC Metcalfe (TR232) – two-rowed malting barley released in 1994 by Agriculture and Agri-Food Canada with higher yield potential and plumper kernels than Harrington. CDC Metcalfe yields are lower than average and similar to Hockett. It is widely adapted to western US and Canadian conditions, but is tall and may lodge under high input conditions. Malting quality and extract are excellent.

Baronesse (NS078054) – two-rowed feed barley considered an industry standard. Baronesse was released in 1992 by WestBred (a unit of Monsanto), and is now handled by Highland Specialty Grain. Baronesse has been a high yielding feed line well adapted to dryland and irrigated western production environments. Baronesse will lodge under irrigation.

CDC Copeland (TR150) – a two-rowed malt variety developed by the Crop Development Centre, University of Saskatchewan and released in 1999, Copeland has been in the trials since 2009 in southern Idaho. Copeland yielded similar to Conrad and Moravian 69, and much higher than Harrington. Copeland was 3-4 in taller than average, and was average for grain protein and test weight, and less than average for lodging.

CDC Fibar (HB373) – a high beta-glucan (waxy), hulless two-rowed food barley released by Crop Development Centre, University of Saskatchewan, Saskatoon in 2003. Of the hulless food barleys, CDC Fibar is lowest in yield but with an average beta-glucan (soluble fiber) levels per 100g of 8-10g, or 8-10%. The ratio of starch type is 100% amylopectin, 0% amylose. CDC Fibar tends to be tall and will lodge, has good shattering resistance, and fair to good drought tolerance.

CDC McGwire (HB335) – a high beta-glucan, hulless two-rowed food barley released by Crop Development Centre, University of Saskatchewan, Saskatoon, 1999. CDC McGwire has greater yield potential (>20 bu/A) than CDC Fibar but has 4.5 to 5% beta-glucan content (the same as CDC Falcon, but half of CDC Fibar). The ratio of starch type is 25% amylose to 75% amylopectin. Lodging is high under irrigation.

CDC Meredith (TR05104) – in its third year of testing in our extension trials. Meredith is a Canadian two-rowed malt line released in 2008 by Crop Development Centre, University of Saskatchewan, Saskatoon. Yield is similar to CDC Metcalfe, with lower test weight and later maturity. Height, plumps and protein were average. Lodging was higher than average.

Celebration – a six-rowed malt barley released in 2008 by Busch Agricultural Resources, LLC. Released for the Midwest, Celebration has some resistance to Fusarium head blight and consistently lower toxin (DON) content in the grain. Yields are comparable to Morex, with average test

weight, while protein and lodging were higher than average.

Champion – a 2007 release from WestBred, LLC, now handled by Highland Specialty Grain. Champion is a very high yielding, two-rowed spring feed barley. Combined over locations and years, Champion yields and test weight were comparable to Xena under irrigation with less lodging. Champion has average test weight and height, greater than average protein and plumps, and heading 1-2 days earlier than Baronesse.

Clearwater (01ID435H) – a 2007 release from the USDA-ARS in Aberdeen and the Idaho Ag Experiment Station, Clearwater is the first named variety that is a low-phytic acid, hulless, two-rowed spring feed barley. The hulless, low-phytate characteristic should be valuable in the feed industry for monogastric animals, especially fish, where there is concern about high phosphorus concentrations in the waste stream. Clearwater, because of the hulless characteristic, has very high test weight and lower yields. Maturity and height are average, and Clearwater has high grain protein and higher than average lodging.

Conrad (B5057) – two-rowed spring malt barley released by Busch Agricultural Resources in 2005. Conrad has average yields and test weight. Conrad is 2 inches shorter, is average for lodging, and has lower protein than average. Conrad has yielded well in the Upper Valley area, especially around Idaho Falls and Ashton.

Goldeneye (UT95B1216-4087) – is a six-rowed feed barley released by Utah State in 2005. Goldeneye has very high yields under irrigated conditions, above average yields under dryland production, and above average test weight. When cut at soft dough, Goldeneye has proven to be a high-yielding and high quality forage variety. Goldeneye also has high plumps and protein.

Harrington – the industry standard for malt quality, Harrington is a 2-rowed malting barley released in 1981 by the University of Saskatchewan. Harrington is one of the lowest yielding and test weight malt varieties in our trials, with higher than average lodging and protein. Under high-yield management, including the use of plant growth regulators, yield and lodging improve greatly.

Herald (00ID1550) – Herald is a low-phytate, hulled six-rowed feed barley released by the USDA-ARS and Idaho AES in 2006. Seed characteristics make this an excellent feed barley for monogastric animals (swine), as phosphorus is reduced in the waste stream. Depending on the year and environment, Herald has a high yield potential and may also prove useful in the fish food industry. Herald is agronomically similar to its parent, Colter, but has lower test weight and higher plump.

Hockett (MT910189) – a two-rowed malt barley released in 2010 by Montana State University. Under dryland and irrigated conditions in southeast Idaho, Hockett is agronomically similar to Harrington with higher yield, test weight, and plumps. Hockett heads 3 days earlier than Harrington and like Harrington, will lodge under irrigation. Under high-yield and input conditions, the use of plant growth regulators is encouraged.

Idagold II (C32) – a spring feed and malt line developed by Coors Brewing Company in Burley and released in 2002. Idagold is a short, low test-weight feed, higher test weight malt line with lower than average lodging. Protein is higher than Baronesse, with similar plumps.

Spring Barley (cont.)

Julie (03AH6561-94) – a two-rowed hulless barley released by the USDA-ARS and the University of Idaho AES in 2010 for high-beta-glucan content and intended for human consumption. Julie has high test weight (due to the hulless characteristic) and protein, similar to other food barleys, with greater percentage of seed beta-glucan (averaging 7%) than other industry standards such as CDC Fibar and CDC McGwire. Julie is the highest yielding waxy barley. Lodging of Julie is less than average, and heading date 5 days later than Baronesse.

Lacey (M98) – a six-rowed malt variety released in 2000 by the Minnesota AES and USDA. Lacey has excellent malt quality with yields similar to Legacy and Tradition and higher test weight. Lacey is average in height, lodging and protein.

LCS Genie – a European malt barley being released in the U.S. through Limagrain, Genie is a short-statured two-rowed malt variety in its third year of testing in the spring extension variety trials. Irrigated yield was above average and maturity was later. Protein and plumps of Genie were average, and it is about 3 inches shorter than average with higher lodging. In 2014 trials, LCS Genie yielded very well, comparable to Pinnacle, and it responds well to high input environments.

Legacy (6B93-2978) – a six-rowed malt variety released in 1998 by Busch Agricultural Resources, Inc. Legacy has good yield potential under both irrigated and higher moisture dryland conditions, and yields greater than Morex. It appears not as competitive when yields are below 50 bu/A. Test weight and plant height are average for six-row cultivars. Percent plump and protein is average for six-row malt varieties.

Lenetah (01Ab11107) – a 2008 release from the USDA-ARS and Idaho AES, Lenetah is a high yielding two-rowed feed variety particularly well-adapted to the rain-fed conditions of northern Idaho, but also doing well in irrigated southern Idaho conditions. Lenetah has average test weight, heading date, protein, plump and height, but with lodging similar to Tetonia and less than Baronesse. Lenetah has consistently yielded higher than Baronesse, but lower than Champion.

Merem (2Ab17271) – a two-rowed malt variety released in 2014 by the USDA-ARS in Aberdeen and the University of Idaho. Merem yields are less than Copeland and Conrad, but higher than Harrington. Quality characteristics may make it particularly suited for the Craft Malting Industry. Test weights, lodging, protein and plumps are average, and Merem is 2 inches taller than Harrington with less lodging.

Merit 57 – a 2009 release from Busch Agricultural Resources, Merit 57 is a two-rowed malt line derived from Merit with similar to better malting quality. Merit 57 has slightly below average yields and average lodging, and is agronomically similar to Merit but is higher yielding than Merit. Yields are about 20 bu/A greater than Harrington.

Millennium (UT004603) – a six-row spring feed barley released in 2000 through Utah AES, Millennium does very well under irrigation, and has been in the top-yielding groups under dryland conditions when moisture was adequate. Millennium also has excellent straw strength, showing minimal lodging even under high-yield conditions. Millennium is of average height and protein, and heads several days earlier than average.

Moravian 69 (C69) - two-rowed spring malt barley released by Coors Brewing Co. in 2005. Moravian 69 has very high yield

potential, especially in the Magic Valley area where it is widely grown. Height is very short (4 inches below average), and lodging is less than Harrington. Protein is at or slightly below average in these trials.

Morex – a 1978 release from Minnesota AES, Morex is a six-rowed malt, with lower than average yields and a high lodging tendency. Morex has been an industry standard for the six-rowed varieties in malt quality.

Pinnacle (2ND21863) – two-rowed spring malt barley released by North Dakota State University and the USDA-ARS in 2007. Pinnacle is a widely adapted malt line, and was a top yielding variety over the previous five years (2010-14), similar to ABI Voyager and Moravian 69. Pinnacle had very high test weight and plumps, average protein and was 2-3 days earlier than average for heading date. Lodging resistance is excellent.

Quest (M122) – a six-rowed spring malt line released for its resistance to Fusarium head blight and reduced accumulation of the DON toxin produced during the infection process. It was released in 2010 by the University of Minnesota AES and is in the third year testing in Idaho. Quest has yield and test weight similar to Lacey and Celebration. In Idaho, Quest yields were below average for 6-rowed malt lines, with good test weight, and average plumps, maturity and lodging.

RWA1758 (RWA1758) – a two-rowed spring feed barley which is essentially a Russian Wheat Aphid resistant Baronesse developed by the USDA-ARS in Aberdeen, now handled by Highland Specialty Grain. RWA 1758 is very similar to Baronesse with greater yield potential and test weights.

Tetonia (98AB11720) – two-rowed spring feed barley released in 2007 by the USDA-ARS in Aberdeen and the Idaho Ag Experiment Station. Tetonia has high yield potential over many locations, and is well adapted to Idaho and Montana production areas. Tetonia yielded more than Baronesse in the irrigated nurseries (2010-2014) and similar to Lenetah. Other agronomic characteristics are very similar to Baronesse with similar lodging under irrigation.

Tradition – six-rowed malt released by Busch Agricultural Resources, Inc. in 2003. Tradition yields are greater than Morex and similar to Legacy in southern Idaho, with higher test weight and plumps than test averages of other six-rowed malt lines.

Transit (03AH3054-51) – a two-rowed hulless variety released by the USDA-ARS and the University of Idaho AES in 2010 for high-beta glucan content (waxy) and intended for human consumption. Seed beta-glucan content (9-10%) is higher than other industry standards such as CDC Fibar and CDC McGwire. Transit yields are lower but the percent beta-glucan is higher than Julie. Yields are also greater than CDC Fibar.

Vespa - a two-rowed feed barley being released by Limagrain Cereal Seeds, LLC and imported from Europe. In the first two years in irrigated trials, Vespa yields were just below Champion, with lower test weights, three day later in heading date, three inches shorter, and slightly higher lodging.

Xena (BZ594-19) – a two-rowed spring feed barley released by Western Plant Breeders that is now handled by Highland Specialty Grain. Xena has had very high yields over the locations tested from 2010-2014, similar to Champion. Its yield has been greater than Baronesse, and is about two inches taller but with similar straw strength. Test weight tends to be slightly higher than Baronesse.

WINTER BARLEY

Alba (OR77) – a six-rowed winter feed variety released in 2010 by the Oregon AES and the USDA-ARS. Yields over the past three years have been comparable to Strider and Sprinter feed barleys. Winter hardiness is above average and better than Endeavor and Charles (both are two-rowed winter malt varieties). Lodging, protein, heading date and test weight are average.

Charles (94Ab1274) – Charles is the first AMBA approved two-rowed winter malt variety released by the USDA-ARS and the IAES in 2005. Charles yields and test weights are lower than the winter feed variety average. Charles is short, early maturing and has a tendency to lodge. Charles has excellent plumps and yields very well in the Twin Falls area, even when severe winter conditions reduce stand. Both Charles and Endeavor can suffer significant stand losses under cold winter conditions.

Eight-Twelve – a six-rowed winter feed barley released by the USDA-ARS and the Idaho AES in 1991. Eight-Twelve has very high yield potential, averaging 171 bu/A under irrigation in the last three years. Winter survival and lodging is average but test weights and protein are below average.

Endeavor (95Ab2299) – Endeavor is the second two-rowed winter malt variety released by the USDA-ARS and the Idaho AES approved by AMBA for malt quality. Released in 2008, Endeavor has improved malt quality and yield over Charles, especially in the Magic Valley area where winter kill is less of a problem than in eastern Idaho. Endeavor has excellent test weight and plumps, and is average for heading date, and lodging and is 3 inches taller than average.

Kamiak (WA2084-63) – a six-rowed feed variety released in 1971 by Washington AES. Yields and test weight are below average.

LCS Saturn – A Limagrain Cereal Seeds six-rowed feed line imported from Europe. In the first year of trials in Southern Idaho, LCS Saturn had excellent yield potential, similar to Sprinter and less than Eight-Twelve and Strider. Test weight, lodging, protein and height were lower than average, plumps were greater than average.

LCS Violetta – A Limagrain Cereal Seeds six-rowed feed line imported from Europe. In the first year of trials in Southern Idaho, LCS Violetta had yields similar to Endeavor and Charles, and were lower than average. Test weight, plumps and protein were greater than average, height was 4 inches shorter and heading date was a week earlier than average. Lodging was lower than average.

Schuyler (NY5619B-3B) – a six-rowed winter feed barley released in 1969 by Cornell AES, yields are below average but winter survival is good for a winter barley.

Sprinter – winter six-rowed feed barley released by WestBred in 1987, Sprinter is facultative (not requiring vernalization) and can be planted in the spring. Yields of Sprinter are comparable to Strider and Sunstar Pride, with lower test weights and plumps.

Streaker (OR85) – a hulless, six-rowed winter / facultative habit barley with high beta-glucan for food barley, Streaker was released by OSU and the USDA-ARS in 2012. Streaker yields are below the average for winter feed and malt lines, but as a hulless barley, it has a very high test weight. Streaker is higher than average for lodging, and is also winter tender, and should be grown in the warmer areas of southern Idaho.

Strider (ORW6) – a winter six-rowed feed variety released in 1998 by Oregon AES and the USDA-ARS and was developed using doubled-haploid technology. Yields have been comparable to Sunstar Pride and Eight-Twelve. Strider has average height, lodging and protein, and low test weight.

Sunstar Pride (SDM204-B) – winter six-rowed barley released by Sunderman Breeding in 1995. Sunstar Pride consistently has been one the highest yielding varieties in the trials, similar to Sprinter and Eight-Twelve, and appears to have good winter hardiness, although Sunstar Pride suffered high winter damage in 2006-07. Test weight, lodging and plant height are below average. Heading date is up to a week or more later than average, with very low plumps.

SPRING WHEAT

Alpowa (WA7677) – a soft white spring wheat released in 1993 by Washington, Idaho and Oregon Ag Experiment Stations, Alpowa yields are still greater than average with good test weight. Alpowa still has resistance to the current races of stripe rust. Alpowa is less susceptible to Fusarium head blight (FHB) than other soft white springs.

Alturas (IDO526) – a soft white spring wheat released by Idaho AES and USDA-ARS, and has a partial waxy endosperm. Alturas is adapted to both irrigated and dryland conditions, but performs best under irrigation. It is average in yield, test weight, height and heading. Alturas has adult plant resistance to stripe rust but is moderately susceptible to the current races. Alturas is susceptible to Fusarium head blight (FHB).

Alzada (YU894-75) – durum wheat released in 2004 by WestBred (a unit of Monsanto) for excellent durum quality. Alzada yields are greater than other hard red and white spring wheats, with high test weight and average grain protein. Alzada is very susceptible to Fusarium Head Blight, and is moderately susceptible to the current races of stripe rust.

Babe (WA008039) – Babe is a soft white spring wheat derived from Alpowa. It was released by Washington State AES in 2009. Babe has better emergence than Alpowa with a more upright growth habit, similar yield, better quality and higher test weight. Over the past three years, yields and test weight of Babe were less than UI Pettit. Babe is very susceptible to the current races of stripe rust, and is less susceptible to Fusarium head blight (FHB) than other soft white springs.

Buck Pronto – hard red spring developed in Argentina and being distributed through Limagrain Cereal Seeds. In two years of testing (2011 and 2012), Buck Pronto had average yields and test weight in southern Idaho and high protein, averaging greater than 1% higher than the nursery averages. In 2014 testing, Buck Pronto has below average yields and good test weight. Buckpronto is moderately susceptible to stripe rust and is susceptible to Fusarium head blight.

Bullseye (B02-0081) – Bullseye is a high quality hard red spring wheat released by AgriPro, now Syngenta Seeds, in 2009. Combined over irrigated locations over the past three years, Bullseye yields, plant height and grain protein were average, with good test weight and higher than average lodging. Bullseye is susceptible to the current races of stripe rust in southern Idaho, and is one of the least susceptible to FHB.

Cabernet (95WV10616) – a 2007 hard red spring wheat from Resource Seeds, now Syngenta Cereals, Cabernet yields are similar to Jefferson and Bullseye. Cabernet

Spring Wheat (cont.)

is a little shorter than average, (2 inches shorter than Bullseye), has average test weight, with slightly lower protein. Cabernet was resistant to the local 2014 race of stripe rust, but susceptible to FHB.

Dayn (WA8123) – Dayn is a hard white spring wheat released in 2012 by Washington AES and the USDA-ARS. Dayn was the highest yielding spring wheat in the past three years of irrigated trials. Test weight and heading date was average, protein was below average and Dayn was 2-3 inches taller than average but has good lodging resistance. End use quality is acceptable, but not excellent. Dayn is resistant to the current races of stripe rust and among the least susceptible hard white spring wheat for FHB.

Jefferson (IDO462) – hard red spring wheat released by Idaho AES and USDA-ARS. Jefferson is primarily intended as a dryland variety due to it being taller than average and susceptible to lodging under irrigation. Irrigated yields have been slightly below test average but have been higher than average when grown on dryland. Jefferson has good quality when there is a minimum of 13 percent protein. Jefferson is susceptible to the current races of stripe rust and intermediate for susceptibility to FHB.

Klasic (NK77S1817) – a well-established hard white spring wheat with exceptional quality characteristics. Klasic was released in 1982 by Northrup-King, and while yields in the extension trials are low, yields can be excellent with appropriate irrigation practices. Klasic is average for test weight, 5 inches shorter than average, and is earlier in heading. Klasic is very susceptible to stripe rust, FHB and Cereal Cyst nematode.

Kelse (WA007954) – a hard red spring wheat released in 2008 through the Washington AES, and the USDA-ARS. Kelse is taller than average under irrigation (Table 9), yields, test weight and protein are with higher than average. Grain protein was equal to Westred 936. Kelse has seedling and adult plant resistance (HTAP) to stripe rust and Hessian Fly resistance. Kelse is moderately resistant to current races of stripe rust, and susceptible to FHB.

LCS Atomo – a newly released hard white spring line imported from Europe by Limagrain Cereal Seeds. LCS Atomo was tested for the first time in these trials in 2014 (see Table 19), and had average yield and lodging. LCS Atomo is short with earlier maturity (comparable to Klasic), but with lower test weight and grain protein than average. LCS Atomo is susceptible to current races of stripe rust, and susceptible to FHB.

LCS Star – a newly released hard white spring line imported from Europe by Limagrain Cereal Seeds. LCS Atomo was in the second year of testing in these trials in 2014. LCS Star had average yield, grain protein, plant height and lodging, and low test weight. Grain quality is acceptable. LCS Star is resistant to current races of stripe rust, and among the least susceptible hard white spring wheat for FHB.

Penawawa (WA6920) – released in 1985 by Washington AES, Penawawa is a widely adapted soft white spring wheat but has some of the lowest yield and test weights of the soft white spring wheat group in the area. Penawawa grain quality is poor, and it is susceptible very susceptible to stripe rust and FHB.

Seahawk (WA8162) – a newly released soft white spring wheat from Washington State

Spring Wheat (cont.)

University's spring wheat breeding program adapted to dryland and irrigated production areas. Seahawk has resistance to Hessian fly, is resistant to stripe rust, and one of the least susceptible soft white spring wheats to FHB. Seahawk has tolerance to high Aluminum, low pH soils. Yield is above average and greater than Alpowa, Pettit and Babe. Plant height is average and heading date later than average.

Snow Crest (BZ904-331WP) – a 2004 release by the WestBred program, (now a unit of Monsanto), Snow Crest is a high quality hard white spring wheat typically with higher yields and grain protein than Klasic. Test weight is average, but similar to Klasic, it is earlier maturing and shorter than average. Snow Crest is very susceptible to stripe rust and FHB.

SY Basalt (04W40240R) – a hard red spring wheat released in 2014 by Syngenta Seeds, SY Basalt has high yield potential under high input environments (Table 39). In the first year of extension testing, SY Basalt had above average yields, but lower test weight and protein. High rains at harvest severely damaged test weight and quality of all varieties. Maturity is about 5 days later than average. SY Basalt is resistant to current races of stripe rust and intermediate for susceptibility to FHB.

UI Platinum (IDO694C) – a newly IAES released hard white spring wheat, UI Platinum is a high yielding hard white spring wheat with average test weight and lodging. Over the last three years, yield has been comparable to Jefferson and Bullseye. Under 2014 conditions, yields, test weight, plant height and lodging were similar to WB-Paloma, but lower in grain protein. Under some environments, UI Platinum will show chaff discoloration similar to black chaff infection, which is not a disease but a genetic trait. UI Platinum is moderately susceptible to current races of stripe rust and very susceptible to FHB.

UI Pettit (IDO632) – is a soft white spring wheat released in 2006 through the Idaho AES. Yields and test weight are similar to Alturas, but UI Pettit is shorter and heads 3-5 days earlier than Alturas. UI Pettit is very susceptible to current races of stripe rust and less susceptible to FHB than other soft white springs. However, under appropriate environmental conditions, UI Pettit will get infected and can have high levels of DON.

UI Stone (IDO599) - a soft white spring wheat released by Idaho AES in 2012, UI Stone has high yield potential, consistently greater than UI Pettit and Alturas. UI Stone was selected for reduced FHB susceptibility, and is the only soft white spring wheat in the PNW that should be grown following corn (if wheat is the only choice available to follow corn). UI Stone also has tolerance to Cereal Cyst Nematode, but is susceptible to the current races of stripe rust. Grain protein, height and lodging are average.

UI Winchester (IDO578) – a hard red spring wheat released by the Idaho Ag Experiment Station for dryland production areas in 2009, but also does well under irrigation. UI Winchester performed similar to Jefferson in the extension trials. UI Winchester is of average test weight, heading date, and protein. UI Winchester was two inches taller than average and will lodge under irrigation. UI Winchester is susceptible to current races of stripe rust and intermediate in FHB susceptibility.

Utopia (DOI-933) – a spring durum released in 1997 by World Wide Wheat, Utopia is a medium height variety with distinctive black awns. Utopia and durums in general are very susceptible to FHB.

Spring Wheat (cont.)

WB6121 (BZ608-121) – a soft white spring wheat released by WestBred (a unit of Monsanto) in 2014. WB6121 is agronomically similar to Nick but with improved stripe rust resistance. Yields, test weight, heading date and height are similar to UI Pettit, with higher protein. WB6121 is moderately resistant to current races of stripe rust and susceptible to FHB.

WB6430 (BZ608-125) – a soft white spring wheat released by WestBred (a unit of Monsanto) in 2014. WB6430 is a UI Pettit-type of soft white spring wheat with improved yield, test weight, resistance to stripe rust. WB6430 is moderately resistant to stripe rust and intermediate in susceptibility to FHB.

WB9229 (SJorDA906-229) – hard red spring wheat released by WestBred (a unit of Monsanto) in 2013 intended for irrigated production areas. WB9229 yield and lodging were greater than average in the first two years of testing and was similar to Jefferson under irrigation. WB9229 had average protein and test weight, and the heading date 5-6 days later than average (Table 19). WB9229 has resistance to stripe rust, is shorter than average, and 2 inches shorter than WestBred 936. WB9229 is intermediate in susceptibility to FHB.

WB9411 (BZ908-418) – hard red spring wheat released by WestBred (a unit of Monsanto) in 2014 intended for irrigated production areas and tested for the first time in these trials in 2014. WB9411 was the highest yielding hard red spring wheat in the irrigated trials (Table 19). Test weight, heading date and plant height were average, with higher protein. WB9411 is resistant to current races of stripe rust, but susceptible to FHB.

WB9668 (BZ908-552) – a hard red spring wheat intended as a replacement for WestBred 936, WB9668 was tested in the trials for the first time in 2014. Yield potential and test weight are greater than average and in 2014 yields were similar to Kelse, with higher grain protein. WB9668 is 2 inches shorter than average with lower lodging and of average heading. WB9668 is resistant to the current races of stripe rust and intermediate in susceptibility to FHB.

WB-Paloma (BZ904-331WP) – a hard white spring wheat released in 2009 by WestBred (a unit of Monsanto) as a possible replacement for Snow Crest. Over three years of testing, WB-Paloma had yield comparable to UI Platinum under irrigation, yielding 105% of Snow Crest and 107% of Klasic. WB-Paloma has high protein and is average for height and test weight. WB-Paloma is susceptible to the current races of stripe rust and is susceptible to FHB.

WB-Rockland (SJ908-247) – hard red spring wheat released by WestBred (a unit of Monsanto) in 2010. WB-Rockland is highly resistant to stripe rust, but yields have been low in area trials. WB-Rockland is the only commercially available variety of spring wheat with true resistance to the Cereal Cyst Nematode.

WestBred 936 (PH986-61) – released in 1992 by WestBred (a unit of Monsanto), WestBred 936 is a very high end-use quality hard red spring wheat. Yield potential has decreased over the past ten years due to susceptibility to several diseases, including stripe rust, Cereal Cyst nematode and FHB.

WINTER WHEAT

Bearpaw (MTS0721) – released in 2011 by Montana Sate AES, Bearpaw is a hard red winter wheat for dryland production.

Winter Wheat (cont.)

Bearpaw is an awned, white-glumed, semi-dwarf with solid stems. As a result of the solid-stem characteristic, Bearpaw has resistance to cutting by the wheat-stem sawfly at levels similar to Judee. Bearpaw is resistant to stem rust, but susceptible to stripe rust. Yields of Bearpaw were low under severe dryland conditions in southern Idaho (Table 7). Bearpaw is susceptible to dwarf bunt (DB).

Bobtail (OR208047P4) - a new 2012 release from Oregon State University and the USDA-ARS, Bobtail is a soft white winter wheat with excellent yield potential, lodging tolerance, and disease resistance. Test weight of Bobtail was low, however, and heading date, protein and height were average in 2013 irrigated trials. Bobtail is susceptible to dwarf bunt (DB).

Brundage (ID86-14502B) – a soft white winter wheat released in 1996 by the Idaho AES. Irrigated yield potential of Brundage is excellent, as is the end use quality. Brundage is very susceptible to several diseases, including stripe rust, dwarf bunt and Cephalosporium stripe.

Bruneau (93-64901A) – soft white winter wheat released in 2009 by the University of Idaho AES. Bruneau has been the highest yielding soft white winter wheat in these trials averaged over the past three years, comparable to Bobtail and SY Ovation. Bruneau is tall and is resistant to stripe rust, and also has excellent end use quality, good straw strength and low protein. It is moderately resistant to dwarf bunt.

Curlew (UT9325-55) – a hard red winter wheat released by the Utah AES for the dryland production areas of southern Idaho and Northern Utah in 2009. Curlew yields comparable to Deloris and Utah 100 under dryland conditions and is agronomically similar to Utah 100. Curlew is resistant to dwarf bunt, and is susceptible to stripe rust. Under irrigation, Curlew yields were average but lodging was high.

Deloris (UT2030-32) – a very high end-use quality hard red winter variety for dryland production. Deloris was released in 2002 by the Utah AES and yields well under dryland conditions. Winter survival, grain protein, test weight and height are average. Deloris is very resistant to dwarf bunt.

Eltan (WA7163) – soft white winter wheat released in 1990 by the Washington AES. Eltan has wide adaptability in the dryland PNW production areas with good snow mold tolerance and resistance to dwarf bunt.

Garland (UT1706-1) – released in 1992 by the Utah AES, Garland is a hard red winter wheat favored for it's short stature under irrigation. Yield potential under irrigated and dryland conditions is below average, and end-use quality is poor. Garland is susceptible to stripe rust, and many soil-borne diseases but is resistant to dwarf bunt.

Golden Spike (UT1944-158) – a 1999 release from Utah AES, Golden Spike is a hard white winter wheat with below average yields under irrigation with a tendency to lodge. Under dryland conditions, Golden Spike plant height, grain protein and yields are average. Golden Spike is very resistant to dwarf bunt.

Greenville (UT9743-42) – Utah AES released Greenville hard red winter wheat in 2010. In the extension trials harvested in 2011, Greenville was the highest yielding variety under irrigation, and was average under dryland conditions. Three-year averages for 2012-2014, irrigated yields of Greenville were below average. Test weight, height and lodging were below average.

Winter Wheat (cont.)

Heading date was average. Greenville currently has fairly robust stripe rust resistance and dwarf bunt resistance.

Judee (MT0713) – a hard red winter released in 2011 by Montana State AES, Judee is a solid stem semi-dwarf with resistance to the wheat stem sawfly. Judee yielded a little below average under irrigated production three-years of testing, with yields similar to Moreland, Greenville and Whetstone. Lodging under irrigation was high, comparable to Juniper. Heading and height were average, and grain protein and test weights were both above average. Judee is very susceptible to dwarf bunt.

Winter Wheat (cont.)

Juniper (IDO 575) – hard red winter wheat released in 2005 by the Idaho AES. Juniper has moderate yield potential under irrigation, is extremely tall and will lodge, but has good test weight and protein. Juniper performs well under dryland conditions and is very resistant to dwarf bunt.

Kaseberg (OR2071628) – a new soft white winter 2012 release from Oregon State University and the USDA-ARS, Kaseberg has been above average for irrigated yield (comparable to WB-Junction and better than Stephens) and below average for test weight. Proteins were lower than average, but Kaseberg was average for heading date and height. Kaseberg is very susceptible to dwarf bunt and probably should not be grown under dryland conditions.

Keldin (ACS55017) – a hard red winter wheat distributed by WestBred, Keldin was the highest yeiding hard red winter tested in these trials from 2012-2014. Comparable to Yellowstone and Norwest 553, yields are excellent under irrigated and dryland conditions. Keldin is 1-2 inches shorter than average, has high test weight (see Table 16) and is average for grain protein. Keldin is susceptible to dwarf bunt, and is not recommended for those areas where dwarf bunt is a problem. Seed treatment is recommended for dwarf bunt control if planted in DB prone areas.

Ladd (OR2070870) – a 2012 soft white winter release from Oregon State University and the USDA-ARS, Ladd yields were similar to Brundage under irrigation, and headed 6 days later than Brundage. Ladd was average in plant height with a 4-day later than average heading date. Grain protein was relatively high. Ladd is very susceptible to dwarf bunt, resistant to soil-borne wheat mosaic virus, strawbreaker foot rot, and moderately resistant to stripe rust.

LCS Artdeco (NSA06-2153A) – Limagrain Cereal Seeds introduced several European lines into the US in 2011, including LCS Artdeco, a soft white winter wheat. In the second year in the trials, LCS Artdeco yields were similar to WB-Junction and WB 528. While yields were above average, the test weight was below average, and height was 2 inches shorter than average. LCS Artdeco is very susceptible to dwarf bunt.

LCS Azimut (NSA97-2365) - a hard red winter wheat sold and marketed by Limagrain Cereal Seeds, LLC. Azimut is very short under irrigation, comparable to Garland. Yield and test weight were below average, less than Moreland, and had a heading date two days sooner than nursery average. In the first two years of testing (2012), dryland yields were poor to average. LCS Azimut is very susceptible to dwarf bunt.

LCS Biancor – soft white winter carried by Limagrain Cereal Seeds, and in the first year of testing yielded similar to SY Ovation under irrigation (Table 17). LCS Biancor's

test weight and proteins were below average, and it was 5 inches shorter than average. Biancor is susceptible to dwarf bunt.

LCS Colonia – a German hard red winter with good winter hardiness, LSC Colonia was introduced by Limagrain Cereal Seeds in 2013. Yields in these trials have been at nursery average with very low test weight (Table 16). Plant height and protein were below average, but LCS Colonia has very good straw strength. It is susceptible to dwarf bunt.

LCS Evina – a new variety in these trials, LCS Evina is a hard red winter wheat first tested in 2014. Yield under irrigation was comparable to Manning and Judee with average heading and late heading. LCS Evina is susceptible to dwarf bunt.

Lucin-CL (UT89099) – Utah AES released this hard red winter Clearfield line in 2010. Clearfield wheats have resistance to imazamox herbicides such as to Beyond® herbicide for hard-to-control grassy weeds. Lucin-CL is adapted to dryland production conditions, and is agronomically similar to Deloris. It is suceptible to dwarf bunt. Dryland yields so far have been similar to Deloris and UI Silver.

Madsen (WA7163) – a soft white winter wheat originally released in 1988 jointly by Washington, Idaho and Oregon AES, Madsen has wide adaptability in the PNW with overall good disease resistance. Madsen yields and test weight are average under irrigation and is 5 days later in heading date than average, and 3 inches taller. Madsen is moderately susceptible to dwarf bunt.

Mary (OR2040726) – a soft white winter wheat released by Oregon State AES in 2011. Mary has moderate resistance to stripe rust, and intermediate for winter hardiness. In the third year of Eastern Idaho trials, irrigated yields of Mary were comparable to WB-Junction and Stephens (Table 5) and dryland yields were average. Heading date, test weight, and protein were average and height was a little shorter than average. Mary is moderately susceptible to dwarf bunt.

Manning (UT89099) – a 1979 release from Utah AES, Manning is a hard red winter wheat with below average yields and high lodging under irrigation. Yields under dryland conditions have been poor, but Manning is very resistant to dwarf bunt.

Norwest 553 (ORN00B553) – a hard red winter wheat developed by Oregon State and Nickerson U.K. in cooperation with the USDA-ARS. Norwest 553 is resistant to stripe rust and tolerant to Fusarium crown rot, and has yielded very well (Table 4) under irrigation, comparable to Utah 100 and Yellowstone. Norwest 553 was shorter than average with excellent lodging resistance. Grain protein and test weight were average. Winter hardiness is a problem in some years, and Norwest 553 is susceptible to dwarf bunt.

Otto (WA008092) – a soft white winter released September 2011 by Washington AES, Otto is similar agronomically to Eltan and a day later in heading than Eltan, six days later than average. Otto will have similar snow mold tolerance to Eltan and also is resistant to dwarf bunt.

Promontory (UT1567-51) – a hard red winter wheat released by Utah AES in 1990. Promontory is an irrigated and dryland variety with good test weight. Promontory has short coleoptiles and may have trouble

emerging when planted deep in dry soils. Promontory is resistant to dwarf bunt.

Rosalyn (OR2071071) – a soft white winter, 2012 release from Oregon State University and the USDA-ARS, Rosalyn yields in 2014 have been similar to Brundage and WB1529. Test weight, grain protein and height of Rosalyn were less than average. Rosalyn is resistant to dwarf bunt.

Skiles (ORH010085) – a soft white winter wheat released in 2007 by Oregon AES and the USDA-ARS. Skiles has better winter hardiness than Goetze, Stephens or Tubbs, is moderately resistant to stripe rust, and has tolerance to crown rot and Cephalosporium stripe. In the past three years, Skiles' yield was below average, similar to Brundage, with average lodging and test weight. Skiles is moderately resistant to dwarf bunt.

Stephens (OR65-116) – a 1977 soft white winter release from Oregon AES, Stephens is still widely grown in southern Idaho. Yields under irrigation are average, with lower than average test weight. Quality is poor. Stephens is moderately susceptible to dwarf bunt.

SY Clearstone CL2 (MT CL1077) – a hard red winter 2014 release by Syngenta, SY Clearstone CL2 is a two-gene Clearfield line. Clearfield wheats have resistance to imazamox herbicides such as to Beyond® herbicide for hard-to-control grassy weeds. It was tested under limited dryland conditions in 2014 (Ririe and Rockland) and yields were similar to Deloris and Yellowstone. SY Clearstone CL2 is very resistant to dwarf bunt.

SY Ovation (03PN108#21) – a soft white winter wheat released by Syngenta Cereals in 2011. SY Ovation has had excellent yields over the past three years, similar to Bruneau and Bobtail. Test weight, heading date, height , lodging and protein were average. In 2013 and 2014, yields topped the chart with SY 107 and Bruneau for the average of irrigated nurseries (see Table 17) of the named varieties. SY Ovation is resistant to stripe rust and susceptible to dwarf bunt.

UI Silver (IDO658B) – a hard white winter wheat released in 2011 by the University of Idaho AES. UI Silver had good dryland yields and test weight in extension testing, similar to Utah 100 and Juniper over the last three years. UI Silver has good end use quality for both bread and Asian noodles. UI Silver has resistance to stripe rust, dwarf bunt, and carries the SrTmp gene for resistance to stem rust. It is susceptible to black chaff and lodging, which can be a problem under irrigation.

UI SRG (IDO656B) – a hard red winter wheat released in 2012 by the Idaho AES for the dryland conditions of southern Idaho and Northern Utah. SRG will lodge under irrigation without the use of growth regulators. Yields in the past three (very stressful) years have been above dryland average, comparable to Yellowstone. UI SRG is very resistant to dwarf bunt.

UICF Brundage (02-859) – a soft white winter Clearfield wheat (one gene imi) derived from Brundage released in 2009 by the Idaho AES. Clearfield wheats have resistance to imazamox herbicides such as Beyond®, for hard to control grassy weeds. Performance and agronomic characteristics are very similar to Brundage and Stephens, but is much more resistant to stripe rust than Brundage. Test weight and height have been below average. UICF Brundage is moderately susceptible to dwarf bunt.

Winter Wheat (cont.)

UICF Grace (IDO 651) – a hard white winter Clearfield wheat released in 2009 for the rainfed production areas. UICF Grace has resistance to imazamox herbicides (one-gene imi) such as Beyond®, and will be useful in areas where jointed goatgrass and cheatgrass are problems. Yields are comparable to Juniper. UICF Grace is tall and susceptible to black chaff, making it suited to dryland production. UICF Grace is very resistant to dwarf bunt.

UI-WSU Huffman (IDN-03-29902A) – a soft white winter released by the Idaho AES northern breeding program jointly with WSU in honor of Brad Hufman. Yields in southern Idaho under irrigation have been comparable to Bruneau (Table 17), with good test weight, later heading, and taller with greater lodging than average. UI-WSU Hufman is susceptible to dwarf bunt.

Utah 100 (UT1650-150) – a hard red winter wheat released in 1997 by the Utah AES. Utah 100 has consistently done well under both irrigated and dryland conditions in yield, and is very resistant to dwarf bunt.

WB-1070CL (BZ6WM04-1070) – a soft white winter wheat released by WestBred (a unit of Monsanto) in 2012. WB-1070CL is an imi-tolerant, soft white winter wheat, containing a single gene for tolerance to BASF's grass herbicide 'Beyond'®. Yields under irrigation were less than average in 2013 and 2014, comparable to Eltan, with greater than average lodging. The Clearfield varieties work well under dryland production systems where there are hard to control grassy weeds. WB-1070CL is resistant to dwarf bunt.

WB1376CLP (WB-1038CL) – soft white winter WestBred to be released in 2015, WB1376CLP is an imi-tolerant, soft white winter wheat, containing two genes for tolerance to BASF's grass herbicide 'Beyond'®. In the first year of trials, yields, test weights, lodging and protein were at nursery average. Height is 2 inches taller than average and 2 inches taller than WB 528, and it is susceptible to dwarf bunt.

WB1529 (BZ6W07-436) – soft white winter released in 2014 by WestBred (a unit of Monsanto), yields of WB1529 under irrigation are similar to Brundage in 2014 (Table 5), with higher test weight and lodging. Grain protein was at nursery averages. WB1529 is resistant to dwarf bunt.

WB-Arrowhead (ML9W05-2501) – a hard red winter wheat released by WestBred (a unit of Monsanto) in 2011. Irrigated yields of WB-Arrowhead averaged over the last three years have been excellent, similar to Utah 100, Yellowstone, and Norwest 553 (see Table 4). WB-Arrowhead, like Norwest 553, showed excellent resistance to stripe rust in the 2011 epidemic. Under irrigation, height was similar to Promontory, test weight was above average and lodging was average. WB-Arrowhead is moderately resistant to dwarf bunt.

WestBred 456 (BU6W99-456) – a soft white winter wheat from WestBred, (a unit of Monsanto), WB 456 was released as an improvement over WB 470 and as a replacement for WB 528. WB 456 yielded less than WB 528 in the past three years and had higher test weight. WB 456 is three inches shorter than WB 470 with improved lodging resistance. WB 456 has an early heading date, 2-3 days earlier than average, and had excellent resistance to stripe rust in the 2011 epidemic. Three-year average yields were below average, with very high test weights. WB 456 is 2-3 inches shorter than WB528, and has good lodging resistance. WB 456 is susceptible to dwarf bunt.

Winter Wheat (cont.)

WB 528 (BZ6W98-528) – soft white winter wheat released in 2005 by WestBred (a unit of Monsanto) with good yield potential under irrigation. Yields, test weight, and protein were average, and plant height and lodging were slightly above average (Table 5). WB 528 is moderately resistant to dwarf bunt.

WB-Junction (BZ6W02-616) – a soft white winter wheat released in 2011 by WestBred (a unit of Monsanto). In the past three years in these trials, averaged over all irrigated locations, the yield, test weight, height and lodging of WB-Junction was average, similar to WB 528, but with a little lower test weight than WB 456. WB-Junction is moderately susceptible to dwarf bunt.

Weston (ID74-55/20) – a very old hard red winter wheat still used in dryland areas of southeast Idaho. Weston was released in 1978 by the Idaho AES, and has yields that are lower than average in the dryland nurseries, but with good test weight. Weston has moderate resistance to dwarf bunt.

Whetstone (W98-355) – is a hard red winter wheat from AgriPro, now Syngenta Cereals, in 2009. Whetstone is a medium height semidwarf with buckskin colored chaff at maturity. Whetstone is an early-maturing wheat with a good level of winter-hardiness but is susceptible to the current prevalent races of stripe rust (2011). Yield of Whetstone in the past three years has been average (Table 4). Whetstone has good test weight and protein with very good loaf volume. Whetstone is a PVP, Title V variety. Whetstone is very susceptible to dwarf bunt.

Yellowstone (MT00159) – a hard red winter wheat with excellent yield potential in both irrigated and dryland conditions of southeast Idaho. Yellowstone has above average test weight, and height, and lower grain protein. End use quality is average, with above average loaf volume. Under very high production inputs, Yellowstone will lodge under irrigation and is very susceptible to stripe rust and dwarf bunt.

Table 3. Ten year averages of selected agronomic characteristics, 2004-2013 compared to 2014.

NOTE: "Average" values are for years 2004 to 2013

Winter Wheat

YIELD			TEST WEIGHT			PLANT HEIGHT			HEADING DATE				LODGING		
	# of			# of			# of			# of		Days		# of	
Year	Loc.	bu/A	Year	Loc.	lb/bu	Year	Loc.	in.	Year	Loc.	date	fr. Jan.1	Year	Loc.	%
2004	3	122	2004	3	61.1	2005	4	38	2011	5	6/19	171	2014	5	25
2005	4	104	2008	5	60.9	2004	3	36	2010	5	6/18	171	2010	5	21
2009	5	102	2006	4	60.8	2009	5	35	2008	5	6/14	166	2009	5	17
2012	5	102	2007	4	60.3	2010	5	34	2009	5	6/9	162	2011	5	9
2014	4	101	2010	5	60.3	**Avg.**	---	**33**	**Avg.**	---	**6/8**	**160**	2007	4	9
2006	4	98	2011	5	60.2	2011	5	32	2005	4	6/7	159	**Avg.**	---	**9**
Avg.	---	**96**	**Avg.**	---	**60**	2006	4	32	2013	5	6/5	158	2013	5	8
2007	4	96	2009	5	60.0	2014	5	32	2014	5	6/4	157	2006	4	8
2010	5	95	2012	5	59.7	2013	5	31	2012	5	6/3	156	2012	5	5
2011	5	86	2013	5	59.4	2012	5	30	2004	3	6/3	155	2008	5	4
2008	5	80	2005	4	59.3	2007	4	30	2006	4	6/1	153	2005	4	4
2013	5	79	2014	4	56.1	2008	4	30	2007	4	5/30	151	2004	3	2

Spring Wheat

YIELD			TEST WEIGHT			PLANT HEIGHT			HEADING DATE				LODGING		
	# of			# of			# of			# of		Days		# of	
Year	Loc.	bu/A	Year	Loc.	lb/bu	Year	Loc.	in.	Year	Loc.	date	fr. Jan.1	Year	Loc.	%
2014	5	107	2006	5	62.1	2014	4	34	2008	5	7/9	192	2014	4	16
2009	5	107	2009	5	61.8	2009	5	34	2010	5	7/9	192	2006	5	6
2008	5	102	2013	5	61.4	2010	5	33	2011	5	7/9	192	2007	5	5
2011	5	96	2012	5	61.4	2005	5	32	2005	5	7/3	186	2010	5	5
2010	5	91	2008	5	60.7	2011	5	32	2009	5	7/3	185	2011	5	3
2012	5	90	2010	5	60.6	2004	4	32	**Avg.**	---	**7/1**	**183**	2005	5	2
Avg.	---	**89**	**Avg.**	---	**61**	**Avg.**	---	**31**	2004	4	7/1	183	**Avg.**	---	**2**
2005	5	87	2005	5	60.2	2007	5	30	2006	5	6/27	179	2013	5	2
2013	5	86	2004	4	59.6	2008	5	30	2012	5	6/24	177	2004	4	1
2007	5	81	2011	5	59.2	2012	5	30	2013	5	6/22	175	2008	5	0.5
2004	4	79	2007	5	58.6	2006	5	29	2007	5	6/21	173	2012	5	0.4
2006	5	72	2014	5	56.5	2013	5	28	2014	5	6/18	170	2009	5	0

Spring Barley

YIELD			TEST WEIGHT			PLANT HEIGHT			HEADING DATE				LODGING		
	# of			# of			# of			# of		Days		# of	
Year	Loc.	bu/A	Year	Loc.	lb/bu	Year	Loc.	in.	Year	Loc.	date	fr. Jan.1	Year	Loc.	%
2012	4	129	2009	4	52.5	2010	4	37	2008	5	7/11	193	2014	4	56
2014	4	127	2005	5	52.0	2014	4	36	2011	5	7/9	191	2007	5	35
2013	4	122	2010	4	51.7	2009	4	34	2010	4	7/4	187	2013	4	33
2009	4	118	2013	4	51.6	2004	4	34	2005	5	7/4	186	2011	5	26
2008	5	114	2011	5	51.6	2011	5	33	2009	4	6/30	183	2010	4	24
2011	5	112	2006	5	51.5	2013	4	33	**Avg.**	---	**6/30**	**183**	2004	4	23
Avg.	---	**108**	2012	4	51.4	2005	5	32	2004	4	6/29	181	2005	5	21
2010	4	106	**Avg.**	---	**51**	**Avg.**	---	**32**	2006	5	6/28	180	**Avg.**	---	**21**
2005	5	103	2004	4	50.7	2008	5	31	2012	4	6/24	177	2006	5	21
2004	4	99	2008	5	50.7	2012	4	30	2014	4	6/23	176	2008	5	15
2007	5	99	2007	5	49.2	2007	5	27	2007	5	6/23	175	2009	4	13
2006	5	82	2014	4	48.8	2006	5	26	2013	4	6/20	173	2012	4	0.4

Table 4. Hard Winter Wheat Irrigated Nurseries, 3-Year Averages (2012-2014; 9 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Keldin	145.8	61.3	98	5/30	36	28	12.6
Yellowstone	142.3	60.8	97	5/29	40	20	12.4
Norwest 553	141.3	60.3	96	5/31	33	0	12.6
Utah 100	140.8	59.5	98	6/3	42	20	12.8
WB-Arrowhead	137.4	61.2	98	5/30	38	28	12.3
Promontory	134.8	60.8	96	5/30	39	31	12.1
Moreland	134.7	59.2	97	5/29	35	15	13.6
Whetstone	133.9	60.9	97	5/26	36	20	13.5
Judee	130.5	61.6	99	5/30	36	33	13.3
Greenville	128.3	58.3	97	5/30	31	23	13.0
Azimut	128.1	55.4	96	5/28	30	9	12.2
Manning	127.1	59.6	96	5/31	38	53	13.1
Juniper	123.5	61.3	98	6/1	48	30	13.9
Golden Spike (W)	122.3	58.9	98	6/3	39	55	13.0
Average	133.6	59.9	97	5/30	37	26	12.9
LSD (α =.05)	7.0	0.6	2.8	0.7	1.3	9.6	0.7
CV%	10.6	2.1	6.3	0.9	7.3	78.9	5.1
Pr > F	<.0001	<.0001	0.4891	<.0001	<.0001	<.0001	<.0001

(W) = white

Table 5. Soft White Winter Wheat Irrigated Nurseries, 3-Year Averages (2012-2014; 9 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Bruneau	142.9	58.5	98	6/3	37	13	10.6
Bobtail	141.9	55.9	97	6/1	34	9	10.6
SY Ovation	141.0	58.6	98	5/31	35	7	10.5
Kaseberg	140.0	57.1	98	6/1	35	11	10.4
Mary	136.3	58.5	98	5/31	33	9	11.3
WB-Junction	135.0	59.0	98	5/28	35	10	10.5
Stephens	134.2	57.1	98	5/31	35	12	10.8
WB 528	133.9	58.5	96	5/31	35	17	10.7
Madsen	133.7	58.3	98	6/4	37	10	11.7
Brundage	131.5	59.4	95	5/28	34	8	10.5
WB1529	131.4	59.9	98	5/29	33	15	10.9
Skiles	131.2	58.7	98	6/3	35	10	11.3
WB-1070CL	129.1	60.6	98	5/26	33	12	10.4
Ladd	128.9	58.3	97	6/4	34	7	11.5
WB 456	118.5	59.9	97	5/28	33	5	11.2
Average	134.0	58.6	97	5/31	34	10	10.9
LSD (α =.05)	7.4	0.7	2.8	0.7	0.8	5.6	0.8
CV%	11.2	2.3	6.2	1.0	5.0	115.3	7.7
Pr > F	<.0001	<.0001	0.5379	<.0001	<.0001	0.0015	<.0001

Table 6. Winter Barley Irrigated Nurseries, 3-Year Averages (2012-2014; 6 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)	(>6/64)	Plumps (>5.5/64)	% thin
Eight-Twelve	170.7	47.9	90	5/24	37	26	10.5	72.1	15.7	12.5
Sunstar Pride	167.7	47.4	91	6/2	36	20	10.1	53.8	19.2	27.1
Strider	165.4	47.5	91	5/22	36	32	10.9	83.2	10.1	7.0
Alba	159.0	48.3	94	5/23	36	30	10.8	83.2	9.8	7.3
93Ab669	157.3	49.7	86	5/25	38	25	10.9	81.5	11.6	6.9
02Ab431	157.1	50.0	90	5/26	36	34	11.1	91.4	4.1	4.6
Sprinter	156.0	46.3	94	5/23	37	24	10.9	73.9	12.0	14.2
Schuyler	151.8	48.1	97	5/26	39	30	10.7	59.8	19.7	20.7
02Ab671	148.4	50.2	89	5/27	36	28	11.0	87.4	7.6	5.5
Endeavor	143.5	49.9	88	5/25	39	28	11.0	77.9	10.7	11.6
Charles	142.9	48.3	89	5/22	31	41	11.1	86.2	7.8	6.3
Kamiak	140.5	48.3	94	5/19	37	37	10.9	74.9	14.2	9.2
Streaker*	131.5	52.9	85	5/21	36	42	12.2	44.7	24.4	31.2
Average	153.2	48.8	91	5/24	36	31	10.9	74.6	12.8	12.6
LSD (a =.05)	14.7	1.0	6.8	1.2	1.5	12.0	0.5	10.3	6.2	9.3
CV%	15.4	3.4	13.1	1.4	7.4	69.1	3.8	10.8	38.1	57.7
Pr > F	<.0001	<.0001	0.0370	<.0001	<.0001	0.0070	<.0001	<.0001	<.0001	<.0001

* indicates hulless variety

Table 7. Hard Winter Wheat Dryland Nurseries 3-Year Averages (2012-2014; 6 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Keldin	26.9	59.3	91	6/7	21	0	12.9
Yellowstone	26.3	59.8	92	6/7	22	0	12.5
UI SRG	26.1	58.9	94	6/7	25	0	13.7
Deloris	25.9	59.4	90	6/10	24	0	13.1
Utah 100	25.6	58.7	91	6/9	25	0	13.1
UI Silver (W)	25.6	61.0	87	6/9	23	0	12.7
Juniper	24.9	60.3	90	6/9	26	0	13.7
IDO816	24.9	59.3	90	6/10	23	0	12.6
Lucin-CL	24.9	59.7	89	6/8	25	0	13.3
UICF Grace (W)	24.8	58.7	90	6/7	27	0	13.1
Curlew	23.7	59.9	90	6/7	24	0	14.0
Golden Spike (W)	23.6	58.9	91	6/9	22	0	13.1
WB-Arrowhead	23.0	59.2	91	6/7	23	0	13.5
Judee	23.0	60.3	91	6/7	20	0	13.7
Weston	22.6	60.3	88	6/8	25	0	13.7
Greenville	22.4	58.6	89	6/7	18	0	12.4
AP503 CL2	22.2	60.1	87	6/5	20	0	13.7
Promontory	22.0	59.6	92	6/7	22	0	13.5
Bearpaw	21.5	59.2	91	6/6	19	0	13.9
Norwest 553	19.0	59.2	79	6/10	20	0	13.6
Average	23.9	59.5	90	6/8	23	0	13.3
LSD (α =.05)	2.7	0.6	4.8	0.9	1.1	0.0	1.0
CV%	19.6	1.8	9.4	1.0	8.9	.	6.5
Pr > F	<.0001	<.0001	<.0001	<.0001	<.0001	.	0.0337

(W) = white

Table 8. Soft White Winter Wheat Dryland Nurseries, 3-Year Averages (2012-2014; 3 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Eltan	23.9	56.0	88	6/23	20	0	15.2
Bitterroot	22.5	56.9	84	6/21	20	0	15.4
Bruneau	21.6	56.0	82	6/21	20	0	14.3
UICF Brundage	20.4	53.7	85	6/18	19	0	14.9
Madsen	19.5	55.8	83	6/21	19	0	15.7
Skiles	19.0	55.4	72	6/20	18	0	15.3
WB 528	18.8	56.7	78	6/19	18	0	15.1
Bobtail	18.5	52.7	78	6/20	18	0	13.1
Mary	18.0	55.0	75	6/17	18	0	14.8
Kaseberg	18.0	53.7	74	6/18	17	0	14.0
Brundage	16.9	56.5	82	6/15	19	0	13.5
Stephens	16.8	55.0	84	6/18	20	0	15.6
Ladd	16.0	53.8	72	6/21	18	0	15.9
Average	19.2	55.2	80	6/19	19	0	14.8
LSD (α =.05)	2.8	1.0	10.5	1.2	1.7	0.0	1.4
CV%	18.2	2.1	16.2	0.9	11.0	.	5.8
Pr > F	<.0001	<.0001	0.0293	<.0001	0.0017	.	0.0086

Table 9. Hard Spring Wheat Irrigated Nurseries, 3-Year Averages (2012-2014; 12 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Dayn (W)	119.5	60.2	100	6/21	33	0	13.7
Kelse	108.6	61.0	100	6/20	33	1	14.7
IDO862T	105.2	61.0	99	6/21	34	2	14.7
IDO862E	104.8	61.4	97	6/18	32	0	14.7
Alzada (D)	104.4	60.5	99	6/19	30	12	14.4
WB-Paloma (W)	103.7	60.1	99	6/19	30	3	14.9
Cabernet	103.7	60.1	100	6/21	28	2	14.0
Bullseye	103.0	60.7	100	6/21	30	10	14.6
UI Platinum (W)	102.5	60.1	98	6/18	29	5	13.8
Jefferson	101.6	60.2	99	6/21	32	9	14.5
Snow Crest (W)	98.0	59.9	99	6/18	28	3	14.8
UI Winchester	96.3	59.9	99	6/21	31	16	14.5
Klasic (W)	96.1	59.9	99	6/18	25	3	14.3
Westbred 936	88.4	57.0	99	6/20	30	2	14.7
Average	102.6	60.1	99	6/20	30	5	14.4
LSD (α =.05)	3.4	0.4	1.6	0.4	0.8	4.9	0.4
CV%	8.3	1.5	4.0	0.5	6.9	246.0	3.7
Pr>F	<.0001	<.0001	0.1356	<.0001	<.0001	<.0001	<.0001

(W) = white

(D) = durum

Table 10. Soft White Spring Wheat Irrigated Nurseries, 3-Year Averages (2012-2014; 12 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
UI Stone	119.4	60.2	100	6/20	33	5	11.2
Alpowa	115.3	60.1	100	6/24	35	11	11.6
UI Pettit	109.1	59.9	100	6/18	31	2	11.1
Alturas	109.0	59.6	100	6/23	33	10	11.1
Babe	108.3	59.6	99	6/23	34	8	11.4
Penawawa	105.8	58.7	100	6/23	34	11	11.9
Average	111.2	59.7	100	6/22	33	8	11.4
LSD (α =.05)	3.9	0.4	0.2	0.4	0.8	6.3	0.4
CV %	8.8	1.6	0.6	0.6	5.8	203.7	4.3
Pr > F	<.0001	<.0001	0.0014	<.0001	<.0001	0.0427	0.0006

Table 11. 6-Row Spring Barley Irrigated Nurseries, 3-Year Averages (2012-2014; 12 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)	Plump (> 6/64)	Plump (>5.5/64)	% Thin
Feed										
Millennium	144.7	48.3	100	6/17	36	13	11.2	75.6	15.6	9.0
Goldeneye	137.5	49.8	99	6/19	34	19	11.4	86.2	9.0	5.0
Herald	132.9	48.0	99	6/19	36	28	10.9	84.3	10.2	5.8
Malt										
01Ab9663	132.1	49.4	99	6/21	38	35	10.7	88.2	7.6	4.7
Tradition	127.2	50.1	100	6/20	36	32	11.3	92.3	5.6	2.3
Legacy	126.4	49.0	100	6/20	36	46	11.3	88.8	7.5	4.1
Celebration	119.4	49.1	99	6/20	35	48	11.7	88.6	7.6	4.1
Quest	118.3	49.7	99	6/19	37	45	11.5	86.5	9.1	4.7
Morex	114.3	48.7	99	6/21	37	53	11.1	78.5	13.3	8.4
Average	128.1	49.1	99	6/20	36	35	11.2	85.4	9.5	5.3
LSD (α =.05)	6.0	0.4	0.3	0.5	1.0	7.7	0.3	4.1	2.2	2.1
CV%	11.7	2.1	0.9	0.7	6.6	54.1	3.0	5.9	28.3	49.1
Pr > F	<.0001	<.0001	0.0303	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001

Table 12. 2-Row Spring Malt Barley Irrigated Nurseries, 3-Year Averages (2012-2014; 12 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)	(> 6/64)	Plump (5.5/64)	% Thin
2Ab07-X031098-31	133.2	50.9	98	6/22	33	36	11.8	88.0	7.5	4.8
Pinnacle	133.1	52.4	98	6/20	34	24	11.5	96.3	2.5	1.4
Baronesse (feed check)	131.3	51.0	100	6/22	31	45	10.9	87.9	7.2	5.0
ABI Voyager	130.6	50.5	98	6/22	33	31	11.4	94.0	3.9	2.3
LCS Genie	128.2	50.1	100	6/25	29	51	11.5	85.6	8.9	5.8
CDC Copeland	128.1	50.9	99	6/25	36	30	11.4	91.6	5.8	3.1
Moravian 69	128.0	48.8	100	6/25	29	43	11.4	81.5	11.7	7.1
Conrad	123.2	50.5	100	6/22	31	42	11.3	90.2	6.5	4.0
2Ab04-X01084-27	122.2	49.1	100	6/22	30	51	11.3	86.9	7.6	5.7
Merit 57	121.1	49.2	100	6/24	34	41	11.7	83.8	10.0	6.5
Hockett	120.6	51.1	99	6/21	33	55	11.6	90.2	5.8	4.3
CDC Meredith	119.6	49.3	99	6/25	33	54	11.6	89.3	6.8	4.2
AC Metcalfe	117.5	50.8	99	6/22	35	44	11.5	89.7	6.2	4.4
Merem	116.4	49.8	99	6/27	35	38	11.6	85.0	8.8	6.2
Harrington	104.9	49.9	99	6/24	33	60	11.7	78.1	13.2	8.8
Average	123.9	50.3	99	6/23	33	43	11.5	87.9	7.5	4.9
LSD (α =.05)	5.7	0.6	1.9	0.5	1.0	9.5	0.2	3.7	2.0	1.8
CV%	11.4	3.0	4.8	0.7	8.0	54.9	2.3	5.2	33.6	46.3
Pr > F	<.0001	<.0001	0.5562	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001

Table 13. 2-Row Spring Feed Barley Irrigated Nurseries, 3-Year Averages (2012-2014; 12 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)	Plump (> 6/64)	Plump (5.5/64)	% Thin
Champion	149.5	52.7	99	6/21	33	34	11.7	92.3	5.1	2.9
Xena	142.4	51.4	99	6/21	33	40	11.2	90.2	5.8	4.3
Lenetah	139.7	51.4	100	6/22	34	38	11.4	91.8	5.1	3.7
RWA 1758	137.7	51.1	100	6/22	31	45	11.1	88.1	7.1	4.9
Tetonia	136.9	51.4	100	6/24	32	45	11.1	83.5	9.6	7.2
08ID2661	136.8	50.7	99	6/25	33	32	10.9	85.9	9.8	4.2
Idagold II	135.6	50.5	99	6/24	30	23	11.4	84.3	10.8	5.3
Herald	133.3	48.0	99	6/19	35	29	11.4	84.4	10.3	5.6
Baronesse	128.3	50.8	100	6/22	31	48	10.9	86.4	8.4	5.4
Julie*	117.0	56.5	99	6/27	34	28	15.3	83.2	10.4	6.6
08ID1549*	116.7	57.4	95	6/25	34	31	14.6	75.4	16.3	8.2
CDC McGwire*	113.4	56.7	99	6/24	34	45	12.7	65.2	22.0	13.5
Clearwater*	103.8	55.9	99	6/23	33	53	15.8	68.5	19.3	12.4
Transit*	98.0	56.4	99	6/24	35	26	15.3	77.9	15.7	6.7
CDC Fibar*	86.8	56.2	99	6/23	35	64	16.4	76.9	15.2	8.2
Average	125.1	53.1	99	6/23	33	39	12.8	82.3	11.4	6.6
LSD (α =.05)	5.8	0.6	0.8	0.4	1.1	8.5	0.6	4.7	2.6	2.5
CV%	11.6	2.8	2.1	0.6	8.0	54.9	5.6	7.1	28.7	46.1
Pr > F	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001

*indicates hulless variety

Table 14. Hard Spring Wheat Dryland Nurseries, 3-Year Averages (2012-2014; 3 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Kelse	47.1	60.6	78	7/2	23	0	15.5
Dayn (W)	46.3	58.8	83	7/3	24	0	14.0
Jefferson	45.7	60.4	85	7/4	22	0	15.0
IDO862E	45.0	60.3	83	7/1	23	0	14.8
UI Platinum (W)	43.9	59.6	88	7/1	19	0	13.9
UI Winchester	43.9	59.8	84	7/4	21	0	14.7
Westbred 936	42.4	58.5	88	7/4	21	0	15.2
Klasic (W)	40.3	59.1	85	7/1	16	0	14.2
Average	44.3	59.6	84	7/2	21	0	14.7
LSD (α =.05)	5.2	1.0	5.8	0.7	1.9	0.0	0.5
CV%	14.4	2.0	8.4	0.5	8.9	.	2.1
Pr>F	0.2101	0.0001	0.0496	<.0001	<.0001	.	0.0001

(W) = white

Table 15. Soft White Spring Wheat Dryland Nurseries, 3-Year Averages (2012-2014; 3 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Alturas	47.5	59.8	86	7/6	20	0	12.1
Alpowa	47.2	58.8	85	7/6	23	0	13.6
Babe	46.1	58.4	76	7/5	24	0	12.8
UI Pettit	44.1	59.0	78	6/30	20	0	12.2
UI Stone	43.7	59.6	85	7/2	22	0	12.6
Penawawa	42.7	57.6	85	7/5	21	0	13.5
Average	45.2	58.9	82	7/4	22	0	12.8
LSD (α =.05)	3.9	1.3	9.6	0.5	1.7	0.0	1.1
CV%	10.5	2.7	14.2	0.3	7.6	.	4.6
Pr > F	0.0787	0.0232	0.1907	<.0001	0.0011	.	0.0489

Table 16. Irrigated Hard Winter Wheat Data Combined from Kimberly, Rupert, and Aberdeen, 2014.

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in)	Lodging (%)	Protein (%)
NSA10-7208	177.5	56.9	95	5/30	35	27	11.0
IDO1101 (W)	173.0	58.2	96	5/31	35	59	13.3
WA8183	168.0	55.6	98	5/31	36	61	12.2
OR2080236H (W)	167.2	57.5	96	6/2	37	34	12.1
OR2100081H	166.5	58.5	95	5/31	36	30	12.0
WB-Arrowhead / Keldin	165.4	58.5	96	5/31	38	50	11.6
Keldin	164.7	58.5	96	5/31	37	61	12.1
Norwest 553	164.6	57.6	96	6/1	33	1	12.5
Promontory	163.3	58.1	96	5/31	41	61	11.5
Moreland	162.5	57.1	95	5/30	35	40	12.9
WA8184	162.1	56.9	95	5/30	38	61	12.0
Whetstone	161.3	59.3	97	5/27	37	45	12.4
WB-Arrowhead	159.7	58.1	96	6/1	39	55	12.5
WB3768 (W)	159.4	58.1	95	6/5	43	49	12.5
IDO1103	158.8	58.1	97	6/3	39	69	12.8
Utah 100	158.2	58.0	98	6/4	43	48	12.3
Greenville	157.3	56.4	96	6/1	31	47	12.4
Yellowstone	156.9	58.3	95	5/30	40	46	11.6
LCS Colonia	156.7	53.9	99	6/4	36	7	11.8
UI Silver (W)	156.0	56.5	97	6/1	42	68	12.9
Garland	155.3	55.8	96	6/3	29	39	12.7
LCS Azimut	154.4	54.1	95	5/30	30	21	11.0
Manning	150.6	56.0	96	6/1	41	68	13.0
LCS Evina	149.2	57.6	96	6/5	39	38	12.8
Judee	145.1	59.1	98	5/31	38	58	12.0
Juniper	141.5	59.0	98	6/2	50	61	13.3
Golden Spike (W)	140.6	55.6	97	6/4	42	83	12.9
DAS001	138.4	57.4	92	5/28	38	41	12.0
Juniper / Promontory	136.3	58.3	98	6/2	49	60	12.9
DAS002	130.4	59.4	96	6/1	39	29	11.8
Average	156.7	57.4	96	6/1	38	47	12.3
LSD (α = .05)	9.6	0.7	3.7	0.8	1.7	18.2	1.0
CV%	6.1	1.2	4.8	0.7	5.5	48.0	3.9
Pr >F	<.0001	<.0001	0.3771	<.0001	<.0001	<.0001	0.0009

(W) = white

Table 17. Irrigated Soft White Winter Wheat Data Combined from Kimberly, Rupert, and Aberdeen, 2014.

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in)	Lodging (%)	Protein (%)
SY 107	168.7	55.9	93	6/2	35	30	10.5
IDO1108	167.6	55.1	95	6/5	41	32	10.5
SY Ovation	165.7	56.1	95	6/1	35	18	10.8
LCS Biancor	164.2	54.3	98	6/2	31	27	9.7
Bobtail	163.9	54.6	94	6/2	36	25	10.1
Bruneau	163.5	55.8	96	6/4	38	30	10.6
OR2080641	163.2	55.8	96	6/2	37	22	10.2
Kaseberg	162.3	54.7	96	6/1	36	27	9.4
UI-WSU Huffman	161.0	56.4	96	6/5	39	37	11.4
IDN-02-29001A	160.9	56.8	96	6/1	38	18	10.7
Mary	159.5	56.7	96	5/31	34	23	10.5
LCS Artdeco	159.1	53.7	95	5/30	33	19	9.4
WB-Junction	158.3	55.8	98	5/29	36	28	10.2
IDN-02-08806A	158.1	55.1	95	6/3	37	28	11.0
WB 528	157.5	55.4	92	5/30	36	39	10.8
WB1376CLP	156.8	55.9	96	5/30	38	24	10.8
Madsen	156.2	56.2	96	6/5	38	18	11.3
Stephens	156.1	55.0	95	5/31	36	28	10.3
OR2090473	155.6	54.8	97	5/30	35	30	9.6
OR2080637	155.1	55.3	96	6/5	36	27	10.8
IDN-01-10704A	154.9	54.7	93	6/2	39	24	10.7
Skiles	154.4	56.1	96	6/3	36	25	11.3
WB1529	153.7	56.9	96	5/30	33	39	11.1
LWW12-7105	153.7	54.5	94	5/29	30	23	9.5
Brundage	152.4	56.5	94	5/29	36	20	9.9
Rosalyn	151.5	54.3	97	6/3	37	22	9.6
WB 436/WB-Junction	150.1	56.7	96	5/28	36	32	10.9
Madsen / Eltan	148.4	55.8	93	6/5	39	38	11.1
IDN-04-00405B	148.1	52.4	97	5/31	35	18	10.4
Eltan	147.7	55.9	97	6/7	42	54	11.0
WB-1070CL	147.3	57.6	94	5/27	35	24	11.1
Ladd	147.1	55.5	94	6/4	35	12	11.9
WB 456	140.0	57.7	94	5/28	35	13	11.3
Average	156.4	55.6	95	6/1	36	26	10.6
LSD (α = .05)	10.5	1.4	5.0	1.0	1.5	14.9	1.2
CV %	6.8	2.5	6.6	0.8	5.0	70.1	5.5
Pr > F	<.0001	<.0001	0.9211	<.0001	<.0001	<.0001	0.0080

Table 18. Irrigated Winter Barley Data Combined from Rupert and Aberdeen 2014.†

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand	Heading Date	Height (in)	Lodging (%)	Protein (%)	Plump (>6/64)	Plump (>5.5/64)	% Thin
Sunstar Pride	236.1	47.2	84	6/3	39	29	10.9	70.9	16.4	13.0
UTWB10201-15	234.7	47.4	92	5/22	38	25	12.2	94.0	4.4	1.4
02Ab431	232.3	47.5	81	5/28	43	23	11.0	92.6	4.5	1.9
Strider	221.6	48.1	85	5/24	39	41	11.6	94.6	3.7	1.7
Eight-Twelve	220.9	48.4	83	5/27	41	35	11.2	93.2	5.1	1.6
Alba	215.0	49.3	87	5/26	39	29	11.6	97.2	2.2	0.7
Sprinter	208.8	48.2	86	5/25	41	41	12.1	96.8	2.0	0.7
LCS Saturn	208.2	48.2	93	5/22	37	20	11.1	97.5	1.3	1.1
02Ab671	197.8	51.1	80	5/28	40	32	11.9	97.7	1.2	1.1
2Ab09-X05W018-119	192.8	51.5	89	5/30	41	33	11.3	98.4	0.9	0.2
TCFW6-140	187.9	48.9	82	5/25	39	37	11.6	94.1	4.5	1.7
Streaker*	184.8	54.4	74	5/25	39	48	13.8	63.5	24.9	11.3
02Ab669	184.6	51.4	77	5/28	41	29	12.0	97.5	1.8	0.9
2Ab08-X05W061-216	184.3	49.4	87	5/25	37	44	12.1	95.7	2.5	1.3
2Ab09-X05W040-125	182.2	52.1	84	5/29	38	34	12.0	96.9	1.8	1.0
Schuyler	174.7	48.2	93	5/29	42	47	11.7	90.0	7.2	3.0
09-OR-86*	173.7	58.7	69	5/26	42	42	14.8	69.4	21.6	9.2
Endeavor	173.2	50.2	71	5/29	41	28	11.6	94.4	3.5	1.9
LCS Violetta	172.0	51.4	91	5/22	37	26	11.8	98.2	1.2	0.5
Charles	168.8	48.7	76	5/24	34	40	11.6	93.8	3.6	2.3
Kamiak	158.4	49.1	87	5/22	40	48	11.5	94.1	4.5	1.4
Average	195.8	50.0	83	5/26	39	35	11.9	91.5	5.7	2.8
LSD (α = .05)	24.4	1.1	14.3	1.3	2.5	18.6				
CV %	8.8	1.5	17.4	0.9	6.4	54.1				
Pr > F	<.0001	<.0001	0.0310	<.0001	<.0001	0.0475				

*indicates hulless variety

† Stand, heading, height, and lodging are from both Rupert and Aberdeen. Other data are only from Aberdeen.

Table 19. Irrigated Hard Spring Wheat Data Combined from Rupert, Idaho Falls, Ashton, and Aberdeen, 2014.

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in)	Lodging (%)	Protein (%)
SY-10136 (W)	147.8	56.5	98	6/10	33	46	14.3
Dayn (W)	141.3	57.1	99	6/21	35	1	13.3
Utopia (D)	135.4	57.5	98	6/13	34	63	14.8
UI Platinum (W)	130.8	57.0	99	6/19	31	15	13.5
WB9411	130.2	56.9	99	6/21	33	6	14.4
Kelse	129.4	59.5	99	6/21	36	2	14.3
WB9668	128.6	58.3	99	6/21	31	3	15.1
WB-Paloma (W)	128.4	57.1	98	6/20	31	10	14.6
SY-40292R	127.9	56.3	100	6/25	34	19	13.7
11SB0096	126.6	55.6	99	6/25	35	6	13.4
Cabernet	125.3	57.1	99	6/22	30	4	13.6
SY Basalt	125.1	55.3	99	6/26	32	3	13.0
LCS Star (W)	124.8	55.2	99	6/23	33	11	13.7
Alzada (D)	123.9	58.1	98	6/20	32	27	13.3
IDO862T	123.3	59.2	99	6/22	36	6	14.3
LCS Atomo (W)	123.0	55.3	99	6/19	27	17	13.0
IDO862E	122.8	59.6	99	6/19	34	1	14.4
WB9229	122.7	57.0	99	6/27	30	30	14.0
LL 3378	118.4	58.4	99	6/24	36	15	13.3
Snow Crest (W)	118.4	56.8	98	6/19	30	6	14.2
LL 3419	117.0	55.1	99	6/28	34	15	12.9
Jefferson	115.6	57.4	99	6/23	35	24	14.0
Buck Pronto	113.8	57.3	99	6/19	33	21	15.0
IDO1202S (W)	113.2	58.4	98	6/25	34	17	13.4
Bullseye	112.1	57.0	99	6/23	32	28	13.9
WA 8166	112.1	55.8	100	6/16	36	45	15.8
Klasic (W)	111.7	56.5	98	6/19	26	10	13.9
LL 3361	106.9	54.5	98	6/24	35	10	13.9
UI Winchester	104.8	56.2	98	6/23	33	46	14.6
Westbred 936	97.0	52.6	98	6/22	32	7	14.2
Average	122.4	56.8	99	6/21	33	17	14.0
LSD (α = .05)	7.5	0.8	1.1	0.8	2.3	17	0.8
CV%	7.9	1.8	1.4	0.6	9.0	143.8	3.6
Pr > F	<.0001	<.0001	0.0627	<.0001	<.0001	<.0001	<.0001

(W) = white

(D) = durum

Table 20. Irrigated Soft White Spring Wheat Data Combined from Rupert, Idaho Falls, Ashton, and Aberdeen 2014.

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in)	Lodging (%)	Protein (%)
UI Stone	139.4	56.9	100	6/20	34	13	10.8
IDO 851	137.6	56.8	99	6/24	35	7	10.5
IDO 852	131.2	57.0	99	6/20	35	21	10.9
Alpowa	129.7	56.6	99	6/25	36	27	11.6
WB6430	128.8	56.5	99	6/21	32	11	10.8
WA 8162	127.3	56.6	99	6/26	35	21	11.4
UI Pettit	120.9	56.0	99	6/18	33	7	10.8
WB6121	120.0	57.0	99	6/21	34	14	12.2
WA 8189	117.9	56.3	100	6/26	35	15	11.4
Alturas	117.7	56.2	99	6/25	35	23	11.3
Penawawa	117.6	54.6	99	6/25	35	23	11.6
Babe	114.1	54.8	99	6/24	36	18	11.3
Average	125.2	56.3	99	6/23	35	17	11.2
LSD (α = .05)	8.2	0.8	0.6	0.9	1.3	16.8	0.7
CV%	9.4	2.0	0.9	0.8	5.5	144.3	4.5
Pr > F	<.0001	<.0001	<.0001	<.0001	<.0001	0.2766	0.0019

Table 21. Irrigated 6-Row Spring Barley Data Combined from Rupert, Idaho Falls, Ashton, and Aberdeen, 2014.

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in)	Lodging (%)	Protein (%)	Plumps (>6/64)	Plumps (>5.5/64)	% Thin
Feed										
Millennium	158.9	46.5	100	6/16	36	24	11.7	89.0	7.8	3.6
UT2183-85	151.9	49.2	99	6/18	37	16	11.8	96.5	2.6	1.1
UT2136-96	139.7	47.0	100	6/16	34	39	11.8	86.6	8.4	5.3
Herald	138.4	46.2	99	6/20	38	43	11.5	91.0	6.1	3.2
Goldeneye	134.4	47.7	99	6/19	36	21	11.9	88.9	7.4	3.9
Malt										
01Ab9663	138.5	47.6	98	6/21	40	42	11.0	94.2	4.1	2.1
Tradition	127.4	48.2	99	6/20	38	48	11.7	96.7	2.2	1.3
Lacey	123.5	48.9	99	6/18	37	51	11.6	97.1	2.1	1.1
Legacy	121.3	46.8	99	6/19	38	69	11.7	96.8	2.3	1.2
Celebration	120.5	47.8	99	6/20	37	60	12.0	96.8	2.2	1.3
Quest	117.8	48.2	99	6/18	40	75	11.7	93.1	5.1	2.1
Morex	108.9	47.0	99	6/22	38	78	11.2	85.5	8.9	5.9
Average	131.8	47.6	99	6/19	37	47	11.6	92.7	4.9	2.7
LSD ($\alpha = .05$)	11.7	0.6	0.7	0.7	1.8	15.7	0.3	4.8	2.6	2.3
CV%	12.7	1.9	1.0	0.6	6.7	47.5	1.8	3.6	36.3	58.9
Pr > F	<.0001	<.0001	0.0049	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	0.0002

Table 22. Irrigated 2-Row Spring Malt Barley Data Combined from Rupert, Idaho Falls, Ashton, and Aberdeen, 2014.

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in)	Lodging (%)	Protein (%)	Plumps (>6/64)	Plumps (>5.5/64)	% Thin
Pinnacle	134.8	50.5	99	6/22	35	38	11.8	97.4	1.8	1.2
LCS Genie	133.9	49.1	99	6/27	30	66	11.9	94.0	3.9	2.4
B0811	133.1	48.1	98	6/24	33	57	11.9	95.5	2.6	2.0
2B09-3425	131.6	48.5	100	6/25	33	32	11.6	95.7	2.9	1.8
ABI Voyager	131.2	48.7	98	6/24	36	41	11.7	96.7	2.2	1.4
Baronesse (feed check)	130.2	49.7	99	6/24	32	65	11.3	93.2	4.2	2.8
2Ab08-X05M010-82	129.7	48.2	99	6/24	34	63	11.8	89.9	5.9	4.6
2Ab07-X031098-31	128.7	48.8	98	6/24	35	57	12.5	92.7	4.4	3.2
CDC Meredith	124.9	48.2	98	6/28	35	69	11.9	94.7	3.6	2.1
CDC Copeland	124.8	49.7	98	6/27	39	44	11.7	93.9	4.3	2.7
Merit 57	124.3	47.3	99	6/26	35	48	12.3	91.6	5.3	3.1
Moravian 69	124.1	47.3	99	6/27	31	53	11.7	90.1	6.4	3.8
Conrad	122.0	47.9	99	6/24	33	50	11.6	91.9	4.8	3.8
2Ab04-X01084-27	121.7	47.8	99	6/24	32	70	11.8	93.3	4.3	2.5
AC Metcalfe	120.9	48.7	98	6/24	36	50	12.0	94.0	3.5	2.6
Hockett	119.9	48.4	98	6/23	33	71	12.0	94.4	3.4	2.5
Merem	117.2	47.6	98	6/29	37	53	12.0	90.0	5.9	4.2
Harrington	105.6	47.9	99	6/27	35	85	12.1	83.6	9.5	7.4
Average	125.5	48.5	99	6/25	34	56	11.9	92.9	4.4	3.0
LSD (α = .05)	10.5	1.2	1.0	0.9	1.8	18.6	0.4	4.0	2.2	1.8
CV%	12.0	3.5	1.4	0.7	7.4	47.5	2.5	3.0	35.1	43.5
Pr > F	<.0001	<.0001	0.0133	<.0001	<.0001	<.0001	0.0009	<.0001	<.0001	<.0001

Table 23. Irrigated 2-Row Spring Feed Barley Data Combined from Rupert, Idaho Falls, Ashton, and Aberdeen, 2014.

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in)	Lodging (%)	Protein (%)	Plumps (>6/64)	Plumps (>5.5/64)	% Thin
Champion	152.8	51.3	98	6/23	35	58	12.7	95.1	3.1	2.0
Vespa	151.4	49.0	99	6/26	31	62	11.8	91.8	5.4	3.3
Tetonia	143.8	49.9	99	6/26	33	64	11.3	87.3	7.1	5.8
RWA 1758	142.7	48.1	99	6/23	33	75	11.7	87.7	6.7	5.8
Idagold II	141.0	48.8	99	6/26	33	48	11.8	87.6	8.0	4.8
08ID2661	140.3	48.5	98	6/28	36	39	11.5	89.5	6.9	3.7
Xena	139.2	49.2	99	6/23	35	63	11.7	90.5	5.0	4.8
Lenetah	138.4	48.9	99	6/24	36	65	11.9	91.4	5.6	4.3
Herald	135.2	45.5	99	6/21	37	57	11.9	90.5	6.2	3.6
2Ab09-X06F084-51	127.6	46.4	99	6/27	36	64	12.1	79.8	10.3	9.9
Baronesse	125.0	48.5	99	6/23	33	86	11.4	87.0	7.0	6.1
Julie*	119.2	53.2	98	6/29	38	45	15.0	82.6	10.5	7.1
08ID1549*	113.2	54.1	92	6/28	36	50	15.3	82.3	10.9	6.8
CDC McGwire*	111.6	53.4	98	6/25	36	80	12.4	71.7	18.2	11.5
Clearwater*	99.4	53.2	98	6/25	36	83	17.0	74.9	15.1	10.2
Transit*	98.8	54.7	98	6/26	38	39	15.8	78.4	14.4	7.4
2Ab09-X06F058HL-31*	92.1	53.1	93	6/25	35	73	15.2	85.3	8.8	6.1
CDC Fibar *	86.1	52.7	97	6/26	37	88	16.9	75.0	14.8	10.3
Average	125.4	50.5	98	6/25	35	63	13.2	84.9	9.1	6.3
LSD (α = .05)	9.4	1.2	2.1	0.8	1.8	14.7	1.1	7.6	3.8	4.3
CV%	10.7	3.5	3.1	0.7	7.3	33.4	6.0	6.3	29.4	48.0
Pr > F	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	0.0007

* indicates hulless variety

Table 24. Agronomic data for winter wheat at Kimberly, irrigated, 2014.

Variety	Yield (bu/A) 2012	2013	2014	Test Wt. (lb/bu)	Spring Stand%	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Hard Winter Wheat									
IDO1101 (W)	---	103.8	173.7	57.1	99	5/29	35	81	13.1
NSA10-7208	---	---	171.7	55.8	100	5/27	35	39	10.0
WA8183	---	---	163.7	55.3	100	5/29	36	87	11.9
WA8184	---	---	162.6	56.4	100	5/26	39	89	11.3
WB-Arrowhead / Keldin	---	---	162.6	57.7	99	5/28	38	51	10.5
OR2080236H (W)	---	111.8	161.7	57.2	100	5/31	36	41	10.8
Whetstone	161.5	96.9	160.9	58.9	99	5/25	39	54	12.0
OR2100081H	---	---	160.8	58.1	100	5/29	34	40	11.5
Moreland	161.2	107.8	159.9	56.3	100	5/28	36	65	11.9
Norwest 553	154.3	136.1	159.9	57.2	100	5/30	32	0	12.2
Promontory	153.9	129.2	159.2	56.9	100	5/29	40	89	11.0
Keldin	172.4	125.2	158.5	57.6	100	5/29	37	89	11.5
WB-Arrowhead	153.2	119.4	155.7	57.4	100	5/29	39	78	12.0
Utah 100	164.1	116.2	155.0	56.8	100	6/2	43	78	11.8
Greenville	152.5	95.1	153.5	55.0	99	5/30	32	54	12.1
IDO1103	---	92.9	151.7	57.2	100	5/31	38	97	12.0
Garland	---	---	151.0	55.2	100	5/31	30	35	12.2
Yellowstone	164.4	116.5	148.2	57.5	99	5/28	40	49	11.2
LCS Azimut	139.8	106.7	146.5	53.3	100	5/27	31	1	11.0
WB MTW08168 (W)	---	---	143.1	57.0	99	6/3	40	54	12.2
Juniper	147.0	103.5	139.0	57.6	99	5/30	48	83	13.0
LCS Colonia	---	---	137.5	54.3	100	6/2	33	0	11.5
Manning	151.4	90.0	135.8	53.9	99	5/29	40	100	13.3
Golden Spike (W)	135.8	96.2	135.0	54.4	100	6/3	43	100	13.0
UI Silver (W)	---	---	132.2	55.1	99	6/1	42	95	13.0
Judee	152.5	99.5	131.0	58.0	100	5/28	37	74	11.3
LCS Evina	---	---	128.7	57.1	100	6/3	39	48	12.4
Juniper / Promontory	---	---	127.1	57.1	100	5/30	49	85	12.5
DAS001	---	110.0	124.8	57.0	100	5/24	38	61	11.5
DAS002	---	99.5	114.9	59.1	100	5/30	39	27	11.4
Average	152.4	109.1	148.9	56.6	100	5/29	38	61	11.8
LSD (α=.05)	14.1	24.3	15.4	1.0	1.4	1.5	3.4	43.3	
CV %	6.5	15.8	7.2	1.2	1.0	0.7	6.5	50.3	
Pr > F	<.0001	0.0144	<.0001	<.0001	0.3057	<.0001	<.0001	<.0001	

(W) = White

Table 25. Agronomic data for winter wheat at Rupert, irrigated, 2014†.

Variety	Yield (bu/A) 2012	2013	2014	Test Wt. (lb/bu)	Spring Stand%	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Hard Winter Wheat									
DAS001	---	97.7	---	---	87	5/30	39	61	---
DAS002	---	93.3	---	---	100	6/3	40	61	---
Garland	---	---	---	---	97	6/7	30	83	---
Golden Spike (W)	124.1	82.0	---	---	100	6/8	45	98	---
Greenville	118.3	77.0	---	---	99	6/4	31	88	---
IDO1101 (W)	---	116.5	---	---	96	6/3	36	96	---
IDO1103	---	89.3	---	---	100	6/7	39	99	---
Judee	127.1	93.3	---	---	100	6/3	41	99	---
Juniper	108.5	87.9	---	---	99	6/6	53	96	---
Juniper / Promontory	---	---	---	---	100	6/7	52	94	---
Keldin	129.2	113.6	---	---	99	6/1	38	93	---
LCS Azimut	109.6	74.1	---	---	95	6/1	31	61	---
LCS Colonia	---	---	---	---	98	6/7	38	21	---
LCS Evina	---	---	---	---	98	6/7	40	65	---
Manning	107.4	78.8	---	---	99	6/4	43	99	---
Moreland	124.5	66.1	---	---	99	6/1	36	56	---
Norwest 553	117.6	88.6	---	---	100	6/3	34	4	---
NSA10-7208	---	---	---	---	94	6/1	38	41	---
OR2080236H (W)	---	78.1	---	---	97	6/5	37	59	---
OR2100081H	---	---	---	---	97	6/3	38	50	---
Promontory	110.7	78.4	---	---	99	6/2	41	93	---
UI Silver (W)	---	---	---	---	100	6/3	44	100	---
Utah 100	128.5	104.9	---	---	100	6/8	44	67	---
WA8183	---	---	---	---	100	6/2	35	96	---
WA8184	---	---	---	---	94	6/2	36	94	---
WB MTW08168 (W)	---	---	---	---	94	6/8	44	88	---
WB-Arrowhead	123.8	91.8	---	---	99	6/3	40	88	---
WB-Arrowhead / Keldin	---	---	---	---	100	6/2	40	97	---
Whetstone	119.1	112.2	---	---	100	5/30	38	81	---
Yellowstone	121.2	92.6	---	---	100	5/31	42	89	---
Average	117.0	92.0	---	---	98	6/3	39	77	---
LSD (α=.05)	19.4	24.3	---	---	8.4	1.1	2.9	32	
CV %	11.8	18.7	---	---	6.1	0.5	5.3	29.4	
Pr > F	0.0979	0.0005	---	---	0.5547	<.0001	<.0001	<.0001	

(W) = White

† Harvest and quality data unavailable for 2014.

Table 26. Agronomic data for winter wheat at Aberdeen, irrigated, 2014.

Variety	Yield (bu/A) 2012	2013	2014	Test Wt. (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Hard Winter Wheat									
NSA10-7208	---	---	183.3	57.9	91	6/1	34	0	12.1
UI Silver (W)	---	---	179.9	57.9	93	5/31	41	8	12.9
LCS Colonia	---	---	175.9	53.6	98	6/3	36	0	12.1
OR2080236H (W)	---	134.3	172.8	57.8	93	6/2	38	3	13.3
IDO1101 (W)	---	137.4	172.4	59.3	91	5/31	34	0	13.5
WA8183	---	---	172.3	55.9	93	5/31	37	0	12.4
OR2100081H	---	---	172.1	59.0	89	6/1	36	0	12.5
WB MTW08168 (W)	---	---	171.7	59.2	91	6/3	45	5	12.8
Keldin	153.0	143.3	170.9	59.4	89	6/1	36	0	12.7
LCS Evina	---	---	169.7	58.1	90	6/5	40	0	13.2
Norwest 553	155.7	149.1	169.2	58.0	88	6/1	33	0	12.8
WB-Arrowhead / Keldin	---	---	168.2	59.2	89	5/31	37	0	12.6
Promontory	156.5	123.0	167.3	59.3	89	5/31	42	0	11.9
IDO1103	---	113.2	165.8	59.0	91	6/2	39	13	13.6
Yellowstone	172.5	157.3	165.5	59.1	88	5/31	39	0	11.9
Manning	163.9	123.7	165.5	58.2	89	5/31	39	5	12.8
Moreland	151.1	142.1	165.1	57.9	86	5/30	34	0	13.9
WB-Arrowhead	151.5	145.6	162.8	58.9	90	6/1	37	0	12.9
LCS Azimut	146.4	139.4	162.4	54.8	90	5/31	30	0	11.0
Whetstone	132.3	126.5	161.7	59.8	91	5/28	35	0	12.7
WA8184	---	---	161.6	57.5	90	5/30	40	0	12.6
Utah 100	157.3	139.4	161.4	59.3	94	6/2	43	0	12.9
Greenville	133.9	135.1	161.1	57.9	91	5/31	31	0	12.7
Garland	---	---	159.6	56.3	91	6/2	28	0	13.2
Judee	162.8	122.6	155.7	60.2	95	5/31	36	0	12.8
DAS001	---	139.0	152.1	57.8	89	5/30	39	0	12.5
Golden Spike (W)	153.4	105.8	146.2	56.8	90	6/3	40	51	12.9
DAS002	---	106.2	146.0	59.7	88	5/31	39	0	12.2
Juniper / Promontory	---	---	145.5	59.6	95	5/31	48	0	13.3
Juniper	146.8	111.2	144.1	60.4	95	6/1	51	3	13.6
Average	152.2	132.4	164.3	58.2	91	6/1	38	3	12.7
LSD (α=.05)	20.1	21.2	11.8	1.0	7.1	1.7	2.5	11.8	
CV %	9.4	11.3	5.1	1.2	5.6	0.8	4.7	291.6	
Pr > F	0.0028	<.0001	<.0001	<.0001	0.4039	<.0001	<.0001	<.0001	

(W) = White

Table 27. Agronomic data for winter wheat at Ririe, dryland, 2014.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2012**	**2013**	**2014**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**
Hard Winter Wheat									
Juniper	17.8	16.3	25.8	57.6	99	6/13	23	0	14.8
UI Silver (W)	21.8	13.4	25.3	57.3	100	6/14	22	0	14.3
LCS Colonia	---	---	25.0	48.6	100	6/18	19	0	13.3
Yellowstone	23.6	17.4	23.7	56.5	100	6/13	19	0	13.0
WA8158	---	---	23.6	53.5	98	6/17	21	0	15.5
SY Clearstone CL2	---	---	23.5	54.3	100	6/14	21	0	14.3
Deloris	17.4	15.6	23.5	55.3	100	6/15	21	0	14.7
WA8183	---	---	23.2	54.3	96	6/13	18	0	14.9
WB-Arrowhead / Keldin	---	---	22.3	56.2	100	6/13	20	0	14.1
Lucin-CL	18.9	13.4	21.9	55.4	100	6/15	22	0	15.0
Curlew	17.1	18.2	21.9	56.0	100	6/13	21	0	14.9
Moreland	---	13.8	21.7	53.5	100	6/13	17	0	14.6
Keldin	21.4	14.5	21.7	56.3	100	6/14	20	0	14.3
OR2080236H (W)	---	12.3	21.7	54.6	99	6/14	16	0	14.6
WA8184	---	---	21.6	54.4	100	6/13	20	0	14.0
UICF Grace (W)	17.1	23.2	21.5	55.0	100	6/12	25	0	15.1
IDO1101 (W)	---	---	21.4	56.8	100	6/12	16	0	13.3
LCS Azimut	---	---	21.4	50.1	100	6/12	16	0	12.8
Promontory	20.0	14.2	21.3	56.0	100	6/13	20	0	14.2
WB MTW08168 (W)	---	---	21.3	55.8	100	6/16	21	0	14.1
Utah 100	18.9	18.2	21.3	55.5	100	6/12	22	0	14.6
IDO816	18.9	17.8	21.0	54.9	100	6/15	21	0	13.9
LCS Evina	---	---	20.5	50.5	100	6/18	19	0	15.1
UI SRG	19.2	17.8	20.2	54.6	100	6/12	23	0	15.3
IDO1103	---	16.0	20.2	55.4	100	6/13	19	0	14.9
Greenville	19.6	10.9	19.9	54.9	100	6/14	15	0	13.2
WB-Arrowhead	18.2	20.0	19.7	56.2	98	6/12	21	0	14.1
Garland	---	---	19.7	52.5	99	6/15	15	0	14.9
Whetstone	---	---	19.7	56.1	100	6/11	18	0	15.0
Manning	---	16.7	19.6	55.8	99	6/12	19	0	14.7
Juniper / Promontory	---	---	19.5	56.9	100	6/15	22	0	13.8
Norwest 553	6.5	14.5	19.2	54.2	95	6/15	19	0	14.6
Garland/Juniper	---	---	18.9	55.3	100	6/15	22	0	15.0
AP503 CL2	20.3	13.1	18.7	56.0	100	6/11	17	0	14.8
Weston	17.1	18.9	18.6	57.2	98	6/14	22	0	15.3
Golden Spike (W)	19.6	14.2	18.3	53.6	100	6/14	20	0	14.7
Bearpaw	20.3	16.7	18.0	55.6	100	6/12	16	0	14.4
Judee	20.3	14.9	16.8	56.8	100	6/14	18	0	14.8
OR2100081H	---	---	16.3	57.3	97	6/14	19	0	13.9
Average	18.0	15.5	21.0	55.0	99	6/14	19	0	14.4
LSD (α=.05)	6.3	6.1	4.1	1.5	3.7	2.0	2.3	.	
CV %	25.0	27.9	13.8	1.9	2.7	0.9	8.5	.	
Pr > F	0.0121	0.0602	0.0005	<.0001	0.8112	<.0001	<.0001	.	

(W) = White

Table 28. Agronomic data for winter wheat at Rockland, dryland, 2014.

Variety	Yield (bu/A) 2012	2013	2014	Test Wt. (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Hard Winter Wheat									
Juniper / Deloris	---	---	45.5	62.5	98	6/1	30	0	9.9
UI SRG	30.3	25.5	43.7	60.9	95	6/1	26	0	9.9
Whetstone	---	---	43.1	61.7	97	5/28	22	0	9.0
Keldin	38.4	22.8	42.9	61.7	97	5/31	22	0	9.4
IDO1101 (W)	---	---	42.8	62.9	98	5/30	22	0	8.8
Curlew	31.6	10.7	42.7	62.5	97	5/31	27	0	9.8
Yellowstone	34.6	15.7	42.5	61.1	97	5/30	25	0	8.9
SY Clearstone CL2	---	---	42.2	61.1	98	6/1	26	0	10.7
Otto (SWW)	---	---	41.7	59.6	97	6/10	25	0	8.9
UI Silver (W)	29.8	21.7	41.6	62.6	95	6/1	26	0	9.4
LCS Azimut	---	---	40.3	56.9	97	5/31	21	0	9.3
Utah 100	31.6	23.6	40.1	60.1	96	6/4	26	0	10.2
WB MTW08168 (W)	---	---	40.1	61.3	95	6/3	25	0	10.8
WA8158	---	---	39.1	60.6	97	6/5	23	0	11.7
Golden Spike (W)	30.0	20.6	39.1	60.1	96	6/3	23	0	10.4
Juniper / Promontory	---	---	39.0	62.3	96	6/2	28	0	11.1
WB-Arrowhead / Keldin	---	---	38.5	61.7	95	5/30	25	0	10.1
WB-Arrowhead	25.7	16.3	38.4	61.5	96	5/31	24	0	11.1
Deloris	37.0	23.7	38.1	61.9	97	6/2	28	0	8.4
Greenville	27.6	18.9	37.4	60.1	97	6/1	20	0	8.6
Garland/Juniper	---	---	37.2	61.3	97	6/2	29	0	9.8
Juniper	32.8	19.5	37.2	62.0	96	6/3	27	0	11.3
AP503 CL2	31.7	12.2	37.2	62.0	95	5/29	21	0	10.2
Judee	29.8	19.3	37.0	62.5	95	6/1	21	0	9.2
Lucin-CL	35.7	22.4	36.8	62.0	96	5/31	28	0	10.7
Eltan (SWW)	---	---	36.7	59.9	94	6/7	25	0	9.5
Weston	26.2	18.2	36.7	61.9	96	6/1	27	0	11.2
Promontory	19.6	20.4	36.4	62.2	97	5/31	25	0	10.3
Moreland	---	16.1	36.3	59.2	95	5/31	21	0	11.2
OR2080236H (W)	---	7.9	35.3	62.1	94	6/1	20	0	10.1
WA8184	---	---	35.2	60.6	95	5/31	22	0	9.9
IDO816	34.9	21.5	35.2	60.4	97	6/4	23	0	10.3
LCS Colonia	---	---	35.1	57.5	92	6/10	22	0	11.1
Bearpaw	25.6	14.4	34.2	61.2	94	5/31	21	0	10.2
IDO1103	---	20.2	33.4	62.2	95	6/2	21	0	10.1
Garland	---	---	32.4	60.4	97	6/2	16	0	10.0
WA8183	---	---	32.2	60.1	92	6/4	23	0	10.7
UICF Grace (W)	34.1	21.2	32.1	60.7	92	6/1	29	0	9.5
OR2100081H	---	---	30.7	60.6	90	6/4	21	0	11.4
Norwest 553	26.1	18.4	29.1	61.5	87	6/7	21	0	12.0
LCS Evina	---	---	28.1	58.1	89	6/11	21	0	10.6
Manning	---	16.0	27.2	61.1	95	6/1	22	0	10.6
Average	29.9	17.8	37.4	61.0	95	6/2	24	0	10.1
LSD (a=.05)	7.6	5.3	8.5	1.0	3.6	2.3	3.2	0	
CV %	18.1	21.0	16.3	1.2	2.7	1.1	9.7	.	
Pr >F	<.0001	<.0001	0.0013	<.0001	<.0001	<.0001	<.0001	.	

(W) = White
(SWW) = Soft White Winter

Table 29. Agronomic data for winter wheat at Kimberly, irrigated, 2014.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2012**	**2013**	**2014**	**(lb/bu)**	**Stand%**	**Date**	**(in.)**	**(%)**	**(%)**
Soft White Winter Wheat									
SY 107	---	---	156.9	55.6	100	5/30	34	0	9.0
SY Ovation	186.9	93.3	155.2	55.5	99	5/31	36	3	9.3
IDO1108	---	99.5	154.9	54.3	99	6/3	41	19	8.3
OR2080641	---	---	148.6	54.9	100	5/31	34	0	8.6
WB-Junction	167.0	94.7	147.5	54.9	100	5/26	36	0	9.8
WB-1070CL	165.2	96.6	145.4	57.2	100	5/24	35	3	9.6
Bruneau	160.8	117.6	144.9	54.6	100	6/1	38	4	10.2
WB 528	151.0	109.6	144.9	56.1	100	5/29	35	23	9.0
Bobtail	159.7	126.0	144.8	54.7	100	5/30	34	0	9.1
Kaseberg	169.5	114.7	144.3	53.8	100	5/30	34	1	7.8
Mary	167.0	86.0	144.3	56.0	100	5/29	33	0	8.7
OR2080637	---	---	143.7	55.0	99	6/3	34	0	9.0
IDN-02-08806A	---	---	142.4	54.5	99	6/1	36	0	10.0
WB1529	164.1	102.0	141.9	55.8	99	5/28	34	22	9.7
Stephens	163.0	133.2	141.8	54.3	100	5/29	35	0	8.9
WB1529/WB-Junction	---	---	141.2	55.7	100	5/25	35	0	9.1
Brundage	161.5	95.8	140.8	55.7	100	5/27	36	5	8.3
IDN-02-29001A	---	---	140.4	56.0	100	5/30	36	0	8.6
Madsen	155.0	102.0	139.9	55.3	100	6/3	39	0	10.1
WB 456	151.7	87.9	139.7	57.2	100	5/25	35	0	10.0
Skiles	149.2	113.7	139.2	55.6	100	5/31	34	10	9.8
LCS Biancor	---	---	138.7	53.6	100	5/31	31	1	8.5
LWW12-7105	---	---	136.9	53.4	100	5/25	30	0	8.2
IDN-01-10704A	---	---	135.2	53.8	99	5/31	39	1	9.5
Eltan	---	106.0	135.0	54.3	100	6/4	41	11	9.1
UI-WSU Huffman	---	117.3	134.7	55.1	99	6/2	37	19	10.7
WB1376CLP	---	---	133.6	54.9	100	5/26	37	0	9.1
IDN-04-00405B	---	---	133.5	53.7	100	5/29	35	0	9.2
OR2090473	---	---	133.1	54.2	100	5/28	33	0	8.3
Ladd	156.1	86.8	133.0	54.5	100	6/2	34	0	10.6
LCS Artdeco	---	126.3	132.8	52.9	100	5/27	32	0	8.0
Rosalyn	---	112.3	130.1	53.9	100	6/1	34	0	8.3
Madsen / Eltan	---	---	125.2	54.3	99	6/1	40	20	9.3
Average	157.7	106.6	140.7	54.9	100	5/30	35	4	9.1
LSD (α=.05)	12.1	27.4	15.3	0.6	1	1.9	1.9	20.5	
CV %	5.5	18.1	7.7	0.8	1	0.9	3.9	341.9	
Pr > F	<.0001	0.0282	0.0251	<.0001	0.3855	<.0001	<.0001	0.4219	

Table 30. Agronomic data for winter wheat at Rupert, irrigated, 2014†.

Variety	Yield (bu/A) 2012	2013	2014	Test Wt. (lb/bu)	Spring Stand%	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Soft White Winter Wheat									
Bobtail	136.9	73.0	---	---	90	6/5	38	75	---
Brundage	142.7	83.1	---	---	91	6/1	37	56	---
Bruneau	151.4	91.1	---	---	96	6/8	37	87	---
Eltan	---	69.0	---	---	97	6/10	43	96	---
IDN-01-10704A	---	---	---	---	89	6/5	40	71	---
IDN-02-08806A	---	---	---	---	95	6/6	38	83	---
IDN-02-29001A	---	---	---	---	98	6/4	39	55	---
UI-WSU Huffman	---	80.2	---	---	98	6/9	40	91	---
IDN-04-00405B	---	---	---	---	99	6/3	36	55	---
IDO1108	---	74.4	---	---	97	6/9	40	78	---
Kaseberg	138.3	65.7	---	---	99	6/6	37	80	---
Ladd	133.2	83.1	---	---	91	6/8	35	35	---
LCS Artdeco	---	78.8	---	---	98	6/2	33	56	---
LCS Biancor	---	---	---	---	100	6/5	31	80	---
LWW12-7105	---	---	---	---	90	6/1	29	69	---
Madsen	118.0	87.9	---	---	97	6/8	38	54	---
Madsen / Eltan	---	---	---	---	88	6/9	38	93	---
Mary	148.8	70.1	---	---	94	6/3	34	70	---
OR2080637	---	---	---	---	100	6/6	35	63	---
OR2080641	---	---	---	---	95	6/6	39	65	---
OR2090473	---	---	---	---	98	6/2	37	91	---
Rosalyn	---	64.6	---	---	100	6/8	39	65	---
Skiles	128.1	75.5	---	---	90	6/8	35	65	---
Stephens	136.9	63.5	---	---	99	6/3	37	84	---
SY Ovation	134.3	81.0	---	---	96	6/3	33	50	---
SY 107	---	---	---	---	86	6/5	34	90	---
WB 456	118.0	73.0	---	---	91	6/1	36	40	---
WB 528	136.5	74.4	---	---	88	6/1	36	95	---
WB1376CLP	---	---	---	---	94	6/2	38	71	---
WB-1070CL	133.6	74.1	---	---	95	5/30	36	70	---
WB-Junction	128.9	79.1	---	---	98	6/1	36	83	---
WB1529	139.8	75.5	---	---	95	6/2	32	94	---
WB1529/WB-Junction	---	---	---	---	100	6/1	37	95	---
Average	132.5	73.8	---	---	95	6/4	36	73	---
LSD (α=.05)	16.4	23.2	---	---	14.3	1.3	2.9	38.0	
CV %	8.8	22.5	---	---	10.8	0.6	5.6	37.2	
Pr > F	0.0008	0.4641	---	---	0.9228	<.0001	<.0001	0.0652	

† Harvest and quality data unavailable for 2014.

Table 31. Agronomic data for winter wheat at Aberdeen, irrigated, 2014.

Variety	Yield (bu/A) 2012	2013	2014	Test Wt. (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Soft White Winter Wheat									
UI-WSU Huffman	---	156.5	187.2	57.7	91	6/3	40	0	12.1
LCS Biancor	---	---	183.3	55.0	95	6/1	31	0	10.9
Bobtail	136.6	175.3	183.0	54.5	93	5/31	35	0	11.2
Bruneau	141.3	153.8	182.2	57.1	93	6/2	39	0	11.1
IDN-02-29001A	---	---	181.3	57.5	91	6/1	37	0	12.8
SY 107	---	---	180.5	56.1	94	6/3	36	0	12.0
IDO1108	---	147.5	180.4	55.9	91	6/4	42	0	12.8
Kaseberg	153.0	153.8	180.3	55.7	90	5/31	36	0	10.9
WB1376CLP	---	---	180.0	56.8	95	5/31	39	0	12.5
LCS Artdeco	---	140.5	178.8	54.6	89	5/31	33	0	10.8
OR2090473	---	---	178.1	55.4	94	5/30	34	0	11.0
OR2080641	---	---	177.8	56.7	94	5/31	37	0	11.7
SY Ovation	147.2	153.8	176.2	56.7	91	6/1	37	0	12.3
Mary	141.3	158.1	174.7	57.4	94	5/31	35	0	12.3
IDN-01-10704A	---	---	174.7	55.7	91	6/1	37	0	11.9
IDN-02-08806A	---	---	173.7	55.8	90	6/2	37	0	12.0
Rosalyn	---	156.5	173.0	54.6	93	6/1	37	0	10.9
Madsen	152.2	142.5	172.4	57.1	90	6/3	38	0	12.6
Madsen / Eltan	---	---	171.6	57.3	91	6/5	41	1	12.9
LWW12-7105	---	---	170.5	55.6	94	5/30	31	0	10.8
Stephens	132.3	132.7	170.5	55.8	86	5/30	36	0	11.8
WB 528	131.2	153.4	170.1	54.8	88	5/31	38	0	12.6
Skiles	119.1	150.7	169.6	56.6	96	6/3	38	0	12.9
WB-Junction	137.0	156.9	169.0	56.7	95	5/29	35	0	10.7
OR2080637	---	---	166.5	55.7	90	6/6	40	19	12.6
WB1529	114.4	147.9	165.6	57.9	94	5/30	34	0	12.5
Brundage	125.7	138.6	164.1	57.3	93	5/29	36	0	11.6
IDN-04-00405B	---	---	162.8	51.2	91	5/30	35	0	11.5
Ladd	133.1	144.4	161.2	56.6	90	6/3	36	0	13.1
Eltan	---	133.1	160.4	57.5	94	6/6	42	56	13.0
WB1529/WB-Junction	---	---	158.9	57.6	90	5/29	35	0	12.7
WB-1070CL	136.2	132.3	149.2	58.1	89	5/28	34	0	12.6
WB 456	108.9	128.8	140.2	58.2	93	5/29	36	0	12.6
Average	134.6	147.4	171.8	56.3	92	6/1	36	2	12.0
LSD (α=.05)	23.9	17.2	14.6	2.7	5.0	1.9	2.8	12.9	
CV %	12.6	8.3	6.1	3.4	3.9	0.9	5.4	398.6	
Pr > F	0.0019	0.0004	<.0001	0.0024	0.0284	<.0001	<.0001	<.0001	

Table 32. Agronomic data for winter wheat at Ririe, dryland, 2014.

Variety	Yield (bu/A) 2012	2013	2014	Test Wt. (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Soft White Winter Wheat									
IDO1108	---	16.7	28.1	50.6	100	6/19	22	0	15.7
SY Ovation	---	---	26.0	52.9	100	6/15	19	0	15.5
Eltan	29.0	17.1	25.7	50.2	100	6/21	21	0	16.6
LWW10-1073	---	---	25.4	49.2	100	6/18	21	0	15.1
Madsen / Eltan	---	---	25.4	51.1	96	6/19	21	0	15.8
OR2080641	---	---	25.2	49.8	100	6/15	17	0	15.6
SY 107	---	---	25.0	49.7	97	6/16	19	0	15.3
UICF Brundage	24.3	12.0	24.8	49.0	100	6/15	19	0	16.1
Bobtail	19.2	11.6	24.6	47.4	99	6/15	17	0	13.7
Skiles	17.4	15.2	24.4	52.2	100	6/17	19	0	15.1
Bitterroot	25.4	17.8	24.4	51.6	100	6/19	19	0	15.8
Otto	---	---	24.2	50.5	100	6/22	21	0	16.3
Kaseberg	15.6	14.2	24.1	49.8	100	6/14	16	0	15.0
WB-1070CL	---	---	24.0	51.6	100	6/12	20	0	13.1
IDN-02-29001A	---	---	23.9	53.1	100	6/13	19	0	15.4
IDN-01-10704A	---	---	23.8	49.4	96	6/16	21	0	15.0
IDN-02-08806A	---	---	23.7	51.5	98	6/17	18	0	15.8
WB 528	20.0	13.4	23.1	53.0	97	6/15	19	0	15.2
UI-WSU Huffman	---	---	23.0	49.3	98	6/19	19	0	15.8
IDN-04-00405B	---	---	22.7	49.5	100	6/13	18	0	15.6
Rosalyn	---	11.3	22.7	48.9	98	6/19	19	0	15.2
Bruneau	25.8	16.3	22.6	51.2	100	6/19	19	0	15.4
Mary	19.6	12.3	22.2	51.4	100	6/14	18	0	15.2
Ladd	16.7	9.4	21.9	50.3	95	6/19	20	0	15.6
Madsen	21.4	15.2	21.9	51.8	99	6/19	20	0	15.6
Brundage	18.5	10.5	21.7	53.0	100	6/12	19	0	14.4
OR2090473	---	---	21.7	48.8	97	6/15	17	0	13.4
OR2080637	---	---	21.0	49.3	96	6/21	18	0	16.5
WB 456	---	13.8	19.7	54.1	100	6/12	17	0	14.2
Stephens	20.0	10.9	19.5	50.7	98	6/15	18	0	15.3
Average	21.1	12.7	23.5	50.7	99	6/16	19	0	15.3
LSD (α=.05)	6.2	4.6	3.9	1.3	4.8	2.2	2.1	.	
CV %	20.9	25.4	11.8	1.8	3.5	0.9	7.7	.	
Pr > F	0.0044	0.0007	0.0150	<.0001	0.6903	<.0001	<.0001	.	

Table 33. Agronomic data for winter wheat at Soda Springs, dryland, 2014.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2012**	**2013**	**2014**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**
Utah 100	---	---	86.2	57.5	95	6/22	35	0	14.2
Yellowstone	83.8	40.0	83.5	56.0	95	6/19	31	0	12.8
Madsen / Eltan (SWW)	---	---	82.4	55.3	90	6/24	27	0	12.8
Eltan (SWW)	79.6	15.9	80.8	55.4	95	6/24	28	0	13.1
Promontory	76.3	25.0	75.9	58.6	95	6/19	29	0	13.1
Juniper / Promontory	---	---	75.6	55.8	90	6/21	37	0	13.3
UICF Brundage (SWW)	80.7	9.9	74.9	55.3	88	6/23	26	0	13.2
Golden Spike (W)	71.5	18.3	72.3	57.4	88	6/21	29	0	12.5
Juniper	79.8	10.1	71.4	59.0	93	6/21	36	0	13.9
Garland/Juniper	---	---	67.7	56.9	93	6/22	36	0	13.7
Weston	67.3	23.1	67.5	59.7	90	6/21	34	3	13.6
UICF Grace (W)	71.8	37.4	65.3	56.2	88	6/21	37	0	14.1
Madsen (SWW)	74.7	23.5	64.6	55.1	88	6/24	26	0	13.2
Norwest 553	65.5	19.8	63.9	57.6	70	6/20	26	0	13.4
Deloris	77.3	32.7	63.8	58.3	93	6/21	27	0	13.5
Lucin-CL	---	24.8	63.5	57.8	92	6/21	31	0	12.9
Brundage (SWW)	72.9	15.8	62.5	54.7	87	6/19	26	0	13.2
UI SRG	70.2	27.9	62.0	56.4	95	6/20	29	0	13.0
Manning	---	---	58.2	57.6	93	6/19	28	0	13.7
Bruneau (SWW)	79.0	14.9	55.3	53.4	85	6/24	25	0	13.1
Bearpaw	---	33.4	53.6	57.3	92	6/19	23	0	15.5
Stephens (SWW)	---	---	53.4	52.4	80	6/21	25	0	14.1
Average	73.8	23.0	68.4	56.5	90	6/21	29	0.2	13.5
LSD (α=.05)	13.2	24.8	14.9	3.0	5.7	1.6	4.7	2.0	
CV %	10.9	65.6	13.2	3.2	3.9	0.5	9.7	812.4	
Pr > F	0.0864	0.4718	0.0003	0.0011	<.0001	<.0001	<.0001	0.4832	

All varieties are Hard Red Winter unless annotated.

(W) = Hard White Winter

(SWW) = Soft White Winter

Table 34 Agronomic data for winter wheat at Idaho Falls, Irrigated 2014.

Variety	Yield (bu/A) 2014	Test Wt. (lb/bu)	Spring Stand %	Protein (%)
WB-Arrowhead	100.7	57.6	100	12.3
UI Silver (W)	92.2	57.9	100	13.1
Keldin	91.0	58.0	97	12.4
IDO1108	89.3	54.5	99	11.8
SY Ovation (SWW)	86.1	54.1	100	11.9
Skiles (SWW)	85.9	54.2	95	12.2
WB 528 (SWW)	84.2	55.2	99	12.0
Greenville	76.7	56.3	99	13.5
Norwest 553	72.8	56.9	100	12.6
Stephens (SWW)	71.9	53.6	100	12.4
LCS Azimut	71.1	54.6	100	11.1
Yellowstone	65.3	57.4	100	13.0
Whetstone	65.1	57.9	99	13.0
LCS Colonia	63.8	54.5	100	11.6
Bruneau (SWW)	59.6	53.7	96	12.1
Brundage (SWW)	55.8	55.5	99	11.8
WB-Junction (SWW)	51.7	54.5	100	13.4
WB 456 / WB 528 / WB1529 (SWW)	41.4	54.4	100	12.1
LCS Artdeco	41.3	50.6	78	11.1
WB 456 (SWW)	32.8	53.3	99	13.9
Average	69.9	55.2	98	11.9
LSD (α=.05)	42.2	1.5	14.3	
CV %	36.5	1.7	8.8	
Pr > F	0.0947	<.0001	0.4653	

All varieties are Hard Red Winter unless annotated.

(W) = Hard White Winter

(SWW) = Soft White Winter

Table 35. Agronomic data for winter barley at Rupert, irrigated, 2014†.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2012**	**2013**	**2014**	**(lb/bu)**	**Stand %**	**Date**	**(in)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
02Ab431	166.1	78.5	---	---	82	5/25	46	45	---	---	---	---
02Ab671	135.7	92.1	---	---	93	5/28	41	64	---	---	---	---
09-OR-86*	---	---	---	---	74	5/25	47	85	---	---	---	---
2Ab08-X05W061-216	---	---	---	---	91	5/23	42	89	---	---	---	---
2Ab09-X05W018-119	---	---	---	---	95	5/29	46	65	---	---	---	---
2Ab09-X05W040-125	---	---	---	---	89	5/28	43	69	---	---	---	---
02Ab669	185.6	91.2	---	---	83	5/26	45	58	---	---	---	---
Alba	187.0	87.6	---	---	90	5/25	44	58	---	---	---	---
Charles	159.3	85.8	---	---	80	5/23	38	81	---	---	---	---
Eight-Twelve	174.7	92.6	---	---	78	5/25	45	70	---	---	---	---
Endeavor	165.6	85.8	---	---	66	5/28	45	56	---	---	---	---
Kamiak	148.8	57.6	---	---	85	5/20	46	96	---	---	---	---
LCS Saturn	---	---	---	---	100	5/21	46	40	---	---	---	---
LCS Violetta	---	---	---	---	96	5/21	43	51	---	---	---	---
Schuyler	164.3	60.5	---	---	95	5/28	47	94	---	---	---	---
Sprinter	176.1	46.3	---	---	95	5/25	47	81	---	---	---	---
Streaker*	138.4	67.6	---	---	84	5/24	42	96	---	---	---	---
Strider	172.9	74.0	---	---	88	5/23	43	82	---	---	---	---
Sunstar Pride	191.5	62.2	---	---	88	6/3	44	58	---	---	---	---
TCFW6-140	---	---	---	---	85	5/24	44	73	---	---	---	---
UTWB10201-15	---	---	---	---	96	5/20	43	50	---	---	---	---
Average	158.4	77.4	---	---	87	5/25	44	69	---	---	---	---
LSD (α=.05)	39.2	42.4	---	---	26.8	1.7	3.9	38				
CV %	17.5	38.3	---	---	21.8	0.8	6.2	38				
Pr > F	0.0152	0.2745	---	---	0.729	<.0001	0.0045	0.0652				

*indicates hulless variety

† Harvest and quality data unavailable for 2014.

Table 36. Agronomic data for winter barley at Aberdeen, irrigated, 2014.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	2012	2013	2014	(lb/bu)	Stand %	Date	(in.)	(%)	(%)	(>6/64)	(>5.5/64)	% Thin
Sunstar Pride	184.9	163.9	236.1	47.2	81	6/4	35	0	10.9	70.9	16.4	13.0
UTWB10201-15	---	---	234.7	47.4	88	5/25	32	0	12.2	94.0	4.4	1.4
02Ab431	160.0	148.3	232.3	47.5	80	6/1	40	0	11.0	92.6	4.5	1.9
Strider	188.8	169.8	221.6	48.1	81	5/26	35	0	11.6	94.6	3.7	1.7
Eight-Twelve	190.8	174.7	220.9	48.4	89	5/29	37	0	11.2	93.2	5.1	1.6
Alba	173.2	132.2	215.0	49.3	84	5/27	34	0	11.6	97.2	2.2	0.7
Sprinter	170.3	178.6	208.8	48.2	78	5/26	35	0	12.1	96.8	2.0	0.7
LCS Saturn	---	---	208.2	48.2	86	5/24	27	0	11.1	97.5	1.3	1.1
02Ab671	159.5	157.1	197.8	51.1	68	5/29	40	0	11.9	97.7	1.2	1.1
2Ab09-X05W018-119	---	---	192.8	51.5	83	6/1	37	0	11.3	98.4	0.9	0.2
TCFW6-140	---	---	187.9	48.9	79	5/26	35	0	11.6	94.1	4.5	1.7
Streaker*	113.2	153.7	184.8	54.4	65	5/26	36	0	13.8	63.5	24.9	11.3
02Ab669	170.3	154.7	184.6	51.4	71	5/30	38	0	12.0	97.5	1.8	0.9
2Ab08-X05W061-216	---	---	184.3	49.4	83	5/27	32	0	12.1	95.7	2.5	1.3
2Ab09-X05W040-125	---	---	182.2	52.1	79	5/31	33	0	12.0	96.9	1.8	1.0
Schuyler	186.9	149.8	174.7	48.2	91	5/29	36	0	11.7	90.0	7.2	3.0
09-OR-86*	---	---	173.7	58.7	65	5/28	38	0	14.8	69.4	21.6	9.2
Endeavor	158.1	134.7	173.2	50.2	76	5/29	37	0	11.6	94.4	3.5	1.9
LCS Violetta	---	---	172.0	51.4	85	5/23	31	0	11.8	98.2	1.2	0.5
Charles	138.6	162.0	168.8	48.7	73	5/25	30	0	11.6	93.8	3.6	2.3
Kamiak	176.1	161.5	158.4	49.1	89	5/23	34	0	11.5	94.1	4.5	1.4
Average	167.2	164.3	195.8	50.0	80	5/28	35	0	11.9	91.5	5.7	2.8
LSD (α=.05)	43.9	31.7	24.4	1.1	10.9	1.9	3.2	0.0				
CV %	18.6	13.6	8.8	1.5	9.6	0.9	6.5	.				
Pr > F	0.0781	0.0014	<.0001	<.0001	<.0001	<.0001	<.0001	.				

*indicates hulless variety

Table 37. Agronomic data for winter barley at Ririe, dryland, 2014.

	Yield (bu/A)†		Spring	Heading	Height	Lodging
Variety	**2013**	**2014**	**Stand %**	**Date**	**(in.)**	**(%)**
Kamiak	5.4	23.2	45	6/14	11	0
Endeavor	10.9	17.2	75	6/15	12	0
2Ab09-X05W040-125	---	13.8	65	6/23	11	0
UTWB10201-15	---	12.5	70	6/18	10	0
2Ab09-X05W018-119	---	12.0	3	6/24	10	0
Charles	7.3	11.4	65	6/23	11	0
Sprinter	9.1	9.6	55	6/19	9	0
02Ab669	3.6	8.2	20	6/25	15	0
2Ab08-X05W061-216	---	7.4	0	---	0	0
TCFW6-140	---	6.7	3	6/25	11	0
Eight-Twelve	5.4	5.6	70	6/17	12	0
Sunstar Pride	3.6	5.4	20	6/28	11	0
LCS Violetta	---	5.3	80	6/14	11	0
LCS Saturn	---	4.9	25	6/18	10	0
02Ab431	0.0	4.5	1	6/28	9	0
Strider	3.6	4.2	3	6/23	13	0
Alba	3.6	3.8	3	6/18	13	0
Schuyler	1.8	2.5	10	6/24	12	0
02Ab671	1.8	2.2	3	6/24	16	0
Streaker*	3.6	1.6	30	6/15	13	0
09-OR-86*	---	1.3	2	6/24	16	0
Average	4.7	7.8	30.9	6/20	11.2	0.0

*indicates hulless variety

† Only one replication was planted in Ririe.

Table 38. Agronomic data for spring wheat at Rupert, irrigated, 2014.

Variety	Yield (bu/A) 2012	2013	2014	Test Wt. (lb/bu)	Spring Stand%	Heading Date	Height (in)	Lodging (%)	Protein (%)
Hard Spring Wheat									
UI Platinum(W)	103.5	91.5	148.6	57.0	100	6/11	34	48	13.7
Dayn (W)	---	96.6	146.7	55.6	100	6/14	38	3	14.1
WB-Paloma (W)	98.0	88.9	146.0	57.4	100	6/11	33	39	15.0
Kelse	115.1	92.2	144.7	58.6	100	6/14	36	8	15.2
WB9411	---	---	143.7	56.6	100	6/16	33	25	15.2
SY-40292R	---	---	142.8	56.2	100	6/17	35	46	14.7
SY-10136 (W)	---	---	142.3	55.3	100	6/10	32	69	14.3
Alzada (D)	111.1	99.5	141.5	57.5	100	6/11	35	84	15.0
Cabernet	115.4	88.9	140.7	56.7	100	6/14	31	16	14.3
11SB0096	---	---	140.2	54.7	100	6/17	35	24	14.0
IDO862E	118.7	96.6	139.6	59.6	100	6/11	36	3	14.8
Snow Crest (W)	104.2	90.0	137.5	57.5	100	6/11	31	24	14.6
IDO862T	113.6	98.7	136.8	58.0	100	6/15	37	21	14.8
WB9668	---	---	136.5	58.1	100	6/13	32	11	15.5
SY Basalt	---	---	132.6	54.1	100	6/17	30	8	14.3
LCS Star (W)	---	---	131.4	53.9	100	6/16	35	43	14.4
LL 3378	---	---	131.4	57.8	100	6/17	37	58	14.1
LCS Atomo (W)	---	---	130.9	54.3	100	6/11	29	68	13.4
Utopia (D)	---	---	129.7	55.7	100	6/13	35	69	15.5
WB9229	---	92.2	128.9	56.5	100	6/17	31	63	15.0
Buck Pronto	---	---	127.2	56.8	100	6/11	34	28	15.8
Bullseye	122.0	94.4	126.7	56.3	100	6/15	33	39	14.5
Klasic (W)	98.7	88.6	124.0	56.1	100	6/10	28	40	14.3
LL 3361	---	---	122.6	54.9	100	6/16	37	9	14.7
LL 3419	---	---	121.9	54.8	100	6/18	35	20	14.0
IDO1202S (W)	---	94.0	120.8	56.5	100	6/18	36	48	14.4
Westbred 936	106.0	79.1	115.8	52.7	100	6/15	33	24	15.1
Jefferson	116.9	90.4	114.7	55.9	100	6/16	37	60	15.2
UI Winchester	111.1	84.2	114.3	54.7	100	6/15	32	70	16.1
WA 8166	---	---	112.1	55.8	100	6/16	36	45	15.8
Average	107.9	90.1	132.4	56.2	100	6/14	34	37	14.7
LSD (α=.05)	10.9	9.7	15.1	1.9	100.0	1.8	2.3	46.0	
CV %	7.2	7.6	8.1	2.4	.	0.7	4.8	88.7	
Pr > F	<.0001	0.0057	<0.0001	<.0001	.	<0.001	<.0001	0.0077	

All varieties are Hard Red unless annotated.

(W) = Hard White

(D) = Durum

Table 39. Agronomic data for spring wheat at Aberdeen, irrigated, 2014.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2012**	**2013**	**2014**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**
Hard Spring Wheat									
Dayn (W)	---	119.4	168.0	58.7	98	6/12	38	0	14.0
IDO1202S (W)	---	117.9	158.2	60.5	94	6/18	39	0	13.5
LCS Atomo (W)	---	---	155.1	57.1	96	6/11	28	0	13.7
SY-40292R	---	---	153.6	57.7	99	6/19	38	1	14.7
Kelse	133.5	107.3	153.4	60.1	96	6/13	38	1	15.2
SY-10136 (W)	---	---	153.4	57.7	96	6/11	35	23	14.4
SY Basalt	---	---	152.7	56.5	96	6/20	37	0	13.5
UI Platinum (W)	128.4	93.3	152.3	58.2	98	6/11	33	1	13.9
11SB0096	---	---	151.6	57.2	95	6/16	37	0	13.9
WB-Paloma (W)	127.2	85.9	151.3	58.0	94	6/12	34	0	15.8
LL 3378	---	---	150.7	60.4	96	6/17	38	0	13.9
Cabernet	124.1	100.7	148.9	58.0	96	6/14	33	0	14.3
Jefferson	140.5	110.1	148.8	59.4	95	6/13	37	0	14.7
WB9668	---	---	148.6	58.9	95	6/13	34	3	16.2
LCS Star (W)	---	---	148.4	56.8	96	6/13	35	3	13.6
Bullseye	129.6	105.8	148.0	60.1	98	6/14	34	6	14.0
WB9411	---	---	147.4	58.4	96	6/12	37	0	14.4
IDO862T	139.3	106.9	146.2	59.9	96	6/13	38	3	15.2
Snow Crest (W)	126.1	87.8	145.7	58.5	93	6/11	33	0	14.8
Alzada (D)	150.7	82.0	145.4	59.9	90	6/13	34	25	13.9
WB9229	---	103.8	142.8	58.6	95	6/20	30	15	14.3
Utopia (D)	---	---	141.1	59.3	95	6/13	33	56	14.2
IDO862E	131.5	103.4	140.9	60.3	95	6/10	36	0	15.2
Westbred 936	123.0	64.0	138.8	57.4	94	6/13	35	0	14.5
LL 3361	---	---	137.3	57.3	94	6/18	36	0	14.6
WB-Rockland	113.6	77.7	136.0	58.1	95	6/15	32	0	15.0
Buck Pronto	---	---	135.1	58.9	95	6/11	35	0	16.0
Klasic (W)	140.5	85.5	134.5	58.4	94	6/10	26	0	14.9
UI Winchester	133.5	95.2	134.1	58.6	94	6/13	35	1	14.8
LL 3419	---	---	131.5	55.9	95	6/20	37	0	14.4
Average	130.7	98.4	146.7	58.5	95	6/14	35	5	14.5
LSD (α=.05)	10.3	9.6	12.0	1.0	3.9	1.6	3.9	22.2	
CV %	5.6	6.9	5.8	1.2	2.9	0.7	8.0	344.6	
Pr > F	<.0001	<.0001	<.0001	<.0001	0.0586	<.0001	<.0001	0.0028	

All varieties are Hard Red unless annotated.

(W) = Hard White

(D) = Durum

Table 40. Agronomic data for spring wheat, Idaho Falls, irrigated, 2014.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2012**	**2013**	**2014**	**(lb/bu)**	**Stand%**	**Date**	**(in)**	**(%)**	**(%)**
Hard Spring Wheat									
Dayn (W)	---	110.7	124.8	57.0	100	6/16	32	0	12.0
WB9411	---	---	115.9	56.4	100	6/15	30	0	13.1
Snow Crest (W)	109.3	84.6	114.0	56.9	100	6/14	29	0	12.7
Alzada (D)	108.5	71.9	113.3	58.3	100	6/15	26	0	11.4
WB-Paloma (W)	102.0	86.8	113.3	55.9	100	6/15	30	0	13.9
WB9668	---	---	111.2	57.6	100	6/16	31	0	13.7
Kelse	115.1	92.6	110.2	60.0	100	6/15	35	0	12.8
IDO862T	106.7	83.5	109.4	60.0	100	6/17	38	0	12.9
Cabernet	100.9	87.1	107.8	56.3	100	6/18	28	0	12.7
LCS Star (W)	---	---	107.4	55.4	100	6/21	30	0	12.5
LL 3378	---	---	107.4	59.7	100	6/20	35	0	12.3
SY-40292R	---	---	107.1	55.8	100	6/22	33	28	12.1
Westbred 936	105.3	78.4	105.8	54.3	100	6/17	31	3	12.7
UI Platinum (W)	88.9	84.2	105.3	55.3	100	6/13	29	13	12.9
IDO862E	107.8	81.7	104.5	59.4	100	6/13	32	0	12.6
11SB0096	---	---	102.4	54.8	100	6/23	34	0	12.9
Jefferson	104.9	85.3	101.9	56.7	100	6/19	32	38	12.5
WB9229	---	98.4	101.8	56.3	100	6/24	30	43	13.0
Buck Pronto	---	---	100.7	55.8	100	6/14	30	38	14.1
Klasic (W)	109.6	74.1	100.1	56.2	100	6/14	23	0	13.2
SY Basalt	---	---	98.9	54.5	100	6/23	32	4	11.6
LCS Atomo (W)	---	---	96.9	54.3	100	6/14	27	0	12.3
LL 3361	---	---	90.9	53.7	100	6/19	34	30	13.5
LL 3419	---	---	90.6	55.1	100	6/26	32	40	11.9
UI Winchester	100.2	76.2	83.1	56.8	100	6/20	33	90	13.3
Bullseye	103.5	98.7	80.6	55.2	100	6/19	30	65	12.9
IDO1202S (W)	---	91.1	73.4	58.9	100	6/21	35	19	12.4
Average	103.4	86.6	103.0	56.5	100.0	6/18	31	15	12.7
LSD (α=.05)	8.7	11.3	13.7	1.4	.	1.4	3.5	29.1	
CV %	6.0	9.1	9.4	1.8	.	0.6	7.9	137.2	
Pr > F	<.0001	<.0001	<.0001	<.0001	.	<.0001	<.0001	<.0001	

All varieties are Hard Red unless annotated.

(W) = Hard White

(D) = Durum

Table 41. Agronomic data for spring wheat at Ashton, irrigated, 2014.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2012**	**2013**	**2014**	**(lb/bu)**	**Stand %**	**Date**	**(in)**	**(%)**	**(%)**
Hard Spring Wheat									
Dayn (W)	---	86.0	125.6	57.0	100	7/12	34	0	13.0
LL 3419	---	---	124.1	54.8	100	7/17	33	0	11.2
WB9668	---	---	118.0	58.4	100	7/11	28	0	15.0
UI Platinum (W)	50.8	65.7	116.9	57.6	100	7/11	29	0	13.4
SY Basalt	---	---	116.2	56.1	100	7/15	28	0	12.5
WB9411	---	---	113.6	56.1	100	7/11	31	0	14.8
11SB0096	---	---	112.2	55.7	100	7/13	33	0	12.7
WB9229	---	74.8	112.2	56.5	100	7/17	31	0	13.9
LCS Star (W)	---	---	111.8	54.9	100	7/12	31	0	14.5
Kelse	54.1	75.9	109.3	59.3	100	7/11	34	0	13.9
LCS Atomo (W)	---	---	108.9	55.4	100	7/11	25	0	12.6
SY-40292R	---	---	108.2	55.6	100	7/14	33	0	13.3
IDO862E	52.6	74.4	106.4	59.0	100	7/11	32	0	14.9
Cabernet	55.2	66.4	103.8	57.4	100	7/12	27	0	13.1
WB-Paloma (W)	67.9	74.4	103.1	57.0	100	7/11	29	0	13.8
IDO862T	52.3	67.9	100.6	59.0	100	7/14	33	0	14.4
Jefferson	53.4	65.7	96.9	57.7	100	7/12	34	0	13.7
IDO1202S (W)	---	76.6	95.8	57.6	100	7/14	27	0	13.3
Alzada (D)	56.6	77.0	95.5	56.7	100	7/12	33	0	12.9
Bullseye	61.3	72.6	93.3	56.5	100	7/12	30	0	14.2
Buck Pronto	---	---	88.9	57.5	100	7/12	32	18	13.9
Klasic (W)	43.6	65.3	88.2	55.1	100	7/11	28	0	13.1
UI Winchester	58.1	78.0	87.8	54.8	100	7/12	32	25	14.2
LL 3378	---	---	84.2	55.6	100	7/12	34	3	13.1
LL 3361	---	---	77.0	52.0	100	7/13	34	0	12.8
Snow Crest (W)	44.3	56.6	76.2	54.4	100	7/11	28	0	14.6
Westbred 936	44.3	72.2	27.6	46.2	100	7/12	30	0	14.5
Average	55.3	73.3	100.1	56.1	100	7/12	31	2	13.6
LSD (α=.05)	12.7	17.5	13.4	1.3	.	1.2	6.1	9	
CV %	16.3	16.9	9.4	1.7	.	0.4	14.0	365.3	
Pr > F	0.007	0.3471	<.0001	<.0001	.	<.0001	0.1097	<.0001	

All varieties are Hard Red unless annotated.

(W) = Hard White

(D) = Durum

Table 42. Agronomic data for spring wheat at Soda Springs, dryland, 2014.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2012**	**2013**	**2014**	**(lb/bu)**	**Stand %**	**Date**	**(in)**	**(%)**	**(%)**
Hard Spring Wheat									
Jefferson	24.7	58.2	54.2	59.0	86	7/5	---	---	15.2
IDO1202S	---	54.4	50.6	58.5	86	7/6	---	---	15.2
SY-10136	---	---	49.2	54.5	91	7/1	---	---	14.5
Kelse	31.6	62.5	47.1	59.5	90	7/3	---	---	15.7
Dayn (W)	---	59.5	46.9	56.5	91	7/4	---	---	14.0
IDO862E	29.8	58.6	46.6	59.0	84	7/1	---	---	14.8
UI Platinum (W)	25.8	60.7	45.2	55.0	91	7/1	---	---	14.5
WB9411	---	---	44.2	57.0	91	7/2	---	---	15.7
LCS Star	---	---	43.5	55.5	85	7/5	---	---	14.5
Westbred 936	33.0	51.1	43.1	56.0	91	7/3	---	---	15.3
WB9668	---	---	41.5	56.0	88	7/2	---	---	16.5
LCS Atomo	---	---	39.2	54.0	93	7/2	---	---	13.9
UI Winchester	26.9	68.2	36.5	57.5	85	7/3	---	---	15.1
Klasic (W)	27.6	58.4	34.9	56.5	86	7/1	---	---	14.2
Average	29.2	58.6	44.5	56.8	88	7/3	---	---	14.9
LSD (α=.05)	9.4	10.9	8.4	2.1	8.0	1.1			
CV %	22.8	13.0	13.3	2.6	6.3	0.4			
Pr > F	0.6194	0.1669	0.0022	<.0001	0.3319	<.0001			

All varieties are Hard Red unless annotated.

(W) = Hard White

Table 43. Agronomic data for spring wheat at Rupert, irrigated, 2014.

Variety	Yield (bu/A) 2012	2013	2014	Test Wt. (lb/bu)	Spring Stand%	Heading Date	Height (in)	Lodging (%)	Protein (%)
Soft White Spring Wheat									
IDO 851	---	119.4	153.8	56.1	100	6/15	35	28	11.7
UI Stone	124.1	117.6	150.2	56.1	100	6/14	36	50	11.6
UI Pettit	112.5	117.2	142.4	56.3	100	6/10	34	28	12.2
WB6430	---	118.0	139.1	55.5	100	6/15	34	43	12.4
IDO 852	---	117.2	137.0	55.0	100	6/12	36	78	12.1
WB6121	---	116.9	129.5	56.7	100	6/12	36	31	13.4
Alpowa	125.6	107.1	123.2	54.4	100	6/16	36	57	14.0
Babe	128.1	103.1	119.2	53.3	100	6/16	36	45	13.1
Alturas	107.4	109.6	118.3	53.8	100	6/18	37	70	13.0
WA 8162	---	107.1	117.6	53.5	100	6/17	35	70	13.3
WA 8189	---	---	115.0	52.9	100	6/18	36	59	13.7
Penawawa	110.7	115.1	113.6	51.8	100	6/16	33	68	13.4
Average	113.5	112.1	129.9	54.6	100	6/15	35	52	12.8
LSD (α=.05)	11.7	13.5	20.2	2.8	0.0	0.9	3.1	56.6	
CV %	7.2	8.5	10.8	3.6	0.0	0.4	6.1	75.6	
Pr > F	<.0001	0.0904	0.0008	0.0187	.	<.0001	0.3132	0.6441	

Table 44. Agronomic data for spring wheat at Aberdeen, irrigated, 2014.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2012**	**2013**	**2014**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**
Soft White Spring Wheat									
UI Stone	154.2	114.8	183.1	58.2	100	6/11	35	0	11.6
IDO 852	---	115.9	172.9	58.2	98	6/12	36	6	11.6
IDO 851	---	117.9	170.8	58.0	96	6/18	35	0	11.3
WA 8162	---	123.7	166.7	57.8	95	6/20	36	15	11.6
WB6430	---	---	162.8	57.7	96	6/13	31	3	11.9
Alpowa	153.0	98.4	161.6	56.9	96	6/18	36	48	11.7
WA 8189	---	---	159.4	58.0	100	6/18	37	0	11.8
Penawawa	140.1	99.1	157.5	56.3	96	6/19	38	23	12.7
Babe	156.9	100.3	156.1	56.8	96	6/18	36	25	10.7
UI Pettit	147.9	95.6	150.3	57.2	98	6/11	34	0	10.9
WB6121	---	101.5	148.9	57.5	95	6/12	34	5	13.0
Alturas	146.8	115.1	147.8	57.2	95	6/18	37	23	11.7
Average	144.7	106.9	161.5	57.5	97	6/16	35	12	11.7
LSD (α=.05)	11.0	8.6	13.5	0.8	2.5	3.1	2.2	35.6	
CV %	5.2	5.7	5.8	0.9	1.8	1.3	4.4	203.3	
Pr > F	<.0001	<.0001	0.0001	0.0002	0.0012	<.0001	<.0001	0.2081	

Table 45. Agronomic data for spring wheat, Idaho Falls, irrigated, 2014.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2012**	**2013**	**2014**	**(lb/bu)**	**Stand %**	**Date**	**(in)**	**(%)**	**(%)**
Soft White Spring Wheat									
UI Stone	116.5	104.2	131.2	56.5	100	6/14	32	0	9.5
UI Pettit	120.5	95.5	122.0	56.3	100	6/12	34	0	10.1
IDO 852	---	106.0	120.2	57.1	100	6/13	34	0	9.6
IDO 851	---	104.9	119.9	55.9	100	6/20	34	0	9.6
Penawawa	104.9	95.5	119.0	56.1	100	6/21	35	0	9.9
WB6430	---	105.6	115.1	56.1	100	6/14	32	0	8.9
Babe	122.0	88.6	112.9	56.7	100	6/22	35	0	10.1
Alpowa	129.2	93.3	110.7	57.1	100	6/22	36	5	10.1
WA 8189	---	---	105.5	56.6	100	6/22	34	0	9.3
WA 8162	---	103.8	105.4	57.0	100	6/22	35	0	10.1
WB6121	---	103.8	103.3	55.6	100	6/18	33	20	10.9
Alturas	116.2	102.0	99.4	56.6	100	6/22	33	1	9.4
Average	115.6	98.9	113.7	56.5	100	6/18	34	2	9.8
LSD (α=.05)	8.5	16.2	17.1	0.7	0.0	1.5	3.0	16.7	
CV %	5.1	11.5	10.5	0.8	0.0	0.6	6.2	529.6	
Pr > F	<.0001	0.3030	0.0241	0.0004	.	<.0001	0.2641	0.4671	

Table 46. Agronomic data for spring wheat at Ashton, irrigated, 2014.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2012**	**2013**	**2014**	**(lb/bu)**	**Stand %**	**Date**	**(in)**	**(%)**	**(%)**
Soft White Spring Wheat									
Alpowa	72.2	86.4	123.4	58.0	100	7/14	37	0	10.7
WA 8162	---	79.9	119.4	58.1	100	7/14	36	0	10.7
IDO 851	---	84.9	106.0	57.2	100	7/13	36	0	9.4
Alturas	63.9	75.9	105.3	57.5	100	7/15	36	0	11.2
WB6121	---	84.2	98.4	58.1	100	7/12	32	0	11.7
WB6430	---	---	98.4	56.8	100	7/12	32	0	10.0
IDO 852	---	74.8	94.7	57.9	100	7/13	33	0	10.2
UI Stone	65.7	78.4	92.9	57.1	100	7/11	35	0	10.5
WA 8189	---	---	91.5	57.6	100	7/16	36	0	10.9
Penawawa	58.1	76.2	80.2	54.3	100	7/13	35	0	10.4
UI Pettit	55.2	81.7	68.6	54.1	100	7/11	33	0	10.2
Babe	61.7	82.0	68.2	52.7	100	7/13	36	0	11.3
Average	62.0	77.7	95.6	56.6	100	7/13	35	0	10.6
LSD (α=.05)	12.3	17.3	16.3	1.1	0.0	1.3	2.6	0.0	
CV %	13.8	15.6	11.9	1.3	0.0	0.5	5.3	.	
Pr > F	0.3480	0.0234	<.0001	<.0001	.	<.0001	0.0026	.	

Table 47. Agronomic data for spring wheat at Soda Springs, dryland, 2014.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2012**	**2013**	**2014**	**(lb/bu)**	**Stand %**	**Date**	**(in)**	**(%)**	**(%)**
Soft White Spring Wheat									
WA 8162	---	63.1	55.8	56.0	88	7/7	---	---	13.6
WA 8189	---	---	52.5	57.0	89	7/7	---	---	12.7
Alturas	31.2	61.3	50.6	58.5	88	7/7	---	---	12.4
IDO 852	---	55.0	46.7	55.3	86	7/2	---	---	13.1
IDO 851	---	62.9	46.3	55.0	88	7/4	---	---	12.2
WB6121	---	61.8	43.6	54.5	84	7/2	---	---	13.8
Alpowa	34.1	64.6	42.8	55.0	85	7/6	---	---	14.8
UI Pettit	35.2	56.3	40.8	56.0	89	6/30	---	---	12.7
Babe	35.6	63.7	38.9	54.0	88	7/6	---	---	13.5
UI Stone	34.8	57.8	38.6	55.0	90	7/2	---	---	13.9
Penawawa	28.7	61.7	37.8	53.0	90	7/4	---	---	15.2
Average	33.5	58.7	44.9	55.4	88	7/4	---	---	13.4
LSD (α=.05)	7.7	10.8	11.2	1.9	6.4	0.7			
CV %	16.0	12.9	30.8	2.3	5.1	0.3			
Pr > F	0.4328	0.1843	0.0756	0.0003	0.6683	<.0001			

Table 48. Agronomic data for spring barley at Rupert, irrigated, 2014.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2012**	**2013**	**2014**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
6- Row Spring Feed Barley												
Millennium	137.0	110.3	181.2	47.6	100	6/3	37	8	11.9	94.6	3.6	1.8
UT2183-85	---	---	177.7	49.1	100	6/6	37	15	12.4	98.8	0.7	0.4
Herald	132.5	114.8	170.3	46.8	100	6/9	41	23	12.2	94.8	3.2	2.1
Goldeneye	118.4	117.1	169.6	48.7	100	6/7	36	39	12.6	95.7	2.9	1.4
UT2136-96	---	---	154.1	47.2	100	6/4	38	28	12.7	89.0	6.8	4.2
6- Row Spring Malt Barley												
Tradition	135.2	112.5	150.1	47.6	100	6/8	40	36	12.3	97.9	1.3	0.7
Legacy	116.2	121.6	138.1	46.9	100	6/6	41	50	12.6	98.3	1.0	0.7
01Ab9663	125.7	103.9	137.4	46.5	100	6/9	40	53	11.3	92.7	4.5	2.9
Celebration	102.5	104.4	132.6	47.6	100	6/7	39	43	12.9	97.1	1.5	1.4
Lacey	---	---	132.5	48.9	100	6/6	40	33	12.5	98.7	0.7	0.4
Morex	108.9	101.2	130.8	47.9	100	6/9	42	58	11.9	93.5	4.2	2.2
Quest	119.8	89.4	130.6	47.5	100	6/6	41	51	12.4	94.9	3.4	1.7
Average	118.6	110.0	150.4	47.7	100	6/7	39	36	12.3	95.5	2.8	1.7
LSD (α=.05)	20.1	16.3	37.2	1.3	0.0	1.1	4.4	29.1				
CV %	11.9	10.3	17.2	1.9	0.0	0.5	7.7	55.9				
Pr > F	0.0001	0.0018	0.0331	0.0048	.	<.0001	0.0701	0.0240				

Table 49. Agronomic data for spring barley, Aberdeen, irrigated, 2014.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2012**	**2013**	**2014**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
6-Row Spring Feed Barley												
Millennium	178.6	161.0	194.2	47.0	99	6/7	39	20	12.5	94.5	4.6	1.9
UT2183-85	---	---	157.0	49.0	96	6/10	40	40	12.4	96.3	2.7	1.3
Herald	144.9	140.0	151.2	46.2	95	6/11	40	49	11.9	90.9	6.1	3.8
UT2136-96	---	---	140.0	47.1	99	6/7	32	74	12.3	85.9	8.7	6.1
Goldeneye	145.4	163.4	136.0	47.9	95	6/11	37	43	12.3	88.9	7.4	4.0
6-Row Spring Malt Barley												
01Ab9663	149.8	143.9	170.0	47.5	94	6/12	42	58	11.5	94.5	4.0	1.9
Lacey	---	---	138.9	49.0	98	6/10	38	50	11.8	96.5	2.4	1.7
Legacy	143.0	144.9	138.5	46.9	95	6/11	39	75	12.0	95.7	3.0	1.9
Celebration	140.0	131.2	134.2	48.5	95	6/11	38	95	12.5	96.2	2.8	1.3
Quest	114.2	127.3	131.1	48.6	95	6/10	42	90	12.3	93.9	4.7	2.3
Tradition	128.8	143.4	125.5	47.8	96	6/12	38	54	12.1	94.6	3.0	2.6
Morex	126.9	132.2	120.1	47.6	96	6/12	39	88	11.3	91.0	6.6	3.4
Average	142.2	146.6	144.7	47.7	96	6/10	39	61	12.1	93.2	4.7	2.7
LSD (α=.05)	21.5	14.6	20.3	1.5	2.8	0.8	3.7	42.7				
CV %	10.6	6.9	9.8	2.1	2.0	0.3	6.6	48.6				
Pr > F	<.0001	<.0001	<.0001	0.0048	0.0164	<.0001	0.0017	0.0252				

Table 50. Agronomic data for spring barley at Idaho Falls, irrigated, 2014.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2012**	**2013**	**2014**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
6 - Row Spring Feed Barley												
UT2136-96	---	---	170.3	46.0	100	6/12	35	33	11.7	88.8	7.4	3.8
UT2183-85	---	---	167.6	47.7	100	6/15	40	0	11.7	97.0	2.2	0.8
Millennium	191.0	156.1	147.6	43.4	100	6/12	36	68	11.8	83.5	11.5	5.0
Herald	196.9	151.6	145.3	44.4	100	6/19	38	98	11.4	91.7	6.1	2.4
Goldeneye	211.4	147.9	140.1	45.3	100	6/17	37	0	12.0	84.4	10.3	5.4
6 - Row Spring Malt Barley												
01Ab9663	196.9	133.4	152.6	46.7	100	6/21	43	13	10.8	96.4	2.5	1.1
Tradition	186.0	141.1	134.8	47.1	100	6/19	39	95	11.6	97.3	1.8	0.7
Lacey	---	---	130.0	46.9	100	6/14	37	89	11.6	96.5	2.5	1.0
Quest	181.0	155.6	128.8	47.0	100	6/14	41	98	11.5	94.6	4.2	1.3
Legacy	181.0	146.1	125.2	43.4	100	6/17	38	95	11.4	97.5	1.5	1.1
Celebration	174.7	149.7	124.3	45.2	100	6/16	40	96	11.6	96.9	1.8	1.3
Morex	165.6	149.7	108.5	44.4	100	6/21	40	95	11.1	74.2	13.8	12.0
Average	186.1	153.9	139.6	45.6	100	6/16	39	65	11.5	91.6	5.5	3.0
LSD (α=.05)	14.3	23.2	18.3	1.5	0.0	1.7	3.4	27.7				
CV %	5.4	10.5	9.1	2.3	0.0	0.7	6.2	29.7				
Pr > F	<.0001	0.0173	<.0001	<.0001	.	<.0001	0.0027	<.0001				

Table 51. Agronomic data for spring barley at Ashton, irrigated, 2014.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2012**	**2013**	**2014**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
6-Row Spring Feed Barley												
Millennium	74.4	92.1	112.5	48.1	100	7/11	34	0	10.5	83.5	11.3	5.6
UT2183-85	---	---	105.3	50.8	100	7/12	33	9	10.7	93.9	4.8	1.9
UT2136-96	---	---	94.4	47.9	100	7/11	30	23	10.5	82.7	10.5	7.2
Goldeneye	108.5	99.8	91.7	48.8	100	7/12	32	3	10.8	86.6	9.0	4.8
Herald	69.0	91.2	86.7	47.3	100	7/12	32	3	10.6	86.7	8.9	4.6
6-Row Spring Malt Barley												
Tradition	72.2	97.1	99.4	50.5	100	7/13	35	8	10.8	96.8	2.7	1.0
01Ab9663	83.9	93.5	93.9	49.8	100	7/14	36	46	10.4	93.0	5.3	2.5
Lacey	---	---	92.6	51.0	100	7/12	35	34	10.6	96.5	2.7	1.2
Celebration	66.3	82.6	90.8	50.0	100	7/15	34	8	10.9	97.0	2.5	1.0
Legacy	83.9	94.8	83.5	50.2	100	7/13	36	58	10.8	95.8	3.8	0.9
Quest	73.5	88.0	80.8	49.7	100	7/13	35	61	10.7	88.8	8.2	3.2
Morex	66.7	84.4	76.2	48.3	100	7/16	33	73	10.4	83.1	11.1	6.0
Average	76.4	93.4	92.3	49.4	100	7/13	34	27	10.7	90.4	6.7	3.3
LSD (α=.05)	28.4	24.4	13.2	0.8	0	1.8	2.8	27.0				
CV %	25.8	18.1	9.9	1.1	0	0.6	5.8	69.9				
Pr > F	0.3449	0.7742	0.0002	<.0001	.	0.0003	0.0028	<.0001				

Table 52. Agronomic data for spring barley at Rupert, irrigated, 2014.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2012**	**2013**	**2014**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
2-Row Spring Malt Barley												
Moravian 69	144.7	139.3	151.8	47.7	100	6/17	35	63	12.4	94.3	3.8	2.0
2Ab08-X05M010-82	---	124.8	149.6	49.7	100	6/13	35	53	12.1	96.1	2.4	1.6
2B09-3425	---	---	148.4	49.0	100	6/13	34	14	12.2	99.0	0.7	0.4
2Ab07-X031098-31	140.2	142.9	148.1	48.7	100	6/12	36	38	13.2	97.0	1.8	1.4
LCS Genie	131.1	128.4	146.7	48.8	100	6/17	33	96	12.6	95.8	2.4	1.7
CDC Meredith	---	123.9	144.7	47.7	100	6/17	41	41	12.7	94.1	3.6	2.4
B0811	---	129.3	144.5	49.1	100	6/13	36	55	12.5	98.1	1.3	0.7
2Ab04-X01084-27	142.9	105.7	143.9	48.7	100	6/13	36	71	12.5	96.6	2.1	1.4
Merit 57	124.3	104.8	142.7	46.5	100	6/15	37	35	13.2	93.7	3.9	2.3
ABI Voyager	145.2	128.4	142.0	49.1	100	6/13	39	33	12.3	97.4	1.4	1.1
Pinnacle	139.8	124.8	140.0	50.4	100	6/10	37	28	12.2	98.3	1.2	0.6
CDC Copeland	147.0	112.1	138.6	49.0	100	6/15	40	43	12.5	96.1	2.4	1.5
AC Metcalfe	124.3	116.2	137.8	49.6	100	6/13	39	33	12.7	96.3	1.9	1.9
Conrad	137.9	111.2	135.3	49.8	100	6/12	36	30	12.7	98.0	1.1	1.0
Baronesse	138.4	123.9	134.0	50.6	100	6/12	34	59	11.7	97.0	1.7	1.5
Hockett	121.2	123.0	127.0	49.3	100	6/11	35	60	12.4	95.6	2.3	2.2
Merem	133.4	106.6	124.2	47.0	100	6/17	40	48	12.6	94.5	3.7	1.7
Harrington	108.0	100.3	123.8	48.8	100	6/15	35	78	12.7	92.3	4.1	3.7
Average	135.4	120.0	140.2	48.8	100	6/14	36	49	12.5	96.1	2.3	1.6
LSD (α=.05)	18.7	21.1	21.0	2.1	0.0	1.2	3.8	44.5				
CV %	9.8	12.5	10.6	3.0	0.0	0.5	7.3	64.6				
Pr > F	<.0001	<.0001	0.2213	0.0214	.	<.0001	0.0008	0.0799				

Table 53. Agronomic data for spring barley, Aberdeen, irrigated, 2014.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2012**	**2013**	**2014**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
2-Row Spring Malt Barley												
LCS Genie	152.2	138.6	167.9	49.9	96	6/18	30	71	12.4	95.4	3.2	2.1
Pinnacle	169.8	147.3	162.4	50.9	95	6/12	40	68	12.6	98.5	1.2	1.0
B0811	---	143.0	156.5	47.7	94	6/13	34	80	12.9	93.2	3.9	3.4
Moravian 69	163.9	141.5	151.0	46.5	96	6/18	33	76	12.7	90.6	6.0	4.2
Baronesse	153.7	139.5	149.3	50.0	95	6/13	31	86	12.8	95.0	3.2	2.0
ABI Voyager	161.0	146.9	145.3	49.4	90	6/13	39	51	12.7	98.8	1.1	0.9
CDC Copeland	162.5	151.7	143.3	50.4	91	6/18	41	65	11.8	99.5	2.1	1.1
2Ab08-X05M010-82	---	131.2	143.0	46.4	95	6/13	34	86	13.4	85.6	7.4	7.7
Merit 57	125.4	130.3	142.3	46.0	96	6/15	36	80	13.0	88.4	7.4	4.4
Hockett	139.1	132.2	141.7	49.5	94	6/12	34	96	13.1	92.2	4.8	3.9
Conrad	144.9	135.6	138.0	48.0	95	6/13	33	81	11.9	89.5	5.6	5.8
CDC Meredith	128.8	118.6	137.6	47.8	94	6/18	35	93	12.5	95.4	3.2	2.1
2B09-3425	---	---	136.6	47.8	99	6/13	35	78	12.4	94.2	3.8	2.8
AC Metcalfe	130.8	128.3	136.3	48.4	94	6/13	39	60	12.7	91.7	4.6	4.4
2Ab04-X01084-27	146.9	128.3	128.3	47.2	96	6/13	33	93	12.8	94.5	3.7	2.3
Merem	141.0	132.2	128.0	46.4	94	6/20	38	79	12.9	83.9	9.2	7.8
2Ab07-X031098-31	166.4	151.3	127.6	49.4	94	6/15	37	69	13.1	95.4	3.4	1.8
Harrington	119.0	134.7	121.0	46.9	95	6/17	37	99	13.1	81.5	10.9	8.7
Average	152.4	133.7	142.0	48.2	95	6/15	35	78	12.7	92.4	4.7	3.7
LSD (α=.05)	19.8	14.5	27.7	2.5	4.0	1.9	3.5	29.5				
CV %	9.3	7.7	13.7	3.7	2.9	0.8	7.0	26.5				
Pr > F	<.0001	<.0001	0.1016	0.0012	0.0302	<.0001	<.0001	0.1219				

Table 54. Agronomic data for spring barley at Idaho Falls, irrigated, 2014.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2012**	**2013**	**2014**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
2-Row Spring Malt Barley												
2B09-3425	---	---	161.7	47.7	100	6/22	34	33	11.5	96.7	2.2	1.1
Pinnacle	154.3	138.8	149.1	50.0	100	6/19	33	43	12.1	97.9	1.1	1.0
LCS Genie	140.2	126.1	147.1	49.2	100	6/25	35	86	12.2	95.2	3.4	1.4
Baronesse	141.6	140.2	145.0	48.7	100	6/22	34	93	10.9	89.1	6.2	4.8
2Ab07-X031098-31	159.7	150.6	141.8	47.4	100	6/22	37	75	12.4	92.1	4.1	3.7
ABI Voyager	161.5	140.2	141.1	47.4	100	6/22	38	68	11.6	97.2	1.7	1.1
2Ab08-X05M010-82	---	147.0	140.0	46.3	100	6/22	37	79	11.5	91.4	5.1	3.4
B0811	---	148.4	138.3	46.3	100	6/21	35	91	11.7	94.5	3.0	2.3
CDC Copeland	148.8	137.9	135.8	50.4	100	6/25	42	58	11.8	88.4	7.1	4.4
CDC Meredith	149.7	128.0	133.5	47.6	100	6/25	36	73	12.1	97.4	1.7	0.9
Merit 57	154.7	133.9	133.3	47.2	100	6/25	38	73	12.3	93.3	4.0	2.7
2Ab04-X01084-27	134.3	141.6	130.4	45.3	100	6/22	31	93	11.6	90.5	5.8	3.5
Conrad	143.8	133.9	129.1	45.5	100	6/21	36	73	11.7	87.7	7.3	5.0
Merem	128.4	129.3	125.8	47.6	100	6/27	37	76	12.0	92.9	4.2	3.0
Moravian 69	141.6	121.6	125.6	45.1	100	6/25	35	75	11.5	90.2	6.4	3.4
AC Metcalfe	142.9	126.6	122.5	48.3	100	6/22	34	63	11.7	95.3	2.8	1.7
Hockett	140.2	124.3	121.2	44.6	100	6/20	35	98	11.7	96.1	2.4	1.5
Harrington	103.5	115.3	117.2	47.5	100	6/22	38	97	11.4	83.8	9.0	7.3
Average	144.2	133.0	135.5	47.3	100	6/23	36	75	11.8	92.8	4.3	2.9
LSD (α=.05)	18.7	12.2	19.3	3.0	0.0	1.8	4.2	41.6				
CV %	9.2	6.5	10.0	4.4	0.0	0.7	8.3	39.2				
Pr > F	<.0001	<.0001	0.0025	0.0063	.	<.0001	0.0109	0.1325				

Table 55. Agronomic data for spring barley at Ashton, irrigated, 2014.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2012**	**2013**	**2014**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
2-Row Spring Malt Barley												
ABI Voyager	65.8	93.0	96.6	48.9	100	7/19	31	13	10.4	93.5	4.5	2.3
B0811	---	110.7	93.0	49.2	100	7/19	28	3	10.7	96.3	2.3	1.7
Baronesse (feed check)	103.9	113.9	92.6	49.6	100	7/18	28	20	9.8	91.8	5.7	2.7
Merem	72.2	85.3	90.8	49.3	100	7/23	33	9	10.5	88.6	6.5	4.4
Hockett	91.7	95.3	89.8	50.4	100	7/20	29	29	10.6	93.7	4.2	2.5
Pinnacle	88.9	94.4	87.6	50.5	100	7/18	31	14	10.3	94.7	3.8	2.0
2Ab07-X031098-31	78.1	92.6	87.1	49.9	100	7/18	29	48	11.2	86.3	8.3	5.8
2Ab08-X05M010-82	---	104.4	86.2	50.3	100	7/19	28	33	10.3	86.4	8.6	5.5
Conrad	68.4	100.7	85.8	48.6	100	7/18	27	18	10.1	92.3	5.0	3.2
2Ab04-X01084-27	79.9	99.8	84.4	50.2	100	7/19	28	25	10.2	91.7	5.5	2.8
CDC Meredith	77.6	89.4	83.9	49.8	100	7/21	30	68	10.4	92.0	5.7	2.8
CDC Copeland	77.6	100.3	81.7	49.2	100	7/21	32	13	10.5	91.6	5.5	3.7
2B09-3425	---	---	79.9	49.5	100	7/21	30	4	10.4	93.0	4.8	2.7
Merit 57	84.9	97.6	79.0	49.6	100	7/21	30	3	10.9	90.9	6.0	3.0
AC Metcalfe	80.8	77.6	75.6	48.7	100	7/19	32	45	10.9	92.8	4.7	2.5
LCS Genie	87.1	99.4	74.0	48.4	100	7/20	23	11	10.2	89.6	6.6	4.2
Moravian 69	83.0	104.4	68.1	50.0	100	7/21	21	0	10.3	85.4	9.4	5.6
Harrington	71.7	84.4	60.3	48.4	100	7/22	29	65	11.0	76.6	14.1	9.7
Average	79.7	96.9	83.1	49.5	100	7/20	29	23	10.5	90.4	6.2	3.7
LSD (α=.05)	31.0	14.5	15.7	2.0	0.0	2.0	2.6	33.9				
CV %	27.1	7.7	13.0	2.9	0.0	0.7	6.3	103.4				
Pr > F	0.4627	<.0001	0.0024	0.5853	.	<.0001	<.0001	0.0011				

Table 56. Agronomic data for spring barley at Rupert, irrigated, 2014.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2012**	**2013**	**2014**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
2-Row Spring Feed Barley												
Vespa	---	162.4	175.2	50.2	100	6/15	32	47	12.3	96.7	2.2	1.1
Lenetah	130.2	134.8	162.9	49.8	100	6/11	40	48	12.1	94.0	2.7	3.4
Champion	143.4	147.5	161.3	51.5	100	6/12	36	53	15.7	97.5	1.6	1.0
Xena	143.8	144.7	157.7	50.6	100	6/11	38	63	12.1	96.3	1.8	1.9
RWA 1758	141.6	135.7	155.8	48.7	100	6/12	37	80	12.5	93.0	3.5	3.5
Idagold II	135.7	129.3	155.5	49.3	100	6/15	36	38	12.3	93.9	4.1	2.0
Tetonia	128.0	130.7	149.9	50.8	100	6/15	37	59	11.7	93.8	3.2	2.8
08ID2661	134.3	122.5	149.9	49.1	100	6/16	38	13	12.0	94.9	3.3	1.9
Herald	131.6	156.5	149.4	45.8	100	6/10	41	53	12.4	94.9	3.4	1.8
2Ab09-X06F084-51	---	118.4	138.9	46.8	100	6/16	40	74	12.5	84.9	9.0	6.2
Baronesse	137.5	123.4	127.8	47.3	100	6/13	38	95	12.3	87.7	6.5	6.0
CDC McGwire*	106.6	123.0	124.4	52.4	100	6/15	40	94	10.4	73.4	15.8	10.9
08ID1549*	109.4	110.3	120.6	52.2	100	6/16	37	70	17.4	83.3	9.5	7.4
Julie*	106.2	129.3	116.8	50.2	100	6/18	40	85	15.8	74.1	15.5	10.5
Clearwater*	94.8	103.0	105.2	53.4	100	6/14	40	86	18.4	82.9	11.2	5.9
Transit*	87.1	90.8	103.4	54.8	100	6/16	40	72	16.9	86.6	8.1	5.3
2Ab09-X06F058HL-31*	---	88.9	102.1	52.2	100	6/16	39	68	16.0	86.7	8.4	4.9
CDC Fibar*	79.0	82.1	97.3	51.7	100	6/16	41	86	17.6	77.0	15.0	8.0
Average	121.4	121.5	136.3	50.4	100	6/14	38	66	13.9	88.4	6.9	4.7
LSD (α=.05)	20.9	19.8	20.7	2.9	0.0	1.4	4.3	38.4				
CV %	12.2	11.5	10.7	4.0	0.0	0.6	8.0	41.3				
Pr > F	<.0001	<.0001	<.0001	<.0001	.	<.0001	0.0140	0.0058				

* indicates hulless variety

Table 57. Agronomic data for spring barley, Aberdeen, irrigated, 2014.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2012**	**2013**	**2014**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
2-Row Spring Feed Barley												
Idagold II	169.8	140.5	167.4	49.2	96	6/15	37	58	12.4	88.9	6.8	5.2
Vespa	---	149.8	163.1	49.4	96	6/15	33	91	12.5	91.8	4.8	4.5
Champion	167.8	164.4	163.0	50.1	94	6/13	35	81	12.5	92.8	4.7	3.4
RWA 1758	153.2	143.9	154.9	48.2	98	6/13	35	100	12.4	88.0	6.8	5.6
Tetonia	153.2	146.9	147.2	49.6	98	6/15	34	89	12.0	84.0	7.8	8.7
Xena	176.6	143.9	146.8	48.8	95	6/13	36	92	12.3	89.9	5.7	5.1
08ID2661	169.8	145.9	140.9	48.2	94	6/18	40	53	12.0	87.2	8.2	5.2
Lenetah	161.5	152.2	137.4	49.0	96	6/13	40	86	12.8	92.0	9.7	4.2
2Ab09-X06F084-51	---	138.1	135.4	47.6	98	6/18	37	82	12.8	81.4	9.5	9.5
Baronesse	154.2	137.6	132.0	49.1	96	6/13	35	98	12.0	89.0	5.7	5.6
Julie*	136.1	129.3	131.3	54.2	90	6/19	41	43	16.1	85.8	9.2	6.2
Herald	154.7	141.0	130.0	46.8	96	6/11	38	75	12.1	91.1	6.6	3.4
08ID1549*	148.3	132.2	127.3	55.9	76	6/17	37	58	16.3	86.6	9.2	4.7
CDC McGwire*	138.1	125.4	124.8	54.5	93	6/12	37	54	14.2	79.0	18.6	8.2
Clearwater*	116.6	114.2	120.8	53.8	90	6/15	36	93	17.6	81.1	12.1	7.6
Transit*	121.5	133.7	109.6	55.6	94	6/15	39	38	17.5	78.2	15.5	6.9
CDC Fibar*	107.8	100.0	107.5	54.5	89	6/16	37	92	18.2	87.9	8.8	4.1
2Ab09-X06F058HL-31*	---	122.5	103.9	56.6	75	6/15	36	73	16.9	94.5	4.0	2.2
Average	152.1	134.9	135.7	51.2	92	6/15	37	75	14.0	87.2	8.5	5.6
LSD (α=.05)	19.7	18.8	19.7	2.0	5.4	1.9	3.5	31.9				
CV %	9.2	9.8	10.2	2.8	4.1	0.8	6.7	30.0				
Pr > F	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	0.0036	0.0009				

* indicates hulless variety

Table 58. Agronomic data for spring barley at Idaho Falls, irrigated, 2014.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2012**	**2013**	**2014**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
2-Row Spring Feed Barley												
08ID2661	181.0	140.9	164.3	47.6	100	6/26	38	83	11.5	87.7	8.2	4.3
Vespa	---	145.2	157.2	46.5	100	6/24	33	98	11.8	86.5	8.8	4.8
Tetonia	167.4	142.9	155.9	48.4	100	6/22	34	97	11.3	81.5	10.6	7.7
Champion	186.0	153.6	152.5	50.1	100	6/21	38	98	11.8	93.5	4.0	2.6
Herald	167.4	143.8	145.7	43.5	100	6/16	38	98	11.9	86.7	7.9	5.4
Idagold II	161.5	136.1	144.6	46.9	100	6/23	33	96	11.6	80.8	12.2	7.0
08ID1549*	149.3	122.2	135.5	54.7	100	6/23	39	73	14.6	84.7	10.0	5.3
Lenetah	172.0	148.0	132.3	45.4	100	6/22	35	98	11.9	85.0	7.0	7.9
RWA 1758	168.8	139.1	130.7	44.2	100	6/22	36	99	11.7	76.3	11.9	11.8
Xena	177.9	156.1	129.1	45.7	100	6/22	38	97	12.1	79.5	9.8	10.8
Julie*	144.3	120.2	126.8	54.3	100	6/26	39	51	14.6	81.7	9.9	8.3
2Ab09-X06F084-51	---	133.0	121.1	43.1	100	6/23	37	93	11.9	61.7	17.2	21.1
Baronesse	170.6	140.7	120.4	47.1	100	6/22	33	97	11.7	79.9	10.1	10.0
Transit*	110.3	107.1	112.2	52.5	100	6/21	39	47	15.1	65.1	21.2	13.6
CDC McGwire*	155.2	129.3	104.8	51.4	100	6/22	37	96	14.1	63.8	21.0	15.3
Clearwater*	140.7	107.1	100.2	50.5	100	6/22	38	96	17.2	60.1	22.2	17.7
2Ab09-X06F058HL-31*	---	110.0	96.4	49.4	99	6/21	36	95	13.7	74.4	13.8	11.9
CDC Fibar*	113.9	90.5	82.2	49.8	100	6/22	38	98	16.7	55.1	21.8	23.2
Average	157.5	129.6	128.4	48.4	100	6/22	36	89	13.1	76.9	12.6	10.5
LSD (α=.05)	15.6	14.6	21.0	3.4	0.6	1.3	3.3	26.6				
CV %	7.0	7.9	11.5	5.0	0.4	0.5	6.3	21.0				
Pr > F	<.0001	<.0001	<.0001	<.0001	0.0012	<.0001	0.0002	0.0017				

* indicates hulless variety

Table 59. Agronomic data for spring barley at Ashton, irrigated, 2014.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2012**	**2013**	**2014**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
2-Row Spring Feed Barley												
Champion	109.4	110.3	134.6	53.3	100	7/16	32	0	10.8	96.7	2.2	1.1
RWA 1758	83.9	115.7	129.4	51.4	100	7/16	25	21	10.1	93.3	4.5	2.3
Xena	107.5	101.2	123.3	51.7	100	7/18	28	2	10.3	96.1	2.7	1.5
Tetonia	91.2	108.0	122.1	50.7	100	7/21	27	11	10.0	89.9	6.6	3.8
Lenetah	113.0	111.2	121.0	51.4	100	7/20	30	30	10.9	94.7	3.0	1.7
Baronesse	81.7	94.4	119.9	50.4	100	7/16	25	55	9.8	91.2	5.7	2.8
Herald	66.3	98.0	115.8	46.2	100	7/16	33	1	11.0	89.3	6.9	3.7
2Ab09-X06F084-51	---	105.3	114.9	48.1	100	7/20	32	5	11.1	91.3	5.6	2.7
Vespa	---	101.2	109.9	50.1	100	7/19	25	10	10.6	92.1	5.8	2.7
08ID2661	86.7	99.8	106.0	49.2	100	7/22	27	9	10.4	88.1	7.9	3.5
Julie *	77.1	85.0	102.0	54.1	100	7/23	32	1	13.4	88.7	7.5	3.2
Idagold II	95.7	94.8	96.4	49.8	100	7/21	29	1	10.9	86.6	8.8	4.8
CDC McGwire*	44.5	92.5	92.2	55.4	100	7/21	30	75	11.1	70.7	17.4	11.6
Clearwater*	89.4	82.4	71.6	55.1	100	7/20	30	55	14.5	75.3	15.0	9.4
Transit*	62.2	68.0	69.9	55.8	100	7/23	33	0	13.9	83.5	12.8	3.7
08ID1549*	85.8	90.6	69.5	53.6	90	7/24	29	0	13.1	74.6	15.0	9.8
2Ab09-X06F058HL-31*	---	79.3	66.0	54.2	100	7/21	31	55	14.3	85.6	8.9	5.5
CDC Fibar*	54.0	70.0	57.3	54.9	100	7/20	32	75	15.2	80.1	13.7	6.0
Average	80.6	93.0	101.2	52.0	99	7/20	29	23	11.7	87.1	8.3	4.4
LSD (α=.05)	32.6	20.2	14.3	1.3	6.7	2.1	3.4	19.4				
CV %	28.6	15.4	10.0	1.7	4.7	0.7	8.2	60.3				
Pr > F	0.0009	<.0001	<.0001	<.0001	0.4736	<.0001	<.0001	<.0001				

* indicates hulless variety

Table 60. Hard Winter Wheat Yield Percentage of Location Averages, 2014.

	(100% =Average)				Variety
Variety	**Kimberly**	**Aberdeen**	**Ririe**	**Rockland**	**Average**
Juniper / Deloris	---	---	---	122	122
NSA10-7208	115	112	---	---	113
SY Clearstone 2CL	---	---	112	113	112
Otto (SWW)	---	---	---	112	112
IDO1101 (W)	117	105	102	114	110
Curlew	---	---	104	114	109
WA8158	---	---	112	105	109
UI Silver (W)	89	110	120	111	107
Keldin	106	104	103	115	107
Deloris	---	---	112	102	107
Yellowstone	100	101	113	114	107
UI SRG	---	---	96	117	107
WB-Arrowhead / Keldin	109	102	106	103	105
Whetstone	108	98	94	115	104
LCS Colonia	92	107	119	94	103
OR2080236H (W)	109	105	103	94	103
WA8183	110	105	110	86	103
Utah 100	104	98	101	107	103
WB3768 (W)	96	105	102	107	102
Moreland	107	100	103	97	102
Promontory	107	102	102	97	102
LCS Azimut	98	99	102	108	102
Lucin-CL	---	---	104	98	101
WA8184	109	98	103	94	101
Juniper	93	88	123	100	101
WB-Arrowhead	105	99	94	103	100
Greenville	103	98	95	100	99
Eltan (SWW)	---	---	---	98	98
IDO1103	102	101	96	89	97
IDO816	---	---	100	94	97
Garland/Juniper	---	---	90	100	95
Norwest 553	107	103	91	78	95
Garland	101	97	94	87	95
AP503 CL2	---	---	89	99	94
UICF Grace (W)	---	---	102	86	94
Weston	---	---	89	98	93
OR2100081H	108	105	77	82	93
Golden Spike (W)	91	89	87	105	93
Juniper / Promontory	85	89	93	104	93
LCS Evina	86	103	97	75	91
Judee	88	95	80	99	90
Manning	91	101	93	73	89
Bearpaw	---	---	86	91	89
DAS001	84	93	---	---	88
DAS002	77	89	---	---	83
Location Average (bu/A)	149	164	21	37	

All varieties are Hard Red Winter unless annotated.
(W) = Hard White
(SWW) = Soft White Winter

Table 61. Soft White Winter Wheat Yield Percentage of Location Averages, 2014.

	(100% =Average)			Variety
	Kimberly	Aberdeen	Ririe	Average
IDO1108	110	105	119	111
LWW10-1073	---	---	108	108
SY Ovation	110	103	111	108
SY 107	111	105	106	108
OR2080641	106	104	107	105
UICF Brundage	---	---	105	105
Bobtail	103	107	105	105
Bitterroot	---	---	104	104
Kaseberg	103	105	102	103
Otto	---	---	103	103
LCS Biancor	99	107	---	103
IDN-02-29001A	100	106	101	102
Bruneau	103	106	96	102
WB-Junction	105	98	---	102
IDN-02-08806A	101	101	101	101
UI-WSU Huffman	96	109	98	101
Skiles	99	99	104	100
WB 528	103	99	98	100
WB1376CLP	95	105	---	100
IDN-01-10704A	96	102	101	100
Eltan	96	93	109	99
Mary	102	102	94	99
LCS Artdeco	94	104	---	99
Madsen / Eltan	89	100	108	99
WB1529	101	96	---	99
LWW12-7105	97	99	---	98
Madsen	99	100	93	98
WB-1070CL	103	87	102	97
OR2090473	95	104	92	97
Rosalyn	92	101	96	97
WB1529/WB-Junction	100	93	---	96
OR2080637	102	97	89	96
Brundage	100	96	92	96
IDN-04-00405B	95	95	96	95
Stephens	101	99	83	94
Ladd	95	94	93	94
WB 456	99	82	84	88
Location Average (bu/A)	141	172	24	

Table 62. Winter Barley Yield Percentage of Location Averages, 2014.

	(100% =Average) Aberdeen/Variety Average
Sunstar Pride	121
UTWB10201-15	120
02Ab431	119
Strider	113
Eight-Twelve	113
Alba	110
Sprinter	107
LCS Saturn	106
02Ab671	101
2Ab09-X05W018-119	98
TCFW6-140	96
Streaker*	94
02Ab669	94
2Ab08-X05W061-216	94
2Ab09-X05W040-125	93
Schuyler	89
09-OR-86*	89
Endeavor	88
LCS Violetta	88
Charles	86
Kamiak	81
Location Average (bu/A)	196

* indicates hulless variety

Table 63. Hard Spring Wheat Yield Percentage of Location Averages, 2014.

		(100% =Average)				
Variety	**Rupert**	**Aberdeen**	**Idaho Falls**	**Ashton**	**Soda Springs**	**Variety Average**
Dayn (W)	111	115	121	125	106	116
SY-10136 (W)	107	105	---	---	111	108
UI Platinum (W)	112	104	102	117	102	107
Kelse	109	105	107	109	106	107
WB9411	108	101	113	113	99	107
WB-Paloma (W)	110	103	110	103	---	107
SY-40292R	108	105	104	108	---	106
11SB0096	106	103	99	112	---	105
WB9668	103	101	108	118	93	105
SY Basalt	100	104	96	116	---	104
Cabernet	106	102	105	104	---	104
LCS Star (W)	99	101	104	112	98	103
Alzada (D)	107	99	110	95	---	103
IDO862E	105	96	102	106	105	103
IDO862T	103	100	106	100	---	102
WB9229	97	97	99	112	---	101
Jefferson	87	101	99	97	122	101
LCS Atomo (W)	99	106	94	109	88	99
LL 3419	92	90	88	124	---	98
LL 3378	99	103	104	84	---	98
Snow Crest (W)	104	99	111	76	---	98
Utopia (D)	98	96	---	---	---	97
IDO1202S (W)	91	108	71	96	114	96
Buck Pronto	96	92	98	89	---	94
WB-Rockland	---	93	---	---	---	93
Bullseye	96	101	78	93	---	92
Klasic (W)	94	92	97	88	78	90
LL 3361	93	94	88	77	---	88
UI Winchester	86	91	81	88	82	86
WA 8166	85	---	---	---	---	85
Westbred 936	87	95	103	28	97	82
Location Average (bu/A)	132	147	103	100	44	

All varieties are Hard Red Spring unless annotated.
(W) = Hard White
(D) = Durum

Table 64. Soft White Spring Wheat Yield Percentage of Location Averages, 2014.

	(100% =Average)					
	Rupert	**Aberdeen**	**Idaho Falls**	**Ashton**	**Soda Springs**	**Variety Average**
IDO 851	118	106	105	111	103	109
Seahawk	91	103	93	125	124	107
UI Stone	116	113	115	97	86	105
IDO 852	105	107	106	99	104	104
Alpowa	95	100	97	129	95	103
Alturas	91	92	87	110	113	99
WA 8189	89	99	93	96	117	98
WB6121	100	92	91	103	97	97
UI Pettit	110	93	107	72	91	95
Penawawa	87	98	105	84	84	92
Babe	92	97	99	71	87	89
WB6430	107	101	101	103	0	82
Location Average (bu/A)	130	162	114	96	45	

Table 65. 6-Row Spring Barley Yield Percentage of Location Averages, 2014.

	(100% =Average)				
	Rupert	**Aberdeen**	**Idaho Falls**	**Ashton**	**Variety Average**
Feed					
Millennium	120	134	106	122	121
UT2183-85	118	108	120	114	115
UT2136-96	102	97	122	102	106
Herald	113	104	104	94	104
Goldeneye	113	94	100	99	102
Malt					
01Ab9663	91	117	109	102	105
Tradition	100	87	97	108	98
Lacey	88	96	93	100	94
Celebration	88	93	89	98	92
Legacy	92	96	90	90	92
Quest	87	91	92	88	89
Morex	87	83	78	83	83
Location Average (bu/A)	150	145	140	92	

Table 66. 2-Row Spring Malt Barley Yield Percentage of Location Averages, 2014.

	(100% =Average)				Variety
	Rupert	**Aberdeen**	**Idaho Falls**	**Ashton**	**Average**
Pinnacle	100	114	110	105	107
B0811	103	110	102	112	107
ABI Voyager	101	102	104	116	106
LCS Genie	105	118	109	89	105
Baronesse (feed check)	96	105	107	111	105
2B09-3425	106	96	119	96	104
2Ab08-X05M010-82	107	101	103	104	104
2Ab07-X031098-31	106	90	105	105	101
CDC Meredith	103	97	99	101	100
CDC Copeland	99	101	100	98	100
Merit 57	102	100	98	95	99
Conrad	97	97	95	103	98
2Ab04-X01084-27	103	90	96	102	98
Moravian 69	108	106	93	82	97
Hockett	91	100	89	108	97
Merem	89	90	93	109	95
AC Metcalfe	98	96	90	91	94
Harrington	88	85	87	73	83
Location Average (bu/A)	140	142	135	83	

Table 67. 2-Row Spring Feed Barley Yield Percentage of Location Averages, 2014.

	(100% =Average)				Variety
	Rupert	**Aberdeen**	**Idaho Falls**	**Ashton**	**Average**
Champion	118	120	119	133	123
Vespa	128	120	122	109	120
Tetonia	110	108	121	121	115
RWA 1758	114	114	102	128	114
08ID2661	110	104	128	105	112
Xena	116	108	100	122	112
Idagold II	114	123	113	95	111
Lenetah	120	101	103	120	111
Herald	110	96	113	114	108
2Ab09-X06F084-51	102	100	94	114	102
Baronesse	94	97	94	118	101
Julie*	86	97	99	101	95
08ID1549*	88	94	105	69	89
CDC McGwire*	91	92	82	91	89
Clearwater*	77	89	78	71	79
Transit*	76	81	87	69	78
2Ab09-X06F058HL-31*	75	77	75	65	73
CDC Fibar*	71	79	64	57	68
Location Average (bu/A)	136	136	128	101	

* indicates hulless variety

2014 Winter Grain Yield Percentage Across All Locations Charts

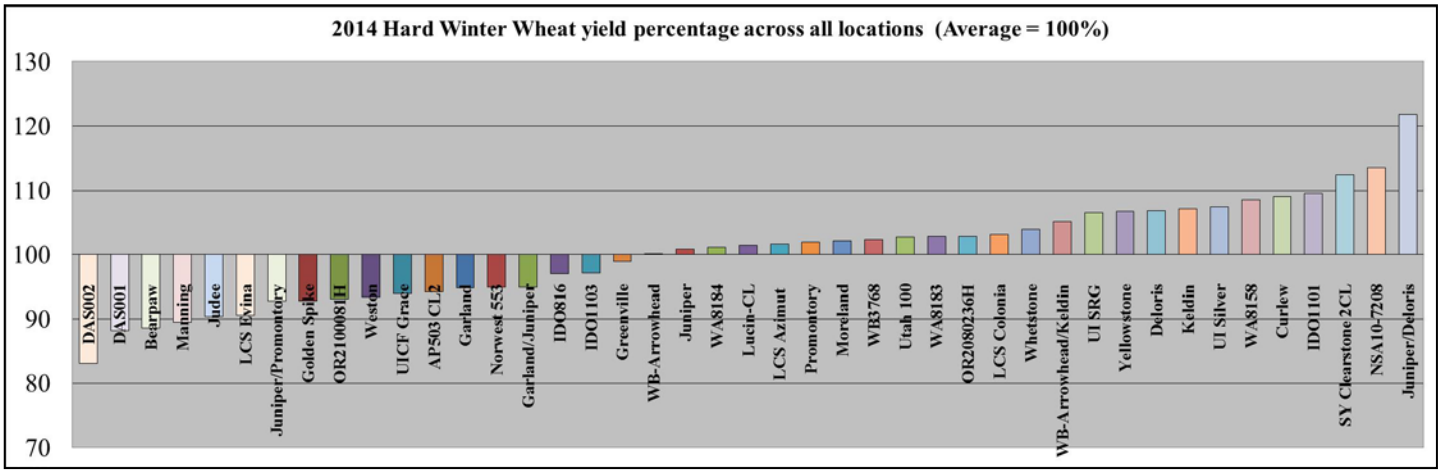


Chart 2. Hard Winter Wheat Yield Percentage Across All Locations.

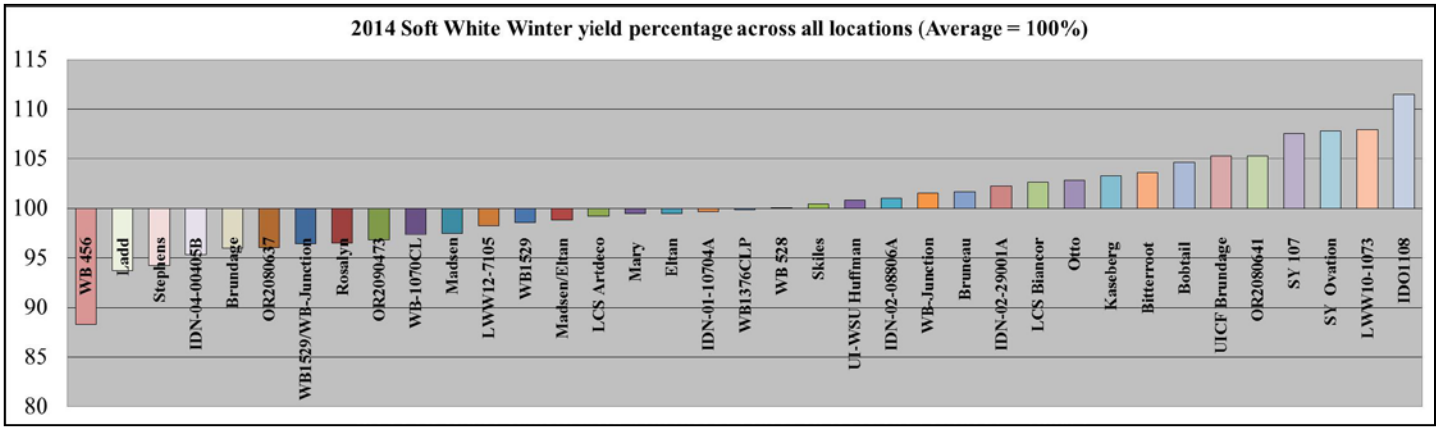


Chart 3. Soft White Winter Wheat Yield Percentage Across All Locations.

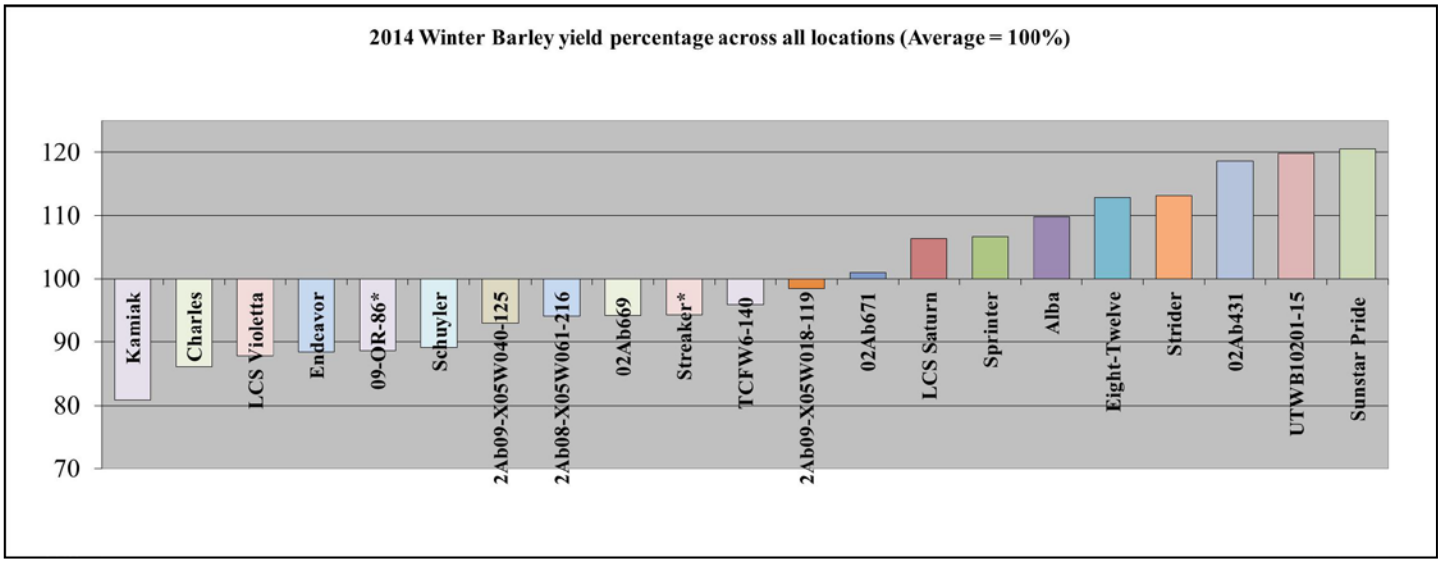


Chart 4. Winter Barley Yield Percentage Across All Locations. * indicates hulless variety.

2014 Spring Grain Yield Percentages Across All Locations Charts

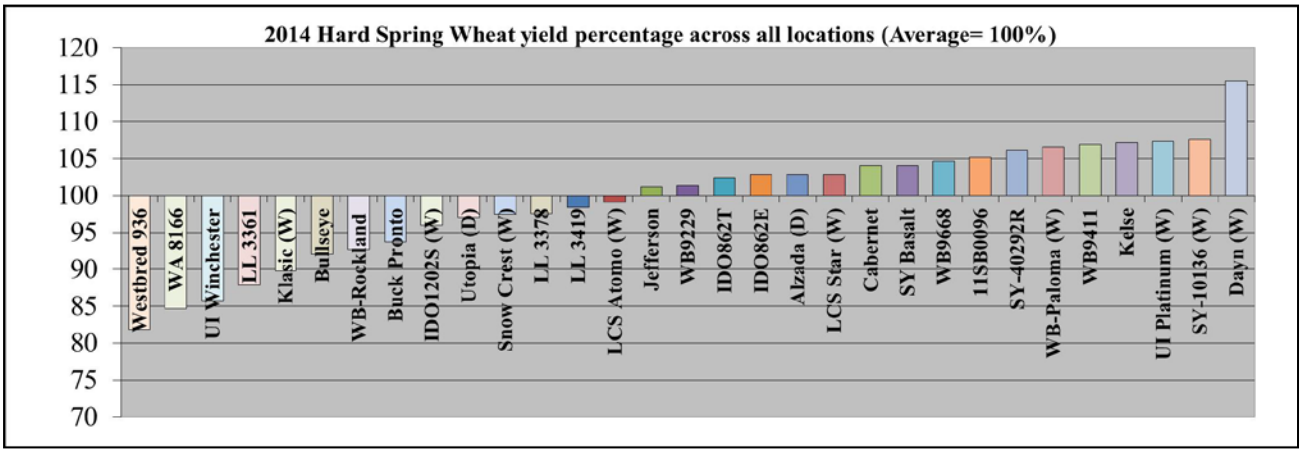


Chart 5. Hard Spring Wheat Yield Percentage Across All Locations.

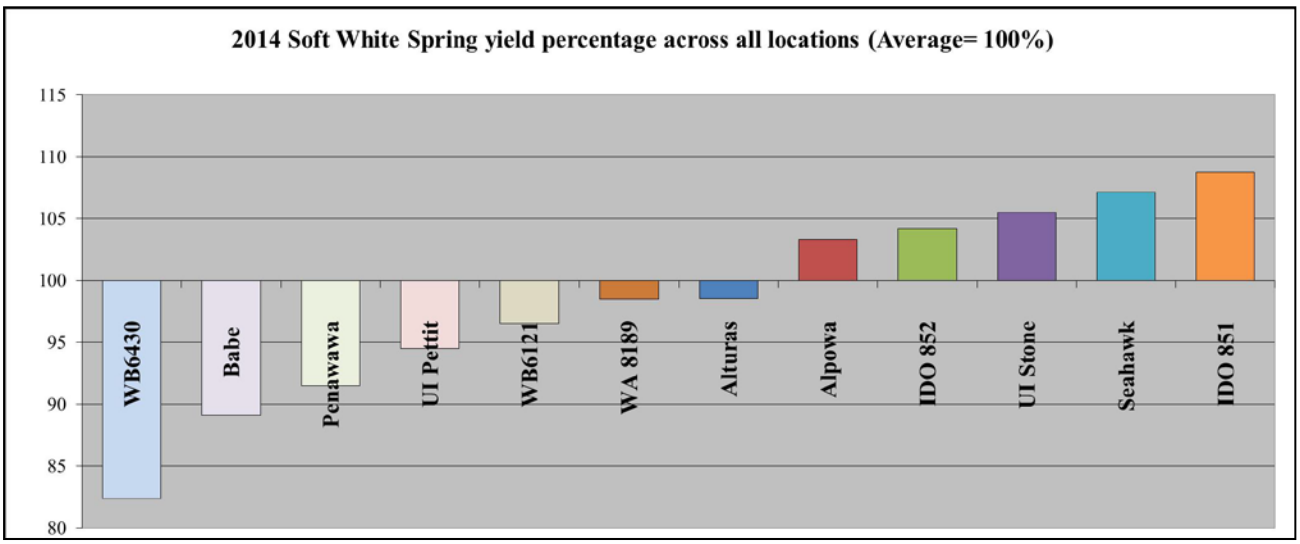


Chart 6. Soft White Spring Yield Percentage Across All Locations.

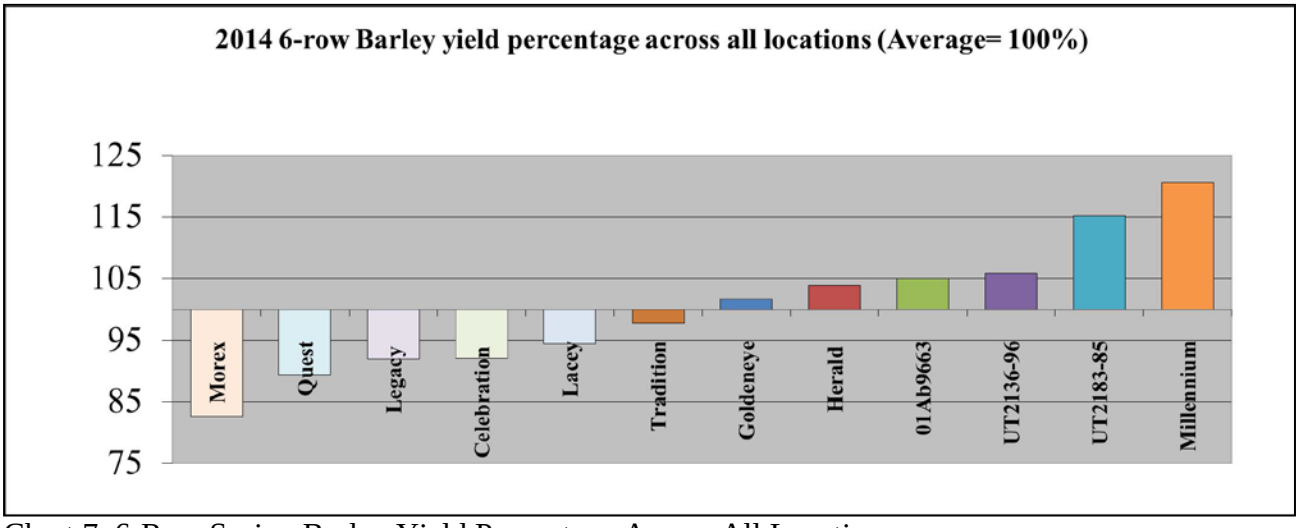


Chart 7. 6-Row Spring Barley Yield Percentage Across All Locations.

2014 2-Row Barley Yield Percentage Across All Locations Charts

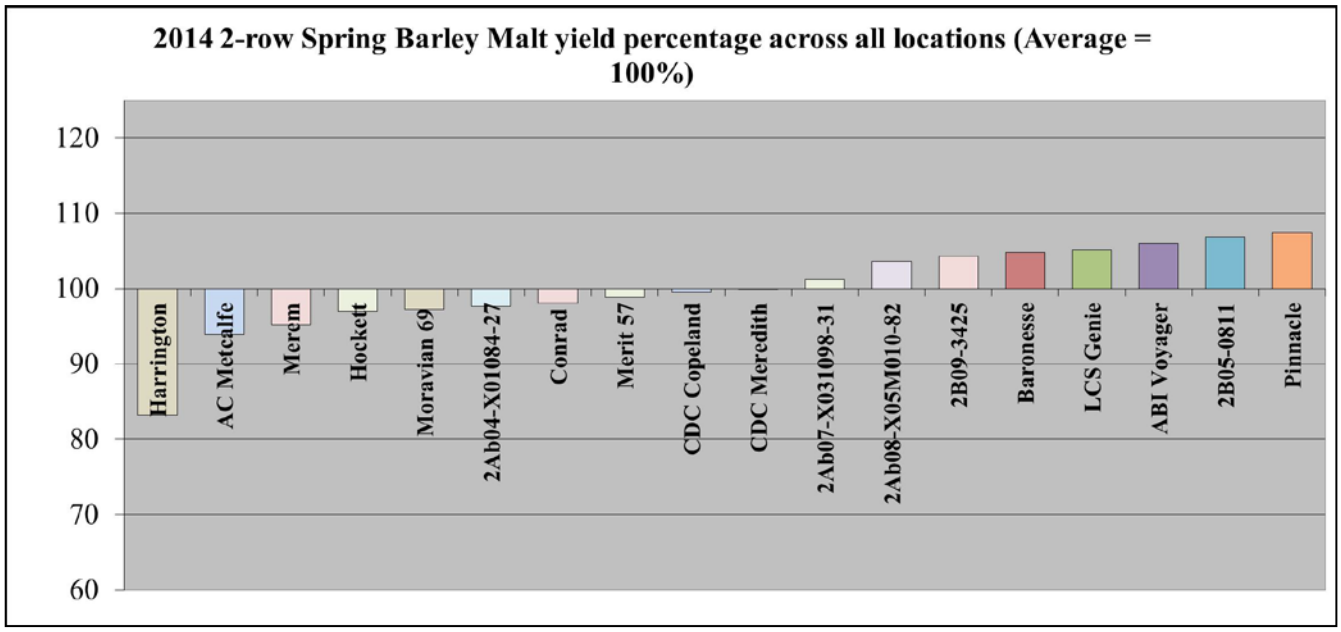


Chart 8. 2-Row Spring Malt Barley Yield Percentage Across All Locations.

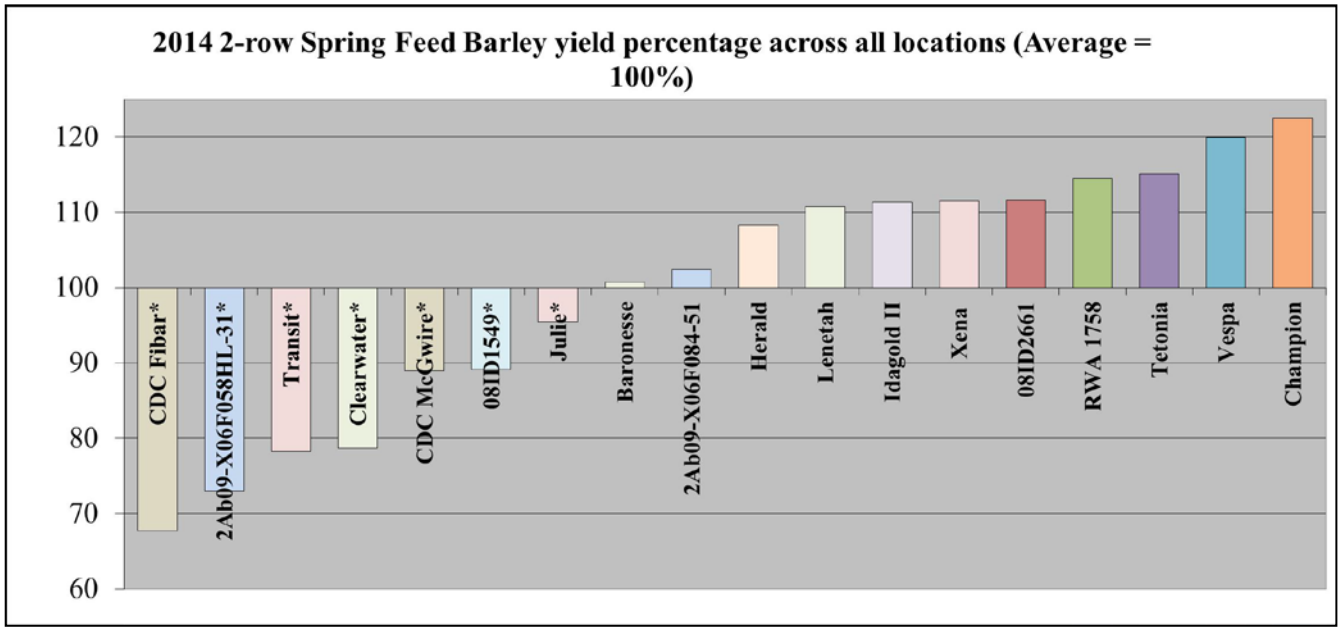


Chart 9. 2-Row Spring Feed Barley Yield Percentage Across All Locations. *indicates hulless variety.

Table 68. Hard Winter Wheat Grain Protein & Kernel Hardness, 2013.

	----------Grain Protein %----------						----------Kernel Hardness 0-100----------					
Variety	**Kimberly**	**Rupert**	**Aberdeen**	**Ririe**	**Rockland**	**Average**	**Kimberly**	**Rupert**	**Aberdeen**	**Ririe**	**Rockland**	**Average**
DAS001	13.5	13.7	13.7	12.6	11.5	**13.0**	83	82	83	76	89	**82.6**
DAS002	13.4	14.1	13.9	13.4	12.2	**13.4**	70	71	73	68	76	**71.6**
Eddy	12.8	13.1	12.7	---	---	**12.9**	82	81	84	---	---	**82.3**
Golden Spike (W)	13.0	13.5	13.5	13.5	10.4	**12.8**	80	82	82	77	84	**81.0**
Greenville	13.3	13.8	14.1	12.8	11.7	**13.1**	79	73	75	71	83	**76.2**
IDO1101 (W)	13.7	13.3	13.8	---	---	**13.6**	93	94	91	---	---	**92.7**
IDO1102	14.0	14.1	14.2	13.1	10.9	**13.3**	95	92	92	92	95	**93.2**
IDO1103	14.0	14.0	14.1	13.8	10.7	**13.3**	96	90	95	97	97	**95.0**
Judee	14.4	13.8	14.8	14.4	11.6	**13.8**	85	89	85	80	86	**85.0**
Juniper	14.4	14.7	13.9	14.5	12.2	**13.9**	93	99	81	93	98	**92.8**
Keldin	13.1	13.5	13.8	13.0	10.9	**12.9**	82	86	82	77	84	**82.2**
LCS Azimut	12.8	14.0	13.0	---	---	**13.3**	81	73	82	---	---	**78.7**
Manning	13.5	13.9	13.4	13.4	11.3	**13.1**	93	86	87	86	88	**88.0**
Moreland	13.7	14.6	13.2	13.8	10.5	**13.2**	86	78	85	79	78	**81.2**
Norwest 553	12.5	13.9	13.4	14.2	10.7	**12.9**	86	84	82	73	82	**81.4**
NSA06-4663	12.8	13.9	12.6	---	---	**13.1**	86	79	91	---	---	**85.3**
OR2080227H (W)	13.0	12.8	12.7	12.6	13.7	**13.0**	100	94	98	89	100	**96.2**
OR2080236H (W)	14.1	14.5	14.0	12.4	13.4	**13.7**	100	100	98	97	100	**99.0**
OR208229H (W)	13.0	13.8	12.8	13.0	11.7	**12.9**	100	99	100	97	100	**99.2**
Promontory	12.8	14.0	13.5	13.0	11.3	**12.9**	82	80	84	81	87	**82.8**
Utah 100	13.2	13.3	13.2	14.0	11.1	**13.0**	95	91	94	95	98	**94.6**
WB-Arrowhead	12.6	13.3	13.2	13.5	11.4	**12.8**	81	79	82	76	81	**79.8**
Whetstone	13.7	14.3	13.6	---	---	**13.9**	84	87	87	---	---	**86.0**
Yellowstone	13.6	14.4	13.0	13.0	11.5	**13.1**	85	87	82	83	86	**84.6**
AP503CL	---	---	---	13.6	13.7	**13.7**	---	---	---	79	97	**88.0**
Bearpaw	---	---	---	13.6	12.5	**13.1**	---	---	---	88	100	**94.0**
Curlew	---	---	---	14.2	13.1	**13.7**	---	---	---	86	98	**92.0**
Deloris	---	---	---	14.5	11.0	**12.8**	---	---	---	91	82	**86.5**
IDO816	---	---	---	14.0	10.8	**12.4**	---	---	---	89	96	**92.5**
Lucin-CL	---	---	---	14.5	11.0	**12.8**	---	---	---	84	90	**87.0**
UI LHS (W)	---	---	---	12.7	11.1	**11.9**	---	---	---	76	76	**76.0**
UI Silver (W)	---	---	---	13.5	11.6	**12.6**	---	---	---	92	96	**94.0**
UI SRG	---	---	---	13.9	10.8	**12.4**	---	---	---	90	96	**93.0**
UICF Grace (W)	---	---	---	14.4	10.3	**12.4**	---	---	---	90	88	**89.0**
Weston	---	---	---	13.9	10.7	**12.3**	---	---	---	72	81	**76.5**
Location Average	**13.4**	**13.8**	**13.5**	**13.6**	**11.5**	**13.0**	**87.4**	**85.7**	**86.5**	**84.1**	**89.7**	**86.9**

(W) = White

Table 69. Soft White Winter Wheat Grain Protein & Kernel Hardness, 2013.

	--------Grain Protein %--------					--------Kernel Hardness 0-100--------				
Variety	**Kimberly**	**Rupert**	**Aberdeen**	**Ririe**	**Average**	**Kimberly**	**Rupert**	**Aberdeen**	**Ririe**	**Average**
02-10606A	12.3	13.9	10.7	---	**12.3**	35	32	31	---	**32.7**
UI-WSU Huffman	12.5	15.1	12.1	---	**13.2**	35	30	32	---	**32.3**
99-06202A	12.4	14.5	11.1	---	**12.7**	33	37	34	---	**34.7**
AP Badger	13.2	14.5	11.1	---	**12.9**	49	52	40	---	**47.0**
AP700 CL	13.2	14.6	10.4	14.3	**13.1**	47	41	38	40	**41.5**
ARS970230-6C*	13.2	15.6	11.6	13.3	**13.4**	43	43	38	43	**41.8**
Bitterroot	12.8	15.0	10.9	14.4	**13.3**	33	35	28	34	**32.5**
Brundage	12.2	14.3	9.8	12.5	**12.2**	37	34	30	37	**34.5**
Brundage 96	12.5	14.9	10.2	12.6	**12.6**	34	35	26	30	**31.3**
Bruneau	11.0	13.7	10.0	13.4	**12.0**	29	32	28	30	**29.8**
Cara*	13.0	15.8	12.9	13.3	**13.8**	41	42	42	39	**41.0**
IDO1108	12.9	13.9	9.6	13.1	**12.4**	39	39	32	42	**38.0**
Kaseberg	11.5	14.4	10.8	12.3	**12.3**	31	34	29	30	**31.0**
LCS Artdeco	11.1	13.1	10.3	---	**11.5**	35	28	23	---	**28.7**
LWW04-4009	13.0	14.1	10.5	14.4	**13.0**	38	39	33	35	**36.3**
LWW10-1018	14.3	14.7	10.8	14.1	**13.5**	52	49	39	45	**46.3**
Madsen	13.6	14.3	11.5	14.3	**13.4**	37	---	37	35	**36.3**
Mary	14.1	15.4	10.0	13.5	**13.3**	38	39	32	31	**35.0**
Ladd	14.0	14.3	10.9	15.2	**13.6**	40	39	31	37	**36.8**
Rosalyn	11.3	13.8	9.9	12.2	**11.8**	37	33	27	36	**33.3**
Bobtail	12.0	14.8	9.6	12	**12.1**	36	35	29	34	**33.5**
OR2080924	12.3	14.2	10.3	---	**12.3**	39	40	31	---	**36.7**
ORCF-101	13.8	15.5	10.9	14.1	**13.6**	38	35	33	39	**36.3**
ORCF-102	12.8	15.1	9.9	13.9	**12.9**	37	42	33	44	**39.0**
Skiles	13.0	14.2	12.2	15.4	**13.7**	32	33	31	36	**33.0**
Stephens	12.2	15.4	10.2	13.5	**12.8**	42	42	30	36	**37.5**
SY Ovation	12.7	13.9	10.1	---	**12.2**	41	36	29	---	**35.3**
UICF Brundage	11.0	14.2	10.1	12.6	**12.0**	23	27	26	25	**25.3**
WB 456	13.8	16.2	10.3	14.5	**13.7**	42	47	35	40	**41.0**
WB 528	12.1	14.5	9.8	13.6	**12.5**	42	40	33	28	**35.8**
WB-1070CL	12.2	14.2	11.8	---	**12.7**	35	35	33	---	**34.3**
WB-Junction	12.4	14.5	8.5	---	**11.8**	30	34	24	---	**29.3**
WBEXP-427	13.0	15.3	11.1	---	**13.1**	40	44	39	---	**41.0**
WB1529	13.9	14.0	11.0	---	**13.0**	42	37	31	---	**36.7**
WBEXP-458	13.6	14.1	10.7	---	**12.8**	41	29	30	---	**33.3**
Eltan	13.2	15.3	10.8	13.4	**13.2**	29	33	27	33	**30.5**
Location Average	**12.7**	**14.6**	**10.6**	**13.6**	**12.8**	**37.6**	**37.2**	**31.8**	**35.8**	**35.5**

* = Club Wheat

Table 70. Hard Spring Wheat Grain Protein & Kernel Hardness, 2013.

	----------Grain Protein %----------						----------Kernel Hardness 0-100----------					
Variety	**Rupert**	**Aberdeen**	**Idaho Falls**	**Ashton**	**Soda Springs**	**Average**	**Rupert**	**Aberdeen**	**Idaho Falls**	**Ashton**	**Soda Springs**	**Average**
Hard Red Spring												
Bullseye	14.7	13.8	14.5	14.6	---	**14.4**	92	89	90	93	---	**91.0**
Cabernet	13.4	13.4	13.9	14.0	---	**13.7**	76	74	75	70	---	**73.8**
Choteau	15.0	13.6	15.0	14.7	13.8	**14.4**	89	88	90	89	89	**89.0**
Glee	14.0	13.8	14.2	14.2	13.4	**13.9**	80	83	84	83	83	**82.6**
IDO862E	13.8	13.7	14.2	14.6	13.5	**14.0**	89	88	85	89	82	**86.6**
IDO862T	13.7	13.4	14.2	14.9	---	**14.1**	83	88	84	89	---	**86.0**
Jefferson	14.0	12.9	14.7	14.8	14.0	**14.1**	84	81	90	84	83	**84.4**
Kelse	13.8	13.6	14.4	14.7	14.1	**14.1**	83	88	91	9	85	**71.2**
SY40240R	13.5	12.7	13.6	13.6	---	**13.4**	80	85	83	82	---	**82.5**
UI Winchester	14.0	13.3	14.2	13.8	13.4	**13.7**	74	82	75	75	70	**75.2**
Volt	14.0	13.8	14.3	13.6	13.3	**13.8**	91	99	99	95	92	**95.2**
WB-Rockland	14.7	15.4	15.6	15.3	---	**15.3**	85	84	88	86	---	**85.8**
WB9229	14.4	14.3	14.6	15.0	---	**14.6**	92	90	90	95	---	**91.8**
WB9576	14.5	15.2	15.5	15.1	---	**15.1**	78	83	83	83	---	**81.8**
Westbred 936	13.8	13.2	14.5	14.5	13.7	**13.9**	78	77	81	82	83	**80.2**
WB9879CLP	---	---	---	---	14.0	**14.0**	---	---	---	---	84	**84.0**
Alzada (D)	15.3	15.7	16.6	14.9	---	**15.6**	---	---	---	---	---	---
11SB0096	13.8	12.7	14.1	12.4	13.1	**13.2**	92.0	90.0	91.0	89	88	**90.0**
Hard White Spring												
08SB0658-B (W)	13.4	12.5	12.9	12.5	12.4	**12.7**	84.0	86	83	86	83	**84.4**
Blanca Grande (W)	13.8	13.7	13.5	14.0	14.1	**13.8**	70	71	70	63	66	**68.0**
Dayn (W)	13.8	13.5	13.8	13.4	13.3	**13.6**	82	89	93	86	87	**87.4**
IDO 1202S (W)	14.3	13.2	14.2	13.4	13.2	**13.7**	85	82	83	80	77	**81.4**
UI Platinum (W)	13.8	13.1	13.2	13.3	12.7	**13.2**	74	75	74	68	71	**72.4**
Klasic (W)	14.5	13.5	13.3	13.5	13.6	**13.7**	75	62	65	61	65	**65.6**
Snow Crest (W)	14.6	13.7	13.8	13.6	---	**13.9**	69	60	63	61	---	**63.3**
WB-Idamax (W)	14.7	13.4	14.3	13.4	---	**14.0**	83	79	87	78	---	**81.8**
WB-Paloma (W)	14.7	13.5	14.3	14.0	---	**14.1**	80	81	88	81	---	**82.5**
Location Average	**14.2**	**13.6**	**14.3**	**14.1**	**13.5**	**14.0**	**81.9**	**82.2**	**83.4**	**78.3**	**80.5**	**81.4**

(W) = White

(D) = Durum

Table 71. Soft White Spring Wheat Grain Protein & Kernel Hardness, 2013.

	--------Grain Protein %--------						--------Kernel Hardness 0-100--------					
Variety	**Rupert**	**Aberdeen**	**Idaho Falls**	**Ashton**	**Soda Springs**	**Average**	**Rupert**	**Aberdeen**	**Idaho Falls**	**Ashton**	**Soda Springs**	**Average**
Alpowa	12.5	10.5	12.5	10.8	12.6	**11.8**	38	30	27	30	32	**31.4**
Alturas	11.3	10.9	12.4	10.0	11.8	**11.3**	32	33	34	31	29	**31.8**
Babe	12.2	10.9	12.6	11.0	11.9	**11.7**	34	34	31	30	28	**31.4**
Cataldo	12.3	11.5	12.8	11.0	12.5	**12.0**	34	27	33	32	29	**31.0**
IDO 851	11.3	10.5	11.8	9.9	11.6	**11.0**	31	34	33	28	28	**30.8**
IDO 852	11.8	10.7	11.8	10.7	12.5	**11.5**	38	35	36	30	34	**34.6**
IDO 854	11.7	11.6	12.5	11.4	12.3	**11.9**	43	39	39	34	38	**38.6**
Penawawa	12.8	11.5	13.1	10.9	12.9	**12.2**	34	30	30	33	32	**31.8**
UI Pettit	11.4	10.5	12.0	10.3	10.2	**10.9**	37	36	40	36	43	**38.4**
UI Stone	11.7	10.6	11.6	9.9	11.6	**11.1**	32	33	32	27	28	**30.4**
Seahawk	12.7	10.6	12.5	10.7	12.4	**11.8**	43	36	37	35	42	**38.6**
WB6121	12.2	12.0	12.9	11.4	13.6	**12.4**	34	33	36	36	42	**36.2**
WBexp-125	11.1	10.8	12.2	10.8	11.3	**11.2**	36	38	40	34	32	**36.0**
Location Average	**11.9**	**11.0**	**12.4**	**10.7**	**12.1**	**11.6**	**35.8**	**33.7**	**34.5**	**32.0**	**33.6**	**33.9**

Table 72. Percent flour protein and flour yield for soft white winter wheat at Kimberly, Rupert, Ririe, and Aberdeen, 2013.

	Flour Protein (%)					Flour Yield (%)				
Variety	**Kimberly**	**Rupert**	**Aberdeen**	**Ririe**	**Average**	**Kimberly**	**Rupert**	**Aberdeen**	**Ririe**	**Average**
02-10606A	10.4	11.5	9.0	---	**10.3**	66.2	52.4	65.1	---	**61.2**
UI-WSU Huffman	10.9	12.3	9.9	---	**11.0**	67.2	50.4	65.9	---	**61.2**
99-06202A	10.8	11.7	9.4	---	**10.6**	64.0	50.5	63.8	---	**59.4**
AP Badger	10.8	11.8	9.3	---	**10.6**	64.1	52.9	61.5	---	**59.5**
AP700 CL	10.9	12.1	8.8	12.1	**11.0**	63.1	49.6	62.2	59.6	**58.6**
ARS970230-6C*	10.9	12.5	9.7	11.2	**11.1**	61.8	47.8	63.3	61.8	**58.7**
Bitterroot	11.2	12.8	9.1	13.0	**11.5**	65.9	52.2	66.0	63.2	**61.8**
Brundage	10.4	11.6	9.0	10.1	**10.3**	64.7	52.9	65.0	63.6	**61.6**
Brundage 96	10.9	12.3	9.2	11.4	**11.0**	63.7	51.3	65.0	62.0	**60.5**
Bruneau	9.0	11.7	8.7	11.7	**10.3**	65.7	53.4	64.5	61.3	**61.2**
Cara*	11.3	12.7	10.6	11.6	**11.6**	64.8	50.4	64.5	64.0	**60.9**
IDO1108	10.8	11.3	7.9	10.8	**10.2**	63.8	49.9	61.4	62.0	**59.3**
Kaseberg	9.4	11.0	8.2	10.4	**9.8**	63.8	50.1	63.4	61.4	**59.7**
LCS Artdeco	8.9	10.7	8.6	---	**9.4**	64.3	53.1	61.4	---	**59.6**
LWW04-4009	11.1	11.1	8.5	12.1	**10.7**	64.3	54.6	66.8	60.9	**61.7**
LWW10-1018	11.2	11.4	9.1	12.1	**11.0**	61.4	55.0	63.7	61.3	**60.4**
Madsen	12.3	11.6	10.2	12.9	**11.8**	63.8	57.8	66.7	62.3	**62.7**
Mary	12.1	12.3	8.8	11.9	**11.3**	62.3	51.1	69.2	63.9	**61.6**
Ladd	11.6	11.3	8.4	12.9	**11.1**	64.8	58.3	66.7	60.0	**62.5**
Rosalyn	9.6	10.7	8.2	10.5	**9.8**	66.6	50.4	64.9	64.0	**61.5**
Bobtail	10.2	11.4	8.1	10.6	**10.1**	66.3	54.0	68.9	65.9	**63.8**
OR2080924	10.2	11.0	8.5	---	**9.9**	65.0	54.2	65.8	---	**61.7**
ORCF-101	12.5	12.6	9.4	12.7	**11.8**	65.4	51.0	67.3	64.3	**62.0**
ORCF-102	10.6	11.8	8.8	11.7	**10.7**	65.3	50.5	64.3	62.3	**60.6**
Skiles	10.9	11.2	10.4	12.6	**11.3**	62.4	50.9	61.2	56.9	**57.9**
Stephens	10.1	12.6	8.9	11.8	**10.9**	65.9	48.2	63.2	63.2	**60.1**
SY Ovation	10.8	10.9	8.5	---	**10.1**	65.4	54.8	66.1	---	**62.1**
UICF Brundage	9.5	10.9	8.2	11.0	**9.9**	63.4	50.2	64.6	60.0	**59.6**
WB 456	12.0	12.9	8.8	12.7	**11.6**	64.2	52.9	66.8	61.5	**61.4**
WB 528	9.6	11.9	8.4	12.1	**10.5**	65.9	56.2	66.2	62.8	**62.8**
WB-1070CL	10.7	11.8	9.4	---	**10.6**	64.9	54.3	64.5	---	**61.2**
WB-Junction	10.8	11.1	6.7	---	**9.5**	62.3	48.8	64.2	---	**58.4**
WBEXP-427	11.0	11.7	9.3	---	**10.7**	65.2	51.9	66.9	---	**61.3**
WB1529	10.9	10.8	9.2	---	**10.3**	61.3	50.5	60.5	---	**57.4**
WBEXP-458	11.4	11.8	8.7	---	**10.6**	63.7	52.8	64.9	---	**60.5**
Eltan	11.8	11.1	9.3	11.4	**10.9**	61.7	42.9	63.6	60.7	**57.2**
Location average	**10.7**	**11.7**	**9.0**	**11.7**	**10.7**	**64.5**	**52.1**	**64.8**	**62.1**	**60.9**

* = Club Wheat

Table 73. Percent break flour yield and cookie diameter for soft white winter wheat at Kimberly, Rupert, Ririe, and Aberdeen 2013.

	Break Flour Yield (%)					Cookie Diameter (cm)				
Variety	**Kimberly**	**Rupert**	**Aberdeen**	**Ririe**	**Average**	**Kimberly**	**Rupert**	**Aberdeen**	**Ririe**	**Average**
02-10606A	35.8	48.1	35.6	---	**39.8**	8.7	8.9	9.0	---	**8.9**
UI-WSU Huffman	37.5	51.0	38.0	---	**42.2**	9.0	8.9	9.0	---	**9.0**
99-06202A	35.6	50.6	35.1	---	**40.4**	8.9	8.9	9.1	---	**8.9**
AP Badger	28.1	40.9	31.3	---	**33.4**	8.6	8.7	8.7	---	**8.7**
AP700 CL	29.9	46.3	31.0	31.3	**34.6**	8.8	8.6	8.7	8.5	**8.6**
ARS970230-6C*	33.9	48.4	33.1	33.4	**37.2**	8.8	8.8	8.9	8.7	**8.8**
Bitterroot	36.4	50.1	37.2	35.7	**39.9**	8.9	8.9	9.1	8.8	**8.9**
Brundage	35.4	51.9	36.5	38.9	**40.7**	8.8	8.7	9.1	9.0	**8.9**
Brundage 96	38.3	55.1	37.2	37.7	**42.1**	8.8	8.8	9.1	8.8	**8.9**
Bruneau	37.3	50.7	35.0	35.7	**39.7**	9.0	9.0	9.1	8.8	**9.0**
Cara*	36.4	51.3	35.8	36.3	**40.0**	8.9	9.0	9.2	9.0	**9.0**
IDO1108	32.7	52.8	33.5	33.5	**38.1**	8.6	8.7	8.9	8.9	**8.8**
Kaseburg	38.8	56.4	39.7	39.3	**43.6**	8.8	8.8	8.8	9.0	**8.9**
LCS Artdeco	33.4	50.9	36.2	---	**40.2**	8.7	8.6	8.7	---	**8.6**
LWW04-4009	30.8	45.7	34.5	31.3	**35.6**	8.6	8.5	8.8	8.6	**8.6**
LWW10-1018	27.5	46.8	29.9	30.7	**33.7**	8.2	8.5	8.4	8.7	**8.4**
Madsen	32.3	52.7	33.1	33.7	**38.0**	8.6	8.7	8.7	8.7	**8.7**
Mary	33.2	48.3	35.2	37.5	**38.6**	8.5	8.6	8.9	8.7	**8.7**
Ladd	31.3	45.8	35.3	31.7	**36.0**	8.8	9.0	8.9	8.5	**8.8**
Rosalyn	35.3	47.7	37.1	35.2	**38.8**	8.7	8.7	8.8	8.6	**8.7**
Bobtail	37.4	48.8	39.0	38.7	**41.0**	8.8	8.7	8.9	9.1	**8.9**
OR2080924	34.4	47.4	33.0	---	**38.3**	8.7	8.8	8.6	---	**8.7**
ORCF-101	31.3	46.1	32.7	32.1	**35.6**	8.7	8.6	8.9	8.6	**8.7**
ORCF-102	33.1	49.1	34.3	30.8	**36.8**	8.7	8.6	8.8	8.6	**8.7**
Skiles	35.7	52.9	35.6	34.4	**39.7**	8.6	8.9	8.8	8.6	**8.7**
Stephens	32.4	47.4	32.9	32.2	**36.2**	8.7	8.7	8.8	8.9	**8.8**
SY Ovation	32.2	49.1	35.3	---	**38.9**	8.6	8.7	8.9	---	**8.7**
UICF Brundage	40.5	54.0	39.0	38.2	**42.9**	8.9	8.9	9.0	8.9	**8.9**
WB 456	31.3	48.2	33.5	33.8	**36.7**	8.5	8.5	9.0	8.5	**8.6**
WB 528	35.0	46.7	34.4	33.1	**37.3**	8.8	8.7	9.1	8.6	**8.8**
WB-1070CL	31.3	48.8	32.9	---	**37.7**	8.8	8.6	8.7	---	**8.7**
WB-Junction	35.3	52.9	39.0	---	**42.4**	9.0	8.5	9.2	---	**8.9**
WBEXP-427	33.3	49.4	33.1	---	**38.6**	8.6	8.6	8.7	---	**8.7**
WB1529	31.9	51.6	33.3	---	**38.9**	8.7	8.7	9.0	---	**8.8**
WBEXP-458	32.7	48.9	36.4	---	**39.3**	8.5	8.6	8.9	---	**8.7**
Eltan	35.5	55.2	37.0	36.7	**41.1**	8.5	8.6	8.7	8.6	**8.6**
Location average	**34.0**	**49.7**	**35.0**	**34.7**	**38.7**	**8.7**	**8.7**	**8.9**	**8.7**	**8.8**

* = Club Wheat

Table 74. Percent flour protein and flour yield for soft white spring wheat at Rupert, Aberdeen, Idaho Falls, Ashton, and Soda Springs, 2013.

	Flour Protein (14% mb)						Flour Yield (%)					
Variety	Rupert	Aberdeen	Idaho Falls	Ashton	Soda Springs	Average	Rupert	Aberdeen	Idaho Falls	Ashton	Soda Springs	Average
Alpowa	9.4	9.5	10.1	9.1	10.8	**9.8**	61.4	63.1	61.5	61.9	59.2	**61.4**
Alturas	9.6	9.6	9.8	8.8	10.5	**9.7**	66.5	68.4	68.5	66.3	65.2	**67.0**
Babe	10.0	9.2	9.9	8.8	10.2	**9.6**	63.8	65.1	63.2	63.2	62.0	**63.5**
Cataldo	10.8	10.2	10.4	9.3	10.9	**10.3**	63.8	63.8	63.8	63.8	61.6	**63.4**
IDO 851	9.3	9.5	9.6	8.4	10.4	**9.4**	67.3	68.9	68.3	67.2	65.7	**67.5**
IDO 852	10.0	9.5	9.8	9.2	11.0	**9.9**	66.5	68.9	67.8	66.2	65.2	**66.9**
IDO 854	9.5	9.9	9.9	9.6	10.5	**9.9**	67.8	68.1	66.7	65.1	64.9	**66.5**
Penawawa	10.4	9.9	10.2	9.6	10.9	**10.2**	58.8	61.8	60.4	60.2	58.1	**59.9**
UI Pettit	9.2	9.5	9.6	8.6	10.1	**9.4**	67.4	68.1	68.0	67.9	65.6	**67.4**
UI Stone	10.8	9.2	9.8	8.2	9.8	**9.6**	64.9	68.6	67.0	68.0	65.9	**66.9**
Seahawk	10.8	9.1	9.8	9.5	10.2	**9.9**	61.7	67.4	65.9	63.3	65.5	**64.8**
WB6121	11.0	10.5	10.4	8.9	10.8	**10.3**	63.3	64.7	63.8	65.7	64.0	**64.3**
WBexp-125	10.4	9.3	9.4	9.3	9.9	**9.7**	65.2	68.0	67.4	66.1	66.0	**66.5**
Location Average	**10.1**	**9.6**	**9.9**	**9.0**	**10.5**	**9.8**	**64.5**	**66.5**	**65.6**	**65.0**	**63.8**	**65.1**

mb=moisture basis

Table 75. Percent break flour and cookie diameter for soft white spring wheat at Rupert, Aberdeen, Idaho Falls, Ashton, and Soda Springs, 2013.

	Break Flour (%)						Cookie Diameter (cm)					
Variety	**Rupert**	**Aberdeen**	**Idaho Falls**	**Ashton**	**Soda Springs**	**Average**	**Rupert**	**Aberdeen**	**Idaho Falls**	**Ashton**	**Soda Springs**	**Average**
Alpowa	33.5	56.7	36.1	36.0	33.4	**39.1**	8.4	8.9	8.7	8.6	8.6	**8.6**
Alturas	35.0	50.6	34.5	35.2	34.0	**37.9**	8.6	8.9	9.2	8.7	9.1	**8.9**
Babe	33.3	52.3	34.3	34.9	33.4	**37.6**	8.5	8.7	9.1	8.7	8.9	**8.8**
Cataldo	34.4	54.0	33.2	33.8	32.9	**37.7**	8.6	8.8	8.7	8.7	8.7	**8.7**
IDO 851	34.9	49.5	35.4	35.0	33.3	**37.6**	8.8	9.0	8.9	9.0	8.9	**8.9**
IDO 852	35.1	52.8	34.0	36.9	33.2	**38.4**	8.9	8.9	8.6	9.0	8.9	**8.9**
IDO 854	33.8	49.2	32.9	34.6	32.6	**36.6**	8.7	8.8	8.7	8.8	8.9	**8.8**
Penawawa	33.5	55.2	33.6	33.6	32.5	**37.7**	8.5	8.8	8.9	8.7	8.6	**8.7**
UI Pettit	34.6	50.7	32.0	32.5	30.6	**36.1**	8.6	9.1	9.0	8.9	8.9	**8.9**
UI Stone	34.8	54.8	35.5	37.2	35.6	**39.6**	8.6	8.9	8.8	8.9	9.0	**8.8**
WA 8162	33.8	52.8	35.4	35.4	33.2	**38.1**	8.7	9.0	8.7	8.8	8.9	**8.8**
WB6121	34.1	51.2	32.8	32.8	31.3	**36.4**	9.0	8.7	9.0	8.8	8.9	**8.9**
WBexp-125	35.4	51.8	33.6	35.9	33.0	**37.9**	8.8	9.0	8.8	9.1	8.8	**8.9**
Location Average	**34.3**	**52.4**	**34.1**	**34.9**	**33.0**	**37.8**	**8.7**	**8.9**	**8.9**	**8.8**	**8.9**	**8.8**

Table 76. Percent flour protein and flour yield for hard winter wheat at Aberdeen, Kimberly, Rupert, Ririe and Rockland 2013.

	Flour Protein (14% mb)						Flour Yield (%)					
Variety	**Kimberly**	**Rupert**	**Aberdeen**	**Ririe**	**Rockland**	**Average**	**Kimberly**	**Rupert**	**Aberdeen**	**Ririe**	**Rockland**	**Average**
Hard Red Winter Wheat												
DAS001	13.3	13.4	13.8	12.2	11.7	**12.9**	63.4	62.7	63.1	61.1	61.5	**62.4**
DAS002	14.7	14.4	14.7	13.3	13.0	**14.0**	63.4	63.7	63.5	63.1	63.6	**63.5**
Eddy	12.9	13.0	13.2	---	---	**13.0**	65.8	64.1	65.7	---	---	**65.2**
Greenville	12.8	13.2	13.4	12.3	10.9	**12.5**	54.9	51.1	52.6	56.0	56.0	**54.1**
IDO1102	13.9	13.7	14.7	13.2	10.6	**13.2**	65.0	64.0	64.1	63.7	60.8	**63.5**
IDO1103	14.2	14.1	14.5	13.2	11.2	**13.4**	64.4	64.7	64.8	64.4	60.3	**63.7**
Judee	14.7	13.8	15.1	14.6	12.0	**14.0**	61.5	63.0	61.8	64.3	60.2	**62.2**
Juniper	14.8	14.9	14.5	14.1	12.1	**14.1**	61.4	63.5	61.8	64.0	58.7	**61.9**
Keldin	13.8	13.9	13.7	13.1	11.3	**13.2**	63.9	63.2	61.3	62.8	62.5	**62.7**
LCS Azimut	12.9	14.1	12.0	---	---	**13.0**	61.3	56.0	59.2	---	---	**58.8**
Manning	13.4	13.9	12.5	12.8	11.0	**12.7**	62.0	59.7	63.0	63.5	59.2	**61.5**
Moreland	13.6	15.0	12.3	13.4	10.3	**12.9**	60.8	58.3	63.3	62.6	59.6	**60.9**
Norwest 553	11.9	13.7	12.2	14.2	10.6	**12.5**	62.7	59.2	62.9	64.0	59.7	**61.7**
NSA06-4663	12.3	13.9	11.2	---	---	**12.5**	60.4	55.6	59.9	---	---	**58.6**
Promontory	12.8	13.8	12.6	13.4	11.5	**12.8**	63.2	58.0	61.6	63.0	60.7	**61.3**
Utah 100	12.9	13.2	13.3	13.7	10.9	**12.8**	61.6	58.4	62.8	62.0	57.1	**60.4**
WB-Arrowhead	12.8	12.9	12.3	13.7	11.4	**12.6**	66.8	64.2	63.7	64.8	62.0	**64.3**
Whetstone	14.4	14.1	13.7	---	---	**14.1**	63.8	59.6	62.5	---	---	**62.0**
Yellowstone	13.1	14.3	12.1	13.0	11.6	**12.8**	64.1	59.6	64.5	62.0	60.0	**62.0**
AP503CL	---	---	---	13.3	13.1	**13.2**	---	---	---	60.0	56.6	**58.3**
Bearpaw	---	---	---	12.9	12.7	**12.8**	---	---	---	62.8	60.5	**61.7**
Curlew	---	---	---	13.8	13.6	**13.7**	---	---	---	63.5	59.9	**61.7**
Deloris	---	---	---	14.8	11.1	**13.0**	---	---	---	66.6	61.1	**63.9**
IDO816	---	---	---	13.8	10.7	**12.3**	---	---	---	62.2	57.1	**59.7**
Lucin-CL	---	---	---	14.8	11.3	**13.1**	---	---	---	65.1	61.5	**63.3**
UI SRG	---	---	---	13.6	11.6	**12.6**	---	---	---	62.6	61.8	**62.2**
Weston	---	---	---	14.4	11.1	**12.8**	---	---	---	61.6	60.6	**61.1**
Location Average	**13.4**	**13.9**	**13.3**	**13.5**	**11.5**	**13.1**	**62.7**	**60.5**	**62.2**	**62.9**	**60.0**	**61.6**
Hard White Winter Wheat												
Golden Spike (W)	12.9	13.4	14.0	14.0	10.6	**13.0**	64.1	63.2	64.1	63.6	61.3	**63.3**
IDO1101 (W)	13.3	12.3	13.3	---	---	**13.0**	60.2	63.1	61.6	---	---	**61.6**
OR2080227H (W)	12.8	12.5	11.9	12.4	13.3	**12.6**	56.4	56.6	57.3	60.3	52.3	**56.6**
OR2080236H (W)	13.8	14.2	13.6	12.0	12.9	**13.3**	54.9	51.6	53.1	59.1	53.6	**54.5**
OR208229H (W)	12.2	12.7	11.9	12.4	11.9	**12.2**	58.5	57.4	58.9	58.8	54.4	**57.6**
UI LHS (W)	---	---	---	12.5	11.1	**11.8**	---	---	---	62.9	63.2	**63.1**
UI Silver (W)	---	---	---	13.0	11.1	**12.1**	---	---	---	62.5	62.3	**62.4**
UICF Grace (W)	---	---	---	13.8	10.3	**12.1**	---	---	---	54.3	59.1	**56.7**
Location Average	**13.0**	**13.0**	**12.9**	**12.9**	**11.6**	**12.5**	**58.8**	**58.4**	**59.0**	**60.2**	**58.0**	**59.5**

mb= moisture basis

Table 77. Bake volume for hard winter wheat at Aberdeen, Kimberly, Rupert, Ririe and Rockland 2013.

	Bake Volume (cc)					
Variety	**Aberdeen**	**Kimberly**	**Rupert**	**Ririe**	**Rockland**	**Average**
Hard Red Winter Wheat						
DAS001	1150	1125	1075	1050	875	**1055**
DAS002	1050	1050	1125	1125	925	**1055**
Eddy	1075	1000	1025	---	---	**1033**
Greenville	1150	1025	1100	1050	850	**1035**
IDO1102	1075	1000	1175	975	775	**1000**
IDO1103	1050	1100	1150	1025	825	**1030**
Judee	1150	1150	1100	1225	925	**1110**
Juniper	1150	1100	1125	900	875	**1030**
Keldin	975	1000	1050	875	775	**935**
LCS Azimut	975	1000	1050	---	---	**1008**
Manning	1075	1125	1100	1025	875	**1040**
Moreland	975	1100	1100	1100	800	**1015**
Norwest 553	925	875	925	1100	825	**930**
NSA06-4663	875	900	1025	---	---	**933**
Promontory	1100	950	1050	975	825	**980**
Utah 100	1125	1050	1025	1000	875	**1015**
WB-Arrowhead	1100	975	1075	1075	925	**1030**
Whetstone	1075	1100	1075	---	---	**1083**
Yellowstone	1025	1075	1100	1050	875	**1025**
AP503CL	---	---	---	1075	975	**1025**
Bearpaw	---	---	---	1000	850	**925**
Curlew	---	---	---	1075	900	**988**
Deloris	---	---	---	1225	925	**1075**
IDO816	---	---	---	1125	875	**1000**
Lucin-CL	---	---	---	1150	950	**1050**
UI SRG	---	---	---	1100	850	**975**
Weston	---	---	---	1125	875	**1000**
Location Average	**1057**	**1037**	**1076**	**1062**	**871**	**1014**
Hard White Winter Wheat						
Golden Spike (W)	975	1100	1050	875	850	**970**
IDO1101 (W)	1075	1125	1025	---	---	**1075**
OR2080227H (W)	850	900	1000	1000	800	**910**
OR2080236H (W)	975	1000	1000	950	775	**940**
OR208229H (W)	875	925	975	975	775	**905**
UI LHS (W)	---	---	---	975	925	**950**
UI Silver (W)	---	---	---	1075	975	**1025**
UICF Grace (W)	---	---	---	1100	750	**925**
Location Average	**950**	**1010**	**1010**	**993**	**836**	**963**

Table 78. Percent flour protein and flour yield for hard spring wheat at Rupert, Aberdeen, Idaho Falls, Ashton, and Soda Springs, 2013.

	Flour Protein (14% mb)						Flour Yield (%)					
Variety	**Rupert**	**Aberdeen**	**Idaho Falls**	**Ashton**	**Soda Springs**	**Average**	**Rupert**	**Aberdeen**	**Idaho Falls**	**Ashton**	**Soda Springs**	**Average**
Hard Red Spring												
Bullseye	14.5	13.7	14.4	14.8	---	**14.4**	62.4	62.4	64.7	63.0	---	**63.1**
Cabernet	13.9	13.9	14.5	14.4	---	**14.2**	64.9	65.8	65.8	63.6	---	**65.0**
11SB0096	13.8	12.4	12.8	12.8	13.8	**13.1**	61.6	63.1	62.7	60.9	58.6	**61.4**
Choteau	15.0	13.5	16.1	14.9	13.8	**14.7**	61.2	62.6	62.2	61.1	58.2	**61.1**
Glee	13.7	13.2	14.4	14.2	13.7	**13.8**	62.6	64.1	64.1	62.1	58.8	**62.3**
IDO862E	13.8	14.0	15.2	15.1	13.8	**14.4**	62.6	64.2	62.9	60.5	57.1	**61.5**
IDO862T	14.0	13.3	14.8	15.5	---	**14.4**	63.0	64.4	62.6	59.7	---	**62.4**
Jefferson	13.9	12.6	15.3	15.2	13.6	**14.1**	62.6	67.7	64.6	62.7	60.9	**63.7**
Kelse	14.0	13.7	14.4	15.3	14.7	**14.4**	63.3	66.4	62.5	59.6	56.8	**61.7**
SY40240R	13.4	12.9	13.9	14.0	---	**13.6**	62.8	66.2	63.5	61.5	---	**63.5**
UI Winchester	14.2	13.3	14.8	14.3	13.5	**14.0**	62.3	65.7	62.5	60.2	58.5	**61.8**
Volt	13.9	13.7	14.2	13.5	13.1	**13.7**	59.6	62.2	61.1	58.2	57.7	**59.8**
WB-Rockland	14.3	16.4	16.3	15.8	---	**15.7**	59.2	59.9	58.9	58.0	---	**59.0**
WB9229	14.1	14.4	15.0	14.9	---	**14.6**	62.1	61.1	59.7	57.8	---	**60.2**
WB9576	14.8	15.4	16.4	15.6	---	**15.6**	62.7	62.7	61.7	60.1	---	**61.8**
Westbred 936	13.2	13.1	14.9	14.9	14.2	**14.1**	62.6	61.2	62.8	60.2	56.9	**60.7**
WB9879CLP	---	---	---	---	14.2	**14.2**	---	---	---	---	58.8	**58.8**
Location Average	**14.0**	**13.7**	**14.8**	**14.7**	**13.8**	**14.3**	**62.2**	**63.7**	**62.6**	**60.6**	**58.2**	**61.6**
Hard White Spring												
08SB0658-B (W)	12.5	12.4	12.7	12.6	12.6	**12.6**	61.6	61.9	63.2	62.3	59.6	**61.7**
Blanca Grande (W)	13.5	13.9	13.9	14.4	13.9	**13.9**	59.5	60.1	60.0	57.1	55.2	**58.4**
Dayn (W)	13.4	13.3	14.1	13.7	13.4	**13.6**	63.1	63.9	64.0	61.5	60.3	**62.6**
IDO 1202S (W)	13.6	13.0	14.3	14.0	13.1	**13.6**	64.0	65.6	63.2	60.6	59.4	**62.6**
UI Platinum (W)	13.7	12.8	13.2	14.0	13.0	**13.3**	61.7	62.6	63.8	63.1	59.8	**62.2**
Klasic (W)	14.0	13.2	13.7	14.4	13.8	**13.8**	64.2	66.1	63.3	60.8	63.5	**63.6**
Snow Crest (W)	14.1	13.5	14.5	13.9	---	**14.0**	61.1	62.6	62.1	59.9	---	**61.4**
WB-Idamax (W)	14.4	13.2	14.4	12.9	---	**13.7**	60.7	63.2	63.9	63.5	---	**62.8**
WB-Paloma (W)	13.8	13.6	14.2	14.7	---	**14.1**	59.7	62.4	62.6	62.9	---	**61.9**
Location Average	**13.7**	**13.2**	**13.9**	**13.8**	**13.3**	**13.6**	**61.7**	**63.2**	**62.9**	**61.3**	**59.6**	**61.9**

(W) = White

mb= moisture basis

Table 79. Bake volume for hard spring wheat, 2013.

	Bake Volume (cc)					
Variety	**Aberdeen**	**Ashton**	**Idaho Falls**	**Rupert**	**Soda Springs**	**Average**
Hard Red Spring Wheat						
Bullseye	1125	1125	1150	1150	---	**1138**
Cabernet	1200	1200	1300	1125	---	**1206**
11SB0096	1075	1125	975	1175	1075	**1085**
Choteau	1200	1125	1200	1400	1075	**1200**
Glee	1150	1175	1300	1400	1175	**1240**
IDO862E	1125	1050	1100	1175	1025	**1095**
IDO862T	1100	1050	950	1100	---	**1050**
Jefferson	1075	1150	1125	1100	1075	**1105**
Kelse	1150	1050	1050	1150	1125	**1105**
SY40240R	1100	1125	1100	1150	---	**1119**
UI Winchester	1150	1100	1200	1200	1050	**1140**
Volt	1025	950	1075	1150	1025	**1045**
WB-Rockland	1400	1225	1400	1175	---	**1300**
WB9229	1225	1200	1300	1225	---	**1238**
WB9576	1225	1175	1225	1400	---	**1256**
Westbred 936	1200	1100	1225	1200	1125	**1170**
WB9879CLP	---	---	---	---	975	**975**
Location Average	**1158**	**1120**	**1167**	**1205**	**1073**	**1145**
Hard White Spring Wheat						
08SB0658-B (W)	1050	1050	1100	1075	1025	**1060**
Blanca Grande (W)	1225	1200	1200	1175	1125	**1185**
Dayn (W)	1050	1050	1125	1125	1175	**1105**
IDO 1202S (W)	1000	950	1025	975	1000	**990**
UI Platinum (W)	1050	1075	1100	1075	1025	**1065**
Klasic (W)	1200	1175	1150	1175	1225	**1185**
Snow Crest (W)	1100	1150	1225	1175	---	**1163**
WB-Idamax (W)	1100	1050	1225	1125	---	**1125**
WB-Paloma (W)	1100	1100	1150	1175	---	**1131**
Location Average	**1097**	**1089**	**1144**	**1119**	**1096**	**1112**

(W) = White

Addendum 1. Hard Spring Wheat Stripe Rust (*Puccinia striiformis* f.sp. *Tritici*) and Fusarium Head Blight (*Fusarium graminearum* and other *Fusarium spp.*) Ratings, 2014.

2014 Stripe rust reaction to late season infection in Ashton, ID

Variety	Infection Type	Percent leaf area affected	Overall Rating
11SB0096	3	trace	R
Alzada	7	15	S
Buck Pronto	7	28	S
Bullseye	8	47	VS
Cabernet	0	0	R
Dayn (W)	0	0	R
IDO1202S	7	25	S
IDO862E	5.5	30	MS
IDO862T	6	25	MS
Jefferson	7	40	S
Kelse	4	18	MR
Klasic (W)	8	85	S
LCS Atomo (W)	7	15	S
LCS Star (W)	0	0	R
LL 3361	8.5	60	VS
LL 3378	7.5	23	S
LL 3419	6.5	5	MS
Snow Crest (W)	8	88	VS
SY Basalt	0	0	R
SY-10136	-	-	-
SY-40292R	7	3	MS
UI Platinum	5	25	MR
UI Winchester	7	35	S
Utopia	-	-	-
WA 8166	-	-	-
WB-Paloma (W)	8	50	VS
WB9229	0	0	R
WB9411	0	0	R
WB9668	0	0	R
WestBred 936	9	90	VS

R = resistant
MR = moderately resistant
MS = moderately susceptible
LS = least susceptible
S = susceptible
VS = very susceptible

2014 Fusarium Head Blight disease index of hard spring wheat varieties. Lines with the same letter behind the rating are not signfcantly different. Plots were inoculated in Aberdeen.

Variety	FHB* Index		Class**	Overall Rating
Klasic	57.2	a	hws	VS
LL3419	39.9	b	hrs	VS
Snow Crest	31.0	bc	hws	VS
UI Platinum	30.6	bcd	hws	VS
Utopia	30.2	b-e	durum	VS
Cabernet	28.9	b-e	hrs	VS
Kelse	26.7	cde	hrs	VS
LCS Atomo	26.5	cde	hws	VS
WestBred 936	25.5	c-f	hrs	VS
Alzada	23.3	c-h	durum	VS
WB9229	23.3	c-h	hrs	VS
WB9668	23.0	c-i	hrs	VS
IDO862T	23.0	c-j	hrs	VS
Buck Pronto	22.6	c-j	hrs	VS
WB-Paloma	22.6	c-j	hws	VS
IDO862E	22.1	c-j	hrs	VS
Jefferson	21.9	c-j	hrs	VS
SY Basalt	20.7	c-j	hrs	VS
SY-40292R	19.1	c-j	hrs	VS
UI Winchester	19.0	c-j	hrs	VS
Dayn	19.0	c-j	hws	VS
LCS Star	16.2	e-l	hws	MS
WA 8166	15.6	e-l	hrs	MS
Bullseye	15.5	e-l	hrs	MS
LL 3361	14.9	e-l	hrs	MS
SY-10136	11.5	h-m	hrs	MS
11SB0096	10.3	i-m	hrs	MS
WB9411	10.1	j-m	hrs	MS
LL 3378	9.2	j-m	hrs	MS
IDO1202S	9.0	j-m	hrs	MS

*FHB index = (% Severity x % Incidence)/100
**hrs = hard red spring
hws = hard white spring

Addendum 2. Soft White Spring Wheat Stripe Rust (*Puccinia striiformis* f.sp. *Tritici*) and Fusarium Head Blight (*Fusarium graminearum* and other *Fusarium spp.*) Ratings, 2014.

2014 Stripe rust reaction to late season infection in Ashton, ID

Variety	Infection Type	Percent leaf area affected	Overall Rating
Alpowa	1	trace	R
Alturas	6.5	25	MS
Babe	9	83	S
IDO 851	4.5	35	MR
IDO 852	7	42	S
Penawawa	8	70	VS
UI Pettit	8	90	VS
UI Stone	7	60	S
Seahawk	1	trace	R
WA 8189	6.5	25	MS
WB6121	4	8	MR
WB6430	6	7	MR

R = resistant
MR = moderately resistant
MS = moderately susceptible
LS = least susceptible
S = susceptible
VS = very susceptible

2014 Fusarium Head Blight disease index of hard spring wheat varieties. Lines with the same letter behind the rating are not signfcantly different. Plots were inoculated in Aberdeen.

Variety	FHB* Index		Class**	Overall Rating
Alturas	31.1	bc	sws	S
Penawawa	24.9	c-g	sws	S
WB6121	23.1	c-h	sws	S
IDO852	17.9	d-j	sws	MS
WA 8189	16.7	e-k	sws	MS
WB6430	16.0	e-l	sws	MS
IDO851	14.8	e-l	sws	MS
Alpowa	12.9	f-m	sws	MS
Babe	12.4	g-m	sws	MS
UI Stone	3.9	klm	sws	LS
UI Pettit	3.6	m	sws	LS
Seahawk	1.6	m	sws	LS

*FHB index = (% Severity x % Incidence)/100
**hrs = hard red spring
hws = hard white spring

Addendum 3. Resistance reaction of winter wheat varieties in a heavily inoculated dwarf bunt (*Tilletia controversa*) nursery, Logan, Ut. 2014. Cooperator Dr. David Hole.

Winter Wheat Variety	Percent bunted heads (%)	Overall disease rating
Blizzard	0	VR
Curlew	0	VR
Deloris	0	VR
Golden Spike (W)	0	VR
IDO1101 (W)	0	VR
IDO1103	0	VR
IDO1108	0	VR
IDO444	0	VR
IDO816	0	VR
Juniper	0	VR
Survivor	0	VR
UI SRG	0	VR
Utah 100	0	VR
Garland	1	VR
Greenville	1	VR
Manning	1	VR
SY 107	1	VR
UI Silver (W)	1	VR
UICF Grace (HW)	1	VR
Otto	2	VR
Promontory	2	VR
SY Clearstone 2CL	2	VR
WB1529	2	VR
Bruneau	3	MR
Rosalyn	3	MR
WB 528	3	MR
LWW10-1073	4	MR
Eltan	4	MR
Skiles	4	MR
WB3768 (W)	4	MR
WB-1070CL	4	MR
IDN-02-29001A	5	MR
WB-Arrowhead	5	MR
Weston	5	MR
Yellowstone	8	MS
Madsen	10	MS
Mary	10	MS
Stephens	10	MS
UICF Brundage	10	MS
WB-Junction	14	MS
OR2080637	15	MS
OR2080641	15	MS
WA8184	15	MS
WB1376CLP	17	S
Brundage	18	S
IDN-01-10704A	18	S
LCS Colonia	20	S
LCS Evina	20	S
Norwest 553	22	S
LCS Artdeco	23	S
OR2100081H	25	S
OR2080236H (W)	28	S
Lucin-CL	30	S
LWW12-7105	30	S
WB 456	32	S
IDN-02-08806A	33	S
SY Ovation	33	S
DAS002	37	S
WA8158	37	S
LCS Biancor	38	S
DAS001	40	S
Moreland	40	S
NSA10-7208	41	S
Bearpaw	43	S
Bobtail	45	S
UI-WSU Huffman	45	S
Ladd	45	S
LCS Azimut	45	S
OR2090473	45	S
Whetstone	50	S
AP503 CL2	53	S
IDN-04-00405B	55	S
Judee	55	S
Keldin	55	S
Kaseberg	65	S
WA8183	65	S
Wanser	70	S

VR = very resistant

R = resistant

MR = moderately resistant

MS = moderately susceptible

S = suseptible

Web Resources for Southcentral and Southeast Idaho Grain Production