Research Bulletin 182
January 2014

2013 Small Grains Report

Southcentral and Southeastern Idaho Cereals Research and Extension Program

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

University of Idaho
College of Agricultural and Life Sciences

Cover: Clockwise from top left — wheat head, research plots, harvesting grain with a plot combine.

Southcentral and Southeastern Idaho Cereals Research and Extension is online at http://www.extension.uidaho.edu/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 Idaho 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
Dave Cook - Ririe
Duane Grant and Mike Larsen - Rupert
Don Marotz - Ashton
Ned Moon and Melvin Barfuss of Jentzsch-Kearl Farms - Rupert
Marc Thiel - Idaho Falls

Cereals Research and Extension Employees

Juliet Marshall	Chad Jackson
Tod Shelman	Linda Beck
Ester Serna	Martha Carrillo

Other UI Employees

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

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 SC & SE Idaho Cereals Extension Program.
Chad Jackson is a Scientific Aide III with the SC & SE Idaho Cereals Extension Program.
Tod Shelman is a Scientific Aide II with the SC & SE Idaho Cereals Extension Program.
Linda Beck is a Technical Aide II with the SC & SE Idaho Cereals Extension Program.
Katherine O'Brien is the Lab Manager of the UI's Wheat Quality Laboratory at Aberdeen.

Peer Reviewed by

John Burns – Washington State University, professor emeritus
Jim Berg – Montana State University
Pamela Hutchinson – University of Idaho
David Hole – Utah State University

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2013 Small Grains Report for Southcentral and Southeastern Idaho

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

Additions and Changes:

In 2013 Idaho Falls wheat and barley nurseries were planted in separate fields; the barley in a malt barley field and the wheat in a hard red spring wheat field.

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 2013, as well as milling and baking data from trials harvested in 2012.

Materials & Methods

Locations

Cereal trials were established at six winter and five spring locations throughout SC and SE Idaho during the fall of 2012 and the spring of 2013. For location details, please see the descriptions on pages 5 to 11. 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, 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 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 11. 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 2013 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 58. 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 2013 harvest in this report. Data are given for these characteristics from the 2012 harvest and are found in tables 67-79.

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

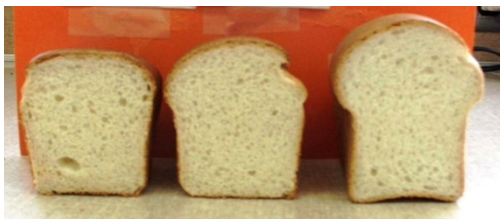
- Flour protein: this is the flour protein content, measured on a fixed 14 percent moisture basis. Lower numbers are better for soft wheat; higher numbers are preferred for hard wheat.
- Break flour yield: represents ease of milling or kernel softness; higher numbers are preferred.
- Flour yield: the 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; 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 2012-2013 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 new 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 2003-2013.

Southcentral & Southeast Idaho Cereal Variety Trial Locations

Winter Locations

Kimberly	Irrigated
Rupert	Irrigated
Aberdeen	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’ 10.33” N., 114° 20’ 47.12” W.
Elevation: 3890 ft.
Soil Type: #86 Portneuf silt loam 0-2% slopes
Previous Crop: Dry Beans
Planting Date: October 9, 2012
Harvest Date: July 29-30, 2013
Chemicals applied: 1 pt/A Maestro MA, 10 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	7.8	6.0	142	142	16 ppm	255 ppm	26 ppm
Fertilizer applied (#/A)				248	140	60#		
Total	**1.4**	**7.8**	**6.0**	**390**	**282**	**16+ppm**	**255 ppm**	**26 ppm**

Rupert Winter Irrigated:

Cooperator: Jentzsch-Kearl Farms
Located at approximately 300 E. 350 N. Rupert, Idaho

Coordinates: 42° 40' 13.40"N., 113° 36' 34.59"W.
Elevation: 4171 ft.
Soil Type: #3 Arloval loamy fine sand 0-2% slopes
Previous Crop: Dry Beans
Planting Date: October 5, 2012
Harvest Dates: August 1, 2013
Chemicals applied: 1 pt/A Maestro MA, 10 oz/A Starane Ultra, 9 oz/A Achieve Liquid

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")	0.7	7.8	<1.0	15	15	20 ppm	143 ppm	12 ppm
Fertilizer applied (#/A)				245	205			
Total	**0.7**	**7.8**	**<1.0**	**260**	**220**	**20 ppm**	**143 ppm**	**12 ppm**

Location Descriptions

Aberdeen Winter Irrigated:

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

Coordinates: 42° 57’ 19.32” N., 112° 49’ 16.24” W.
Elevation: 4407 ft.
Soil Type: DeA Declo Loam, 0-2%slopes
Previous Crop: green manure oats
Planting Date: September 20, 2012
Harvest Dates: August 5-7, 2013
Chemicals applied: 1 pt/A Maestro MA, 10 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")	0.8	8.2	8.4	187	187	14 ppm	250 ppm	53 ppm
Fertilizer applied (#/A)				253	120	50#		100 #
Total	**0.8**	**8.2**	**8.4**	**440**	**307**	**14+ppm**	**250 ppm**	**53+ ppm**

Ririe Winter Dryland:

Cooperator: Dave Cook
Approximately 3.75 miles south of Ririe Reservoir Dam on Meadow Creek. Rd.
Ririe, ID

Coordinates: 43° 32’ 15.33”N., 111° 42’ 12.05” W.
Elevation: 5592 ft.
Soil Type: #43 Ririe silt loam, 412-20% slopes
Previous Crop: wheat
Planting Date: September 25, 2012
Harvest Date: August 9, 2013
Chemicals applied: 16 oz/A Goldsky, 10 oz/A Salvo, 2.1 oz/A Rifle, 2 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	7.9	<1.0	76	76	20 ppm	329 ppm	28 ppm
Fertilizer applied (#/A)				6	6	30 #		
Total	**1.2**	**7.9**	**<1.0**	**82**	**82**	**20+ppm**	**329 ppm**	**28 ppm**

Location Descriptions

Rockland Winter Dryland:

Cooperators: Gilbert and Carl Hofmeister
½ mile west of Rock Creek Rd on Deeg Rd Rockland, ID

Coordinates: 42°39'42.64"N., 112°56'33.51"W
Elevation: 4622 ft.
Soil Type: #52 Newdale silt loam, 12-20% slopes
Previous Crop: fallow
Planting Date: September 6, 2012
Harvest Date: July 25, 2013
Chemicals applied: Maestro MA 1.5 pt/A, Maverick 2/3 oz/A, 2,4-D 1.25 pt/A, Banvel 2 oz/A

Fertility:

	Hard winter wheat N#/A	P	K	S
Fertilizer applied (#/A)	46	0	0	17

Soda Springs Winter Dryland:

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

Coordinates: 42° 45’ 54.26” N., 111° 40’ 42.81” W.
Elevation: 6189 ft.
Soil Type: 485AA - Foundem-Rexburg complex, cool, 1 to 8 percent slopes
Previous Crop: grain
Planting Date: September 14, 2012
Harvest Date: August 27, 2013
Chemicals applied: Axial-Star, Husky

Fertility:

	Organic Matter	pH	Free Lime %	winter wheat N#/A	P	K	S
12" soil test results (N & S= 0-24")	2.3	7.2	<1.0	101	52 ppm	357 ppm	17 ppm
Fertilizer applied (#/A)				60	20#		20#
Total	2.3	7.2	<1.0	161	52+ppm	357 ppm	17+ppm

Location Descriptions

Rupert Spring Irrigated:

Cooperator: Grant 4-D Farms
Approximately 600 N 700 E., Rupert, ID

Coordinates: 42° 42' 22.92"N., 113° 31' 48.61"W.
Elevation: 4207 ft.
Soil Type: #17 Kecko fine sandy loam 1-4% slopes
Previous Crop: onions
Planting Date: March 29, 2013
Harvest Dates: August 13, 2013
Chemicals applied: 1 pt/A Maestro MA, 10 oz/A Starane Ultra, 9 oz/A Achieve Liquid

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")	1.3	7.6	<1.0	108	108	54 ppm	567 ppm	27 ppm
Fertilizer applied (#/A)				195	85			
Total	**1.3**	**7.6**	**<1.0**	**303**	**193**	**54ppm**	**567 ppm**	**27 ppm**

Aberdeen Spring Irrigated:

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

Coordinates: 42 ° 57’ 19.32” N., 112° 49’ 16.24” W.
Elevation: 4407 ft.
Soil Type: DeA Declo loam, 0-2% slopes
Previous Crop: Green manure oats
Planting Date: April 5, 2013
Harvest Date: August 16, 2013
Chemicals applied: 1 pt/A Maestro MA, 10 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")	0.9	8.0	9.5	136	136	17 ppm	248 ppm	47 ppm
Fertilizer applied (#/A)				230	125	50#		100#
Total	**0.9**	**8.0**	**9.5**	**366**	**261**	**17+ppm**	**248 ppm**	**47+ppm**

Location Descriptions

Idaho Falls Spring Wheat Irrigated:

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

Coordinates: 43° 29’ 28.34” N., 112° 08’ 41.63” W.
Elevation: 4728 ft.
Soil Type: #23 Pancheri silt loam, 2-4% slopes
Previous Crop: potatoes
Planting Date: April 19, 2013
Harvest Date: August 21, 2013
Chemicals applied: 1 pt/A Maestro MA, 6 oz/A Starane Ultra

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”)	1.7	7.7	7.8	80	80	20 ppm	134 ppm	36 ppm
Fertilizer applied (#/A)				201	161	30#	20#	24#
Total	**1.7**	**7.7**	**7.8**	**281**	**241**	**20+ppm**	**134+ppm**	**36+ppm**

Idaho Falls Spring Barley Irrigated:

Cooperator: Marc Thiel
Approximately ¼ mile north of 33rd South on 45th W. Idaho Falls, ID

Coordinates: 43° 28’ 14.87” N., 112° 07’ 12.71” W.
Elevation: 4688 ft.
Soil Type: #22 Pancheri silt loam, 0-2% slopes
Previous Crop: potatoes
Planting Date: April 10, 2013
Harvest Date: August 14, 2013
Chemicals applied: 1 pt/A Maestro MA, 6 oz/A Starane Ultra
Fertility:

	Organic Matter	pH	Free Lime %	Spring barley N #/A	P	K	S
12” soil test results (N & S= 0-24”)	1.8	7.5	7.5	130	38 ppm	210 ppm	22 ppm
Fertilizer applied (#/A)				55	33#		
Total	**1.8**	**7.5**	**7.5**	**185**	**38+ppm**	**210 ppm**	**22 ppm**

Location Descriptions

Ashton Spring Irrigated:

Cooperator: Don Marotz
Approximately 1450 N 4000 E Ashton, ID

Coordinates: 44° 05' 21.86" N., 111° 21' 21.38" W.
Elevation: 5557 ft.
Soil Type: #74 Marystown silt loam 8-12% slopes
Previous Crop: barley
Planting Date: May 2, 2013
Harvest Date: August 29-30, 2013
Chemical applied: 1 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")	2.4	5.9	<1.0	18	18	19 ppm	179 ppm	8 ppm
Fertilizer applied (#/A)				245	155			20#
Total	**2.4**	**5.9**	**<1.0**	**263**	**173**	**19 ppm**	**179 ppm**	**8+ppm**

Soda Springs Spring Dryland:

Cooperator: Sid Cellan
2 miles north of Hooper Springs, ¼ mile east of Govt. Dam Road Soda Springs, ID

Coordinates: 42° 42' 7.81" N., 111° 36' 48.38" W.
Elevation: 5981 ft.
Soil Type: 485AA - Foundem-Rexburg complex, cool, 1 to 8 percent slopes
Previous Crop: Barley
Planting Date: April 30, 2013
Harvest Date: August 29, 2013
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")	2.3	5.7	<1.0	144	144	34 ppm	423 ppm	11 ppm
Fertilizer applied (#/A)				60	60			
Total	**2.3**	**5.7**	**<1.0**	**204**	**204**	**34 ppm**	**423 ppm**	**11 ppm**

Table 1. Released varieties tested in 2012-2013 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						
AP Badger	RemPop80-3	43	10,549	95	2009	Syngenta Cereals
AP700 CL	99x1009-28-13-CL	50	9,072	110	2007	Syngenta Cereals
Bitterroot	92-22407A	40	11,484	87	2007	Idaho AES
Bobtail	OR208047P94	42	10,800	93	2013	Oregon AES, USDA
Brundage	ID86-14502B	42	10,930	91	1996	Idaho AES
Brundage 96	ID-B-96	37	12,259	82	2002	Idaho AES
Bruneau	93-64901A	41	11,200	89	2009	Idaho AES
Cara	ARS97135-9	33	13,745	73	2007	USDA-ARS, Washington AES
Eltan	WA7431	35	12,960	77	1990	Washington State University and USDA-ARS
Kaseberg	OR2071628	36	12,777	78	2012	Oregon State University
Ladd	OR2070870	45	10,080	99	2012	Oregon AES, USDA
LCS Artdeco	NSA06-2153A	46	9,969	100	2011	Limagrain Cereal Seeds, LLC
Madsen	WA7163	43	10,549	95	1988	Washington, Idaho & Oregon AES, USDA
Mary	OR2040726	42	10,800	93	2011	Oregon State University
ORCF-101	OR2010051	45	10,080	99	2003	Oregon AES, USDA
ORCF-102	OR2010007	47	9,651	104	2005	Oregon AES, USDA
Rosalyn	OR2071071	41	11,063	90	2013	Oregon AES, USDA
Skiles	ORH010085	44	10,428	96	2007	Oregon AES, USDA
Stephens	OR65-116	48	9,450	106	1977	Oregon AES, USDA
SY Ovation	03PN108#21	50	9,072	110	2011	Syngenta Cereals
UICF Brundage	02-859	38	11,937	84	2009	Idaho AES
WB-1070CL	BZ6WM04-1070	51	8,894	112	2012	WestBred / Monsanto
WB-Junction	BZ6W02-616	39	11,631	86	2011	WestBred / Monsanto
WestBred 456	BU6W99-456	42	10,930	91	2008	WestBred / Monsanto
WestBred 528	BZ6W98-528	47	9,755	103	2005	WestBred / Monsanto
Hard Red and White (W) Winter Wheat						
AP503CL2	CL03040-5-2	34	13,341	75	2007	Syngenta Cereals
Bearpaw	MTS0721	33	13,745	73	2011	Montana State AES
Curlew	UT9325-55	34	13,341	75	2009	Utah AES, USDA
Deloris	UT2030-32	39	11,631	86	2002	Utah AES, USDA
Eddy	BZ9W96-788-e	38	11,937	84	2004	WestBred / Monsanto
Golden Spike (W)	UT1944-158	37	12,259	82	1999	Utah AES, USDA
Greenville	UT9743-42	38	11,937	84	2011	Utah AES, USDA
Judee	MTS0713	41	11,063	90	2011	Montana State AES
Juniper	IDO 575	41	11,063	90	2005	Idaho AES, USDA
Keldin	ACS55017	51	8,982	111	2011	WestBred / Monsanto
LCS Azimut	NSA97-2365	31	14,632	68	2007	Limagrain Cereal Seeds, LLC
Lucin-CL	UT10322	40	11,340	88	2011	Utah AES, USDA
Manning	UT89099	39	11,631	86	1979	Utah AES, USDA
Moreland	IDO517	35	12,960	77	2003	Idaho AES, USDA
Norwest 553	ORN00B553	34	13,341	75	2007	Oregon State AES, USDA-ARS, Nickerson U.K.
Promontory	UT1567-51	38	11,937	84	1990	Utah AES, USDA
UI LHS (W)	IDO835B	40	11,340	88	2010	Idaho AES, USDA
UI Silver (W)	IDO658B	29	15,641	64	2011	Idaho AES, USDA
UI SRG	IDO656B	34	13,540	74	2012	Idaho AES, USDA
UICF Grace (W)	IDO651B	41	11,063	90	2009	Idaho AES, USDA
Utah 100	UT1650-150	42	10,800	93	1997	Utah AES, USDA
WB-Arrowhead	ML9W05-2501	39	11,631	86	2011	WestBred / Monsanto
Weston	ID74-55/20	43	10,549	95	1978	Idaho AES, USDA
Whetstone	W98-344	35	13,148	76	2009	Syngenta Cereals
Yellowstone	MT00159	40	11,340	88	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 2012-2013 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	37	12,259	82	1993	Washington, Oregon, & Idaho AES, USDA
Alturas	ID0526	30	15,376	65	2002	Idaho AES, USDA
Babe	WA008039	38	12,096	83	2009	Washington AES, USDA
Cataldo	IDO642	35	12,960	77	2007	Idaho AES, USDA
Penawawa	WA6920	33	13,957	72	1985	Washington AES, USDA
UI Pettit	IDO632	66	6,873	146	2006	Idaho AES, USDA
UI Stone	IDO599	27	16,800	60	2012	Idaho AES
Hard Red Spring						
Bullseye	B02-0081	48	9,450	106	2009	Syngenta Cereals
Cabernet	95WV10616	43	10,549	95	2007	Syngenta Cereals
Choteau	MT9929	33	13,745	73	2005	Montana State University
Glee	WA8074	47	9,755	103	2012	Washington AES, USDA
Jefferson	IDO462	32	14,175	71	1998	Idaho AES, USDA
Kelse	WA007954	37	12,427	80	2008	Washington AES, USDA
UI Winchester	IDO578	33	13,745	73	2009	Idaho AES, USDA
Volt	ACS 52610	32	14,400	69	2007	WestBred / Monsanto
WB-Rockland	SJ908-247	36	12,777	78	2010	WestBred / Monsanto
WB9229		33	13,745	73	2013	WestBred / Monsanto
WB9576	BZ908-560	39	11,631	86	2013	WestBred / Monsanto
WB9879CLP	IMICHT79	35	12,960	77	2012	Montana; Westbred/Monsanto
WestBred 936	PH986-61	34	13,540	74	1992	WestBred / Monsanto
Hard White Spring Wheat						
Blanca Grande	96WV53260	41	11,200	89	2002	Syngenta (RSI)
Dayn	WA8123	34	13,341	75	2012	Washington AES, USDA
Klasic	NK77S1817	39	11,631	86	1982	Northrup-King Co., Minneapolis, MN
Snow Crest	BZ998-247W	42	10,930	91	2004	WestBred / Monsanto
WB-Idamax	BZ904-336 WP	43	10,673	94	2010	WestBred / Monsanto
WB-Paloma	BZ904-331WP	42	10,930	91	2010	WestBred / Monsanto
Spring Durum Wheat						
Alzada	YU894-75	49	9,257	108	2004	WestBred / Monsanto
Winter Barley						
Alba	OR77	47	9,651	83	2010	Oregon AES, USDA
Charles (malt)	94Ab1274	50	9,072	88	2005	USDA-ARS, Aberdeen
Eight-twelve	79Ab812	44	10,428	77	1988	Idaho AES, USDA
Endeavor (malt)	95Ab2299	47	9,651	83	2008	Idaho AES, USDA
Kamiak	WA2084-63	39	11,631	69	1971	Washington AES, USDA
Maja	OR81	42	10,800	74	2009	Oregon AES, USDA
Mathias	OR76	45	10,080	79	2009	Oregon AES, USDA
Schuyler	NY5619B-3B	37	12,259	65	1969	Cornell AES, USDA
Sprinter	BU583-50	44	10,309	78	1987	WestBred / Monsanto
Streaker	OR85	36	12,600	63	2011	Oregon AES, USDA
Strider	ORW6	42	10,800	74	1998	Oregon AES, USDA
Sunstar Pride	SDM204-B	39	11,631	69	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 2012-2013 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	44	10,309	78	2011	Busch Agricultural Resources, LLC, Ft. Collins, CO
m	AC Metcalfe	TR232	41	11,200	71	1994	Agriculture Canada
m	B1202	2B81-4038	43	10,549	76	1986	Busch Agricultural Resources, LLC, Ft. Collins, CO
f	Baronesse	NS078054	42	10,800	74	1992	WestBred / Monsanto
m	CDC Copeland	TR150	42	10,800	74	1999	CDC University of Saskatchewan, Saskatoon
food	CDC Fibar		38	12,096	66	2003	CDC University of Saskatchewan, Saskatoon
food	CDC McGwire	HB335	40	11,484	70	1999	CDC University of Saskatchewan, Saskatoon
m	CDC Meredith	TR05104	40	11,340	71	2008	CDC University of Saskatchewan, Saskatoon
f	Champion		52	8,723	92	2007	WestBred / Monsanto
f	Clearwater	01ID435H	41	11,200	71	2007	Idaho AES, USDA
m	Conrad	B5057	44	10,309	78	2004	Busch Agricultural Resources, LLC, Ft. Collins, CO
m	Genie		45	10,193	78	2011	Limagrain Cereal Seeds, LLC
m	Harrington	S76333	40	11,340	71	1981	University of Saskatchewan
m	Hockett	MT910189	43	10,549	76	2010	Montana AES
f	Idagold II	C32	40	11,340	71	2002	Coors Brewing Co. Inc., Burley, ID
food	Julie	03AH6561-94	43	10,549	76	2010	Idaho AES, USDA
f	Lenetah	01Ab11107	45	10,080	79	2008	Idaho AES, USDA
m	Merit	2B91-4947	39	11,631	69	1997	Busch Agricultural Resources, LLC, Ft. Collins, CO
m	Merit 57	2B99-2657	45	10,193	78	2009	Busch Agricultural Resources, LLC, Ft. Collins, CO
m	Moravian 115	C115	45	10,080	79	2010	Coors Brewing Co. Inc., Burley, ID
m	Moravian 143	C143	48	9,450	85	2011	Coors Brewing Co. Inc., Burley, ID
m	Moravian 69	C69	50	9,164	87	2005	Coors Brewing Co. Inc., Burley, ID
m	Odyssey		51	8,982	89		Limagrain Cereal Seeds, LLC
m	Overture		51	8,894	90		Limagrain Cereal Seeds, LLC
m	Pinnacle	2ND21863	55	8,323	96	2007	North Dakota AES, USDA
f	Spaulding	PB1-95-2R-522	48	9,450	85	2006	Plant Breeders 1 Inc., Moscow, Idaho
f	Tetonia	98AB11720	45	10,080	79	2007	Idaho AES, USDA
food	Transit	03AH3054-51	45	10,080	79	2010	Idaho AES, USDA
f	Vespa		43	10,673	75		Limagrain Cereal Seeds, LLC
f	Xena	BZ594-19	44	10,309	78	2000	WestBred / Monsanto
	Six-Row Spring Barley						
m	Celebration	6B01-2218	34	13,540	59	2008	Busch Agricultural Resources, LLC, Ft. Collins, CO
f	Goldeneye	UT95B1216-4087	38	12,096	66	2005	Utah AES, USDA
f	Herald	00ID1550	36	12,777	63	2006	Idaho AES, USDA
m	Legacy	6B93-2978	37	12,259	65	1998	Busch Agricultural Resources, LLC, Ft. Collins, CO
f	Millennium	UT004603	39	11,782	68	2000	Utah AES, USDA
m	Morex	M25	35	13,148	61	1978	Minnesota AES, USDA
m	Quest	M122	35	13,148	61	2010	Minnesota AES, USDA
f	Steptoe	WA6428-66	34	13,341	60	1973	Washington AES, USDA
m	Tradition	6B95-2482	38	11,937	67	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

The fall of 2012 provided good conditions for planting winter grain only on irrigated ground. Pre- or post-planting irrigation was required in irrigated trials for seed to adequately germinate. The dryland planting conditions were initially dry as well, but there was enough moisture in most areas for stand establishment. Subsoil moisture was limited going into the winter, resulting in poor seedling growth and tillering of dryland winter crops.

Spring planting conditions were adequate for good stand establishment. If irrigation was limited early in the growing season, then the spring crop suffered a great deal from moisture stress that accelerated the development into the reproductive stage of growth.

Weather Conditions

A dry fall was followed by some precipitation in early October, and very little moisture from November through March. Snow cover never established for insulating the winter crop, and neither was there any overwintering of infection of stripe rust (*Puccinia striiformis* f.sp. *tritici*). November and July were the only months in the 2013 growing season where moisture exceeded the 10-year and 95-year averages (see Chart 1 below).

A very dry spring and summer resulted in extreme crop stress and rapid crop growth, resulting in poor tillering of spring crops if early season irrigation was not available. For fields with

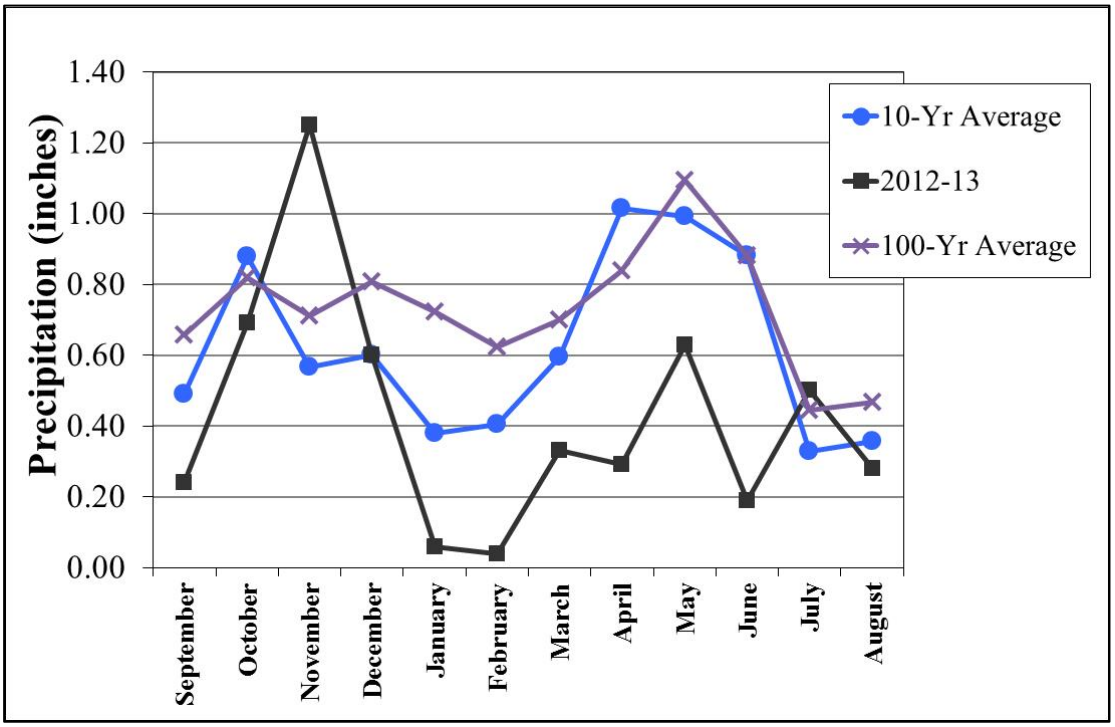


Chart 1. 2012-2013 growing year precipitation recorded at Aberdeen, ID, versus 10-year and 100-year averages. Sources: National Weather Service and Agrimet data.

adequate moisture, crops tillered well and advanced rapidly.
There was very little winter-kill damage to irrigated winter wheat or winter barley, and spring stands of winter grains were very good throughout the area. There was some snowmold damage in the dryland production areas (Rockland), and very dry conditions in Soda Springs and Ririe resulted in very poor fall and subsequently spring stands. Heading dates for winter wheat were two days earlier than the previous ten-year average (see Table 3). Very hot temperatures in May (reaching over 90 degree F for several days) spurred rapid growth of spring grains. Spring wheat headed eight days and spring barley ten days earlier than the previous ten-year average. Plant heights were significantly reduced for winter wheat and spring wheat, another indication of crop stress, but not for spring barley. Lodging was average for winter wheat, lower than average for spring wheat, and higher than average for spring barley. Interestingly, average yield for spring barley was the second highest when compared to the previous ten years, but below average for spring wheat and the lowest in ten years for winter wheat.

Several late spring frosts damaged winter wheat contributing to lower yields and test weights, with a mid-June frost contributing to significant damage. The extension nurseries also had visible damage (twisted awns and blank spots in the heads), with the damage significantly reducing yields at some locations.

The absence of hail storms and windy conditions prior to the 2012 harvest also reduced grain shattering and green bridge conditions for the 2012 – 2013 growing season. However, after the 2012 harvest, there was a lot of volunteer grain that germinated resulting in green bridge conditions in some areas, which had the potential to serve as a source for insects and disease inoculum in the following growing season (2013).

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, especially in spring wheat. Wireworms were prevalent in some areas in plant crowns throughout the entire spring but retreated to higher moisture deep in the ground in the early summer. Insecticides applied as seed treatments reduced but did not control wireworms and the resultant feeding damage.

In addition to wireworms, stem sawfly (*Cephus cinctus* Norton) was severely damaging in dryland spring grain, reducing yields by over 50% in some areas of Antelope Flats east of Ririe.

Stripe rust (*Puccinia striiformis* f.sp. *tritici*) did not overwinter and was found in a few fields in the late summer in spring wheat, showing up but not becoming a widespread issue as in previous years. The infection spread from areas to the south west, west and north, came in late, and caused damage only in a few fields of spring wheat. In

one fungicide study in Aberdeen, stripe rust reduced yield by 26% and test weight by 3 lbs/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.

Barley scald (*Rhynchosporium secalis*) did not reach the damaging levels of the previous years and was rarely seen. 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 August. 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, 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 spring wheats that have significantly reduced infection potential – that is the soft white spring wheat UI Stone and the hard red spring wheat Volt (see Variety Descriptions in Table 2).

In two areas, Common Armyworm (*Mythimna unipuncta*) damaged spring wheat and barley. Soda Springs and areas in South Pleasant Valley had high populations that required insecticidal application to reduce damage. High spring and summer temperatures were conducive to rapid larval growth. The pupae do not overwinter.

Green Bridge, 2012 to 2013.
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 occurred in many locations in 2010, 2011 and 2012 in southern and southeast Idaho for several reasons: 1) late maturing tillers of 2010 winter wheat stayed green and growing even after harvest; 2) windy conditions caused

shattering of spring grains in 2010 prior to complete maturity of the crop; 3) hail storms (2010) induced shattering of grains prior to crop maturity. 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 2012, 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 2013 growing season. Because of the green bridge, aphids and certain disease causing organisms can jump to the emerging (2012-2013) winter crop, causing direct damage and / or transmitting viruses.

In fact, high populations of aphids moved into the earliest emerging winter wheat and barley, contributing to a widespread epidemic of Barley Yellow Dwarf in southern Idaho. Corn is a 'silent' host of barley yellow dwarf virus, hosting high concentrations of the virus without symptoms or damage to corn. Late-season aphids (especially English grain aphids and bird cherry oat aphids) moved from corn to winter cereals, landing on the newly emerged grain, and transmitted the virus to the new crop. Aphid populations built up before a killing frost in the first week of December. Severe stunting and yellowing of grain in the spring became apparent, resulting in yield reductions of over 50% in the most severely affected fields.

2013 report: Kimberly Research and Extension Center, Winter Grain

The winter wheat nurseries were planted into moisture Oct 9 following dry beans. Soils were well-prepared and plots were irrigated after planting to improve emergence. The crop suffered a little winter damage due to a combination of dry conditions and cold temperatures but overall growing conditions and irrigation were good. Stripe rust was not present. Soft white winter wheat yields were about 50 bu/A less than the previous two years, while hard winter wheat yields were about 43 bu/A less than 2012. Plots were harvested July 29-30.

The **hard winter wheat group** (Table 24) yielded from 90 to 136 bu/A. Norwest 553, Promontory and Keldin were the highest yielding varieties, yielding 136, 129 and 125 bu/A, respectively. Site average for yield of the hard winter group was 109 bu/A. Test weight average was 61.7 lbs/bu in 2013, and grain protein average for the location was 14.2%. **Averaged over all locations**, the highest yielding hard winter wheat varieties in 2013 (Table 16) were Keldin (127 bu/A), Norwest 553 (125 bu/A), and Yellowstone (122 bu/A). **Three year averages** over all locations (Table 4) put Utah 100 and Yellowstone at the top with 128 bu/A followed by Norwest 553, Juniper, Manning and WB-Arrowhead, at 127, 125, 124 and 124 bu/A, respectively.

In the **soft white winter group** (Table 29), yield varied from 86 to 133 bu/A. Stephens (133 bu/A), Bobtail (126 bu/A) LCS Artdeco (126 bu/A), UICF Brundage (124 bu/A), and ORCF 102 (122 bu/A) were the highest yielding varieties. Test weight averaged 60.1 lbs/bu, and grain protein average for the location was high at 12.4%. Bobtail, Bruneau, UICF Brundage, LCS Artdeco,

Skiles, and WB 528 were the top named varieties in the **combined irrigated trials in 2013** at 121, 116, 115, 113 and 113 bu/A, respectively (Table 17). The top yielding soft white winter varieties **over the last three years** over all locations (Table 5) are Bruneau (134 bu/A), SY Ovation (134 bu/A), WB-Junction (130 bu/A), and Stephens (127 bu/A).

Rupert, Jentschz-Kearl Farms, Winter Grain

Plots were planted Oct 5 in very soft sand following dry beans into good soil moisture. Slight winter injury occurred in Rupert in the winter wheat, with greater damage in winter barley where spring stand averaged 87%. Plot location was poor with sandy soils and ineffective weed control. Plots were harvested August 1. The CVs of all winter trials at this location were high, indicating unreliability of the reported data.

Average yield for the **winter barley** varieties (Table 34) was 77 bu/A, down 81 bu/A from 2012, and varied from 46 to 105 bu/A. The highest yielding named varieties included Eight-Twelve (93 bu/A), Alba (88 bu/A), Charles (86 bu/A), and Endeavor (86 bu/A). Proteins were 12.1%, there were high thins and an average of 23% lodging. **Combined over the irrigated locations** (Table 18), Eight-Twelve, Maja, Charles and Strider were the highest yielding barley lines (134, 129, 124, and 122 bu/A, respectively. **Over three years** (Table 6), the winter feed lines yielded 158 bu/A (Eight-twelve), 155 (Sunstar Pride) and 155 bu/A (Strider).

Average yields for the **hard winter wheat** trial (Table 25) were 92 bu/A, 25 bushels less than 2012. Yield ranged from 66 (Moreland) to 117 bu/A. Test weight averaged 59.2 lbs/bu, and protein averaged 14.8%. Keldin, Whetstone, Utah 100 and Eddy were the highest yielding named lines at 114, 112, 105, and 95 bu/A, respectively. Stripe rust did not significantly impact yield.

The **soft white winter group** (Table 30) ranged in yield from 57 to 91 bu/A. The highest yielding varieties were Bruneau (91 bu/A), Madsen (88 bu/A), Brundage (83 bu/A), and Ladd (83 bu/A). Test weights were below 60 lbs/bu, averaging 54.5 lbs/bu, and grain protein was very high at 14.5%. There was very little lodging in the winter grain nurseries.

Aberdeen R&E Center, Winter Grain

The winter trials in Aberdeen were planted September 20 and harvested August 5-7. The preceding crop was green manure oats. The **winter barley** at Aberdeen had no winter damage this year, and average spring stands were at 100%. The plots were irrigated twice in the fall, reducing the compounding effect of cold temperatures with drought that increases winter-kill. Yields were as high as 207 bu/A with an overall average of 164 bu/A. High yielding varieties included Maja (184 bu/A), Sprinter (179 bu/A), Eight-Twelve (175 bu/A), and Strider (170 bu/A). Endeavor and Charles, two winter malt varieties, yielded 135 and 162 bu/A, respectively. Test weight averaged greater than 48 lbs/bu, lodging 64%, and protein 8.1%.

The winter wheat survival (Table 26) was also excellent. Average spring stand for both the hard and soft winter wheat nursery was 99-100%. In **the hard winter group**, overall yields were down from 2012 by 20 bu/A. Lodging was

unusually high at 42%. Stripe rust did not overwinter in the plots. Yellowstone (157 bu/A), Norwest 553 (149 bu/A), WB-Arrowhead (146 bu/A), and Keldin (143 bu/A), were the top yielding hard red varieties with lodging at 14, 1, 58, and 53%, respectively. Test weights were 60.0 lbs/bu overall. Grain protein averaged 14.3%.

The overall yield average in **the soft white winter trial** (Table 31) was 147 bu/A, 14 bu/A greater than 2012, ranging from the low of 129 bu/A (WB-456) to a high of 175 bu/A (Bobtail). The highest yielding named varieties were Bobtail (175 bu/A), Mary (158 bu/A), WB-Junction (157 bu/A) and Rosalyn (157 bu/A). The test weights averaged at 59.5 lbs/bu and the overall grain protein was low at 10.6%. Lodging averaged 38%.

Ririe, LDS Church Farm, Dave Cook, Winter Grain

This is a high elevation location (5500 ft) and is our main dryland location for winter grain. 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 2013 the survival rates for winter barley (Table 36) was again poor (45%), and yields were very low, averaging about 5 bu/A. In 2013, the spring stand for winter wheat was excellent (96-97%), however, severe drought reduced yields to an average of 13 bu/A for soft and 16 bu/A for hard winter wheat. The location was planted September 25, 2012 into adequate moisture following wheat and the trials were harvested August 9.

The **hard winter wheat group** (Table 27) had reduced average yields (16 bu/A) in comparison to 2010 at 28 bu/A, 2011 at 12 bu/A, and 2012 at 18 bu/A). The 2013 yield range went from a low of 11 bu/A to a high of 23 bu/A. UICF Grace, WB-Arrowhead, Weston, Utah 100 and Curlew were the top yielding hard winter wheat varieties, at 23, 20, 19, 18 and 18 bu/A, respectively. Average grain protein was 14.5%, and test weights averaged 59.6 lbs/bu. Dryland yields **averaged over all locations and 3 years** (Table 7) averaged 21 bu/A, with the top yielding varieties including Utah 100, UI SRG, Lucin CL, Deloris, and Yellowstone, (23, 23, 23, 22 and 22 bu/A, respectively).

The **soft white winter wheat** (Table 32) yields varied from 8 bu/A to 18 bu/A (Bitteroot), with the site averaging 12.7 bu/A. Average proteins were very high for this soft group at 14.1%, and test weights averaged 57.6 lbs/bu. There was no lodging. In addition to Bitteroot, the top-yielders were Eltan, Bruneau, Madsen and Skiles (17, 16, 15, and 15 bu/A). Over the **past three years**, the top yielding soft white winter varieties at this location (Table 8) were Bitterroot, Bruneau and ORCF-102, yielding 17, 17, and 16 bu/A, respectively. The three-year average for grain protein was 12.9%. Test weights were 58.2 lbs/bu, and average plant height was 19 inches.

Rockland, Gilbert and Carl Hofmeister, Hard Red and White Winter Wheat

The **hard red and white winter wheat trial** at the Hofmeisters' was planted September 6 and harvested July 25. Snow mold diseases were not a

significant problem (as they were in 2011), but stands were still reduced by 15% (Table 28). Dwarf bunt (*Tilletia controversa*) 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 18 bu/A, lower than the 2010 yield average of 39 bu/A, lower than 2011 (27 bu/A0, and 2012 (30 bu/A). The yield ranged from 4 to 26 bu/A (UI SRG), with low yields again reflecting the very droughty conditions under dryland production. The top yielding varieties this year were UI SRG (26 bu/A), Deloris (24 bu/A), Utah 100 (24 bu/A), and Keldin (23 bu/A). Grain protein average was 11.9%, test weight average was 61.9 lbs/bu, and there was no lodging. No soft white winter wheat was planted at this trial location.

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 September 14 and harvested August 27. Twenty-six varieties of hard red, hard white, and soft white winter wheat were included. Fall germination was very poor due to dry conditions resulting in an average 25% spring stand. Yellowstone, UICF Grace, Bearpaw, Deloris and Keldin (all hard reds except the hard white UICF Grace) had the highest yields (40, 27, 33, 33, and 32 bu/A, respectively). Yields averaged 23 bu/A, 51 bu/A less than the previous year. Test weight was low (56.5 lbs/bu), and grain protein high (14.4%). 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.

Rupert, Duane Grant and Mike Larsen, Spring Grain

The variety trials in Rupert were planted March 29 and harvested August 13th. The preceding crop was onions. There were no major weather-related problems.

There was about 5% lodging for **the hard spring wheat nursery** (Table 37). Average yield was 90 bu/A, compared to 111 bu/A in 2010, 92 bu/A in 2011, and 108 in 2012. Test weight average was 60.4 lbs/bu, and average protein was at 15.3%. The top yielding named varieties were Alzada (a durum at 99 bu/a and 14.7% protein), Dayn (a hard white at 97 bu/A and 14.7% protein), Bullseye (94 bu/A and 15.9% protein), and Kelse (92 bu/A and 15.0% protein). WB-Paloma, Snow Crest, WB-Idamax, Choteau, Klasic, Bullseye, and WB-Rockland had the highest grain protein (16.4, 16.2, 16.1, 16.1,15.9, 15.9 and 15.8% respectively). The high proteins are reflective of high nitrogen fertilization and lower yields. Nitrogen application rates were for higher expected yields, and excess nitrogen went towards protein accumulation in the grain. The highest yielding (named) hard white spring wheat's were Dayn (97 bu/A,) Snow Crest, (90 bu/A) and WB-Paloma (89 bu/A).

Over **three years over all locations**, the highest yielding varieties under irrigation (Table 9) were Dayn (hard white spring wheat at 110 bu/A), Alzada (durum at 100 bu/A), Bullseye (100

bu/A), WB-Idamax (105 bu/A), Kelse (100 bu/A), Choteau (100 bu/A) and WB-Idamax (99 bu/A). The average 3-year test weight was 61.0 lbs/bu, and the average grain protein was 14.3%. High protein lines were WB-Rockland (15.3%), Kelse (14.7%) and Choteau (14.6%). The irrigated average yield for 2013 (Table 19) was 87 bu/A with the highest yielding varieties including Dayn, Bullseye, Volt, and Choteau.

The **soft white spring wheat yield** (Table 42) average was 112 bu/A. In 2010 it was 116 bu/A, in 2011 it was 101 bu/A, and in 2012 the average yield at the Rupert location was 114 bu/A. In 2013, UI Stone yielded 118, UI Pettit yielded 117 and Penawawa 115 bu/A. Grain protein average was at 12.6%. **Three year averages over all locations** (Table 10) put UI Stone at the high yield (113 bu/A), followed by Alpowa (110 bu/A), and Babe (109 bu/A). The 2013 combined irrigated average was 99 bu/A. UI Stone averaged 104 bu/A, Alturas 101, and UI Pettit 104 bu/A.

The **six-row spring barley trial** at Rupert (Table 47) yielded an average of 110 bu/A, with a range from 89 to 124 bu/A. Lodging was very high at this location, averaging 74% for the spring barley. Legacy six-rowed malt was the top yielding barley (122 bu/A) of the named varieties. Test weights averaged 48.2 lbs/bu, proteins were very high at 14.0%, and percent plumps were 79%. **Over three years**, Goldeneye and Millennium were the highest yielding feed varieties (Table 11) at 142 and 139 bu/A, respectively, and Legacy was the highest yielding malt variety at 128 bu/A. In 2013 irrigated trials (Table 21), the top yielding varieties were Goldeneye (132 bu/A), Millennium (130 bu/A), Legacy (127 bu/A), and Herald (124 bu/A).

Two-rowed malt barley yields (Table 51) at the Rupert location averaged 120 bu/A, compared to the 2010 average of 122 bu/A, the 2011 average of 108 bu/A, and the 2012 average of 135 bu/A. Yields varied from 97 (Overture) to 151 bu/A (Moravian 143). The variety Moravian 143 was greatest followed by Moravian 69 (139 bu/A), ABI Voyager, Genie and Odyssy (all at 128 bu/A). **Three year averages** for the malt varieties (Table 12) puts ABI Voyager, Pinnacle, Moravian 69, Copeland and Conrad at the top (133, 131, 131, 128, 126 and 126 bu/A, respectively). Taking a look at irrigated averages for 2013 (Table 22), ABI Voyager yielded 127 bu/A, Moravian 69 yielded 127 bu/A, Pinnacle 126 bu/A, Moravian 143 126 bu/A, and Copeland 126 bu/A.

The high yielding **two-rowed feed** varieties (Table 55) were Vespa (162 bu/A), Champion (148 bu/A), Xena (145 bu/A), and Spaulding (136 bu/A). The hulless, high beta-glucan food barleys Julie, CDC McGwire, Clearwater, Transit, and CDC Fibar yielded 129, 123, 103, 91 and 82 bu/A but also had high test weights (56.3, 56.8, 52.6, 55.3 and 55.3 lbs/bu, respectively). The feed varieties Xena Champion, and Spaulding were the top yielding lines **over three years** and all irrigated locations (Table 13) at 145, 145, and 144 bu/A, respectively. In 2013, the highest yielding varieties under irrigation (Table 23) included Champion (144 bu/A), Vespa 140 bu/A), and Spaulding (137 bu/A).

Aberdeen R&E Center, Spring Grain

Spring variety trials were planted April 5 and harvested August 16th. The preceding crop was green manure oats. Stripe rust of wheat was present late in the season with higher temperatures and dry conditions preventing rapid spread. There were some yield impacts in the susceptible varieties, resulting in an approximately 25% yield reduction. The top three **hard spring wheat** varieties for yield (Table 38) were Dayn, Volt, and Jefferson at 119, 112, and 110 bu/A, respectively. Test weights for the hard spring wheat's averaged 61.8 lbs/bu and grain protein was 14.5%. High protein wheat's included WB-Rockland (17.0%), Alzada (15.8%) and two experimental WestBred lines at 16.8% and 15.2% protein.

The **soft white spring wheat** yields at Aberdeen (Table 42) averaged 107 bu/A with a range from 93 (Cataldo) to 124 bu/A. Highest yields of named varieties were obtained from Alturas (115 bu/A), UI Stone (115 bu/A) and Babe (100 bu/A). Test weights averaged 61.8 lbs/bu and grain protein averages were 11.6%.

Six-row barley in Aberdeen (Table 48) averaged 147 bu/A, similar to 2011 (148 bu/A) and 2012 (142 bu/A). Yields ranged from 127 bushels (Quest) to 172 bu/A. Goldeneye and Millennium were the two top yielding feed barley varieties, at 163 and 161 bu/A. For the six-row malt lines, Legacy, Tradition, Morex, Celebration and Quest yielded 145, 144, 132, 131 and 127 bu/A, respectively. Grain protein for the malt lines was variable, ranging from 11.3% to 13.9%. Test weight was 49.2 lbs/bu.

Two-rowed malt barley lines averaged 134 bu/A (Table 52), significantly lower than 2012, and ranged from 114 (Overture) to 152 bu/A (Copeland). The top yielding released lines were Copeland, Pinnacle, ABI Voyager and Moravian 69 (152, 147, 147, and 142 bu/A, respectively). Grain protein was too high, averaging 13.6%. For the **feed varieties** (Table 56), Champion, Spaulding, and Lenetah yielded 164, 162, and 152 bu/A, respectively. Test weight averaged 54.3 lbs/bu which is inflated by the number of hulless lines included in the trial. Hulless lines Transit, Julie, CDC McGwire, Clearwater, and CDC Fibar yields were 134, 129, 125, 114, and 100 bu/A, respectively. Lodging averaged 19% and grain protein 13.8%. These trials were not treated with growth regulators.

Idaho Falls, Marc Thiel, Spring Grain
The Idaho Falls barley location followed potatoes, was planted April 10th and harvested August 14th. The surrounding field was in barley. **Two-rowed malt barley** yields (Table 53) averaged 133 bu/A. Harrington yielded 115 bu/A while the highest yielding variety hit 150 bu/A. Top yielding named varieties included ABI Voyager (140 bu/A), Merit (139 bu/A), Pinnacle (139 bu/A), Copeland (138 bu/A) and Moravian 143 (138 bu/A). The **two-rowed feed trial** (Table 57) averaged 130 bu/A, with the top yielding lines averaging 156 bu/A (Xena), 154 bu/A (Champion), and 150 bu/A (Spaulding). The test weight average was skewed up (55.9 lbs/bu) due to the presence of hulless food barleys.

The six-rowed barley (Table 49) averaged 154 bu/A, with Steptoe at 169 bu/A, Millennium at 156 bu/A, and Quest at 156 bu/A. Test weight averaged 50.4 lbs/bu and proteins were averaging 12.1%.

The spring wheat field was planted in a separate location to reduce the water stress that occurs when a wheat trial is planted in a barley field. The Idaho Falls wheat location followed potatoes, was planted April 19th and harvested August 21st. Average grain yield for the **hard spring wheat** (Table 39) was 87 bu/A, 103 bu/A, which was 17 bushels lower than the average in 2012 of 103 bu/A. Hard spring wheat ranged in yield from 72 (Alzada) to 111 bu/A (Dayn). Average grain protein was at 15.5%, and test weight was high at 62.5 lbs/bu. The four highest yielding named varieties were Dayn hard white (111 bu/A and 14.4% protein), Bullseye (99 bu/A and 15.4% protein), WB-Idamax hard white (96 bu/A and 15.6% protein), and Volt (93 bu/A and 14.9% protein).

UI Stone, Alturas, Penawawa and UI Pettit topped the yield chart (Table 44) for the **soft white spring wheat** varieties at Idaho Falls at 104, 102, 96 and 96 bu/A, respectively. Yields ranged from 89 bu/A (Babe) to 106 bu/A. Test weights were good at 62.2 lbs/bu, and grain proteins were at 12.5%.

Ashton, Don Marotz, Spring Grain
The Ashton location was planted early (May 2) due to dry conditions at the upper elevation areas. The preceding crop was barley, and the surrounding field was also spring barley. Stripe rust was not present in most areas of the upper valley areas. Plots were harvested August 29th - 30th.

The average yield for the **hard spring wheat** (Table 40) was 73 bu/A, compared to 2010 at 54 bu/A, 2011 at 94 bu/A, and 2012 at 55 bu/A. The range in yield varied from 57 bu/A to 86 bu/A. Test weights were at 60.9 lbs/A, and protein averaged 15.3%. The high yielding varieties were Dayn (86 bu/A), followed by Choteau (84 bu/A), and WB-Idamax (80 bu/A). The highest proteins were seen in Kelse (16.4%), WB-Rockland (16.2%), and Jefferson (16.1%) with the location average of 15.3%. There was no lodging in the hard spring wheat at this location.

In the **soft spring wheat** trial (Table 45), Alpowa yielded 86 bu/A, followed by Babe (82 bu/A) and UI Pettit (82 bu/A). The average yield for the soft white spring trial was 78 bu/A, higher than in 2012, and ranged from a low of 52 bu/A to a high of 89 bu/A. The test weight average was a 61.1 lbs/A, with no lodging. Grain protein averaged 11.4%.

In the **six-rowed barleys** at Ashton (Table 50), the yield average was 93 bu/A, 17 bu/A greater than the previous year (2012) at 76 bu/A. In the feed barley, Goldeneye out-yielded the others at 100 bu/A, 51.7 lb test weight and 96% plumps. Millennium was the closest next variety at 92 bu/A, 50.5 lb test weight and 94% plumps. The malt line Tradition yielded 97 bu/A, with 52.4 lb test weight and 97% plumps.

Two-rowed malt barley yields (Table 54ranged from 78 (Metcalfe) to 112 bu/A. The average was 97 bu/A, with the highest named lines being Overture (112 bu/A), Moravian 69 (104 bu/A), Merit (104 bu/A) and Odyssey (102 bu/A). Lenetah, Champion and Tetonia were the top yielding **feed varieties** (Table 58) at 111, 110 and 108 bu/A, respectively. Test weights were high this year, averaging 55.8 lbs/bu (biased upward due to the inclusion of hulless food barleys) and proteins averaged 14.2%.

Soda Springs, Sid Cellan, Spring
The only spring dryland extension trials were spring wheat trials in Soda Springs. The nursery was planted April 30th and harvested August 29th. The previous crop was barley.

Yield averages for the **hard red and hard white spring** nursery (Table 41) were 59 bu/A, 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 51 (Glee) to 68 bu/A (UI Winchester). The four highest yielding named varieties were UI Winchester, Blanca Grande (64 bu/A), Kelse (63 bu/A), and Choteau (60 bu/A). Test weights averaged 61.6 lbs/bu, and proteins were averaging 14.2%, with the highest proteins in Kelse (15.4%), Blanca Grande (14.7%), and WestBred 936 (14.7%).

For the **soft white spring wheat** (Table 46), the nursery averaged 59 bu/A, 25 bu/A better than 2012. The yield ranged from 50 to 65 bu/A. Alpowa, Babe and Penawawa were the three top yielding varieties at 65, 64, and 62 bu/A, respectively. Test weight average was 61.4 lbs/bu, and proteins were at 12.8%.

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. 2012 yields were equivalent to CDC 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.

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. 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.

B1202 - two-rowed spring malt barley released by Busch Agricultural Resources. B1202 has largely been replaced by other malt varieties. Yields, test weights and lodging are better than Harrington, with lower protein and lower height.

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 the 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 – a high beta-glucan, 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 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) 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.

CDC Meredith (TR05104) – in its second 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. Yields and test weight of CDC Meredith were below average, while 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. In the three years of testing in southern Idaho, yields were comparable to Morex, while protein and lodging were higher than average.

Champion – a 2007 release from WestBred, LLC. 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 and Spaulding under irrigation. Champion has average test weight, height, protein and plumps, heading 1-2 days earlier than Baronesse.

Spring Barley (cont.)

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 above average yields and test weight. When compared to other malt varieties, Conrad is one of the highest yielding varieties (similar to Moravian 69) and it yielded very well in the Upper Valley area, especially around Idaho Falls and Ashton.

Genie – a European malt barley being released in the U.S. through Limagrain, Genie is a short-statured two-rowed malt variety in its second year of testing in the spring extension variety trials. Irrigated yield, maturity and protein of Genie were average, and it is about 3 inches shorter than average with higher lodging.

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. Yield, test weight, lodging resistance, and protein, are better than Steptoe. When cut at soft dough, Goldeneye has proven to be a high-yielding 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 malt varieties in our trials, with higher than average lodging and protein. Under high-yield management, including the use of plant growth regulators, yield, protein 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. Hockett should replace Harrington with higher yields, test weight, plumps and less lodging under irrigated and dryland conditions. 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.

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.

Spring Barley (cont.)

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. It appears not as competitive when yields are below 50 bu/A. Test weight is average for six-row cultivars, and plant height is about 5 inches taller than average. 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. Lenetah has below average test weight, average heading date, protein, plump and height, but with lodging similar to Tetonia. Lenetah has consistently yielded higher than Baronesse.

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.

Merit (2B91-4947) – 1997 release from Busch Agricultural Resources, Merit is a two-rowed malt line with average yields and high lodging potential.

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 average yields and high lodging, and is agronomically similar to Merit but is higher yielding than Merit.

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 much less than Harrington. Protein is at or slightly below average in these trials.

Moravian 115 (C115) – Moravian lines are two-rowed spring malt lines from MillerCoors originally targeted for the Magic Valley area, and were only planted in the Rupert and Idaho Falls nurseries in the last three years. Moravian 115 was released in 2010 from Coors Brewing Company, Inc, in Burley ID. Moravian 115 had lower test weight than average, is very short, and yielded below Moravian lines M69 and M143 under irrigation in 2011 and 2012.

Moravian 143 (C143) – two-rowed spring malt barley released by Coors Brewing Co. in 2011. In the first year in trials, yields were similar to Pinnacle and slightly higher than M69 and M137. Test weights were below average with a little higher protein and plumps than average. Moravian 143 is a foot shorter and has lower lodging than average.

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

Odyssey – a two-rowed malt barley being released by Limagrain Cereal Seeds, LLC and imported from Europe. In the first year of testing, Odyssey yielded slightly above average, had lower test weight, was three inches shorter and was average for lodging, protein, and plumps.

Overture - a two-rowed malt barley being released by Limagrain Cereal Seeds, LLC

Spring Barley (cont.)

and imported from Europe. In the first year of trials, Overture had similar yields to Harrington and Metcalfe, but had low test weight. Overture is shorter than average, but had higher than average lodging in 2013.

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 four years (2010-13), similar to Conrad 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 second year testing in Idaho. Quest has yield and test weight similar to Lacey and Tradition. In Idaho, Quest yields were below average for 6-rowed malt lines, with good test weight, plumps, and average maturity and lodging.

Spaulding (PB1-95-2R-522) – a two-rowed spring feed variety, and a Plant Breeders 1 release, Spaulding has excellent yield potential for the Magic Valley area, and yielded comparable to Xena and Champion over all irrigated locations. Spaulding has average test weight, plump, maturity and height and below average protein and lodging.

Steptoe – a six-rowed spring feed barley released in 1973 by Washington AES and USDA-ARS. Steptoe has been considered the industry standard for feed lines, with all current six-rowed feed lines yielding greater than Steptoe.

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 slightly more than Baronesse in the irrigated nurseries (2010-2013). Other agronomic characteristics are very similar to Baronesse.

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

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 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.

Vespa - a two-rowed feed barley being released by Limagrain Cereal Seeds, LLC and imported from Europe. In the first year 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) – two-rowed spring feed barley released by Western Plant Breeders. Xena has had very high yields over the locations tested from 2010-2013, similar to Spaulding and Champion. Its yield has been greater than Baronesse, and is about two inches taller but with similar straw strength. Test weight tends to be similar to 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 Sunstar Pride feed barley. Winter hardiness is better than Endeavor and Charles (both are two-rowed winter malt varieties).

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 are lower than the winter feed varieties, but has above average test weight. 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 158 bu/A under irrigation in the last three years.

Endeavor (95Ab2299) – Endeavor is the second two-rowed winter malt variety 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, height and lodging.

Mathias (OR76) –a six-rowed winter malt barley released by the Oregon AES and the USDA-ARS in 2009. Mathias yields have been similar to Charles, less than Alba with similar test weight and spring stand, and earlier maturity. Both have very high plumps.

Schuyler – a six-rowed winter feed barley released in 1969 by Cornell AES.

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.

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 also winter tender, and should be grown in the warmer areas of southern Idaho.

Strider – 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.

Sunstar Pride (SDM204-B) – winter six-rowed barley released by Sunderman Breeding in 1995. Sunstar Pride has been one the highest yielding variety in the three-year summaries, 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 is greater than Eight-Twelve. Sunstar Pride is shorter than most other winter barley varieties with very good straw strength. Heading date is up to a week or more later than average, and percent plumps are low.

SPRING WHEAT

Babe (WA008039) – Babe is a soft white spring wheat derived from Alpowa. It was released by Washington State AES in 2009.

Spring Wheat (cont.)

Babe has better emergence than Alpowa with a more upright growth habit, similar yield, better quality and higher test weight. Babe has improved high-temperature adult plant resistance to stripe rust over Alpowa, and has performed above average for yield in southeast Idaho trials. Over the past three years, yields and test weight of Babe were greater than UI Pettit.

Bullseye (B02-0081) – Bullseye is a high quality, high-yielding hard red spring wheat released by AgriPro, now Syngenta Seeds, in 2009. Combined over irrigated locations over the past three years, Bullseye was the highest yielding hard red spring wheat with high test weight and is average for height and grain protein.

Cabernet (95WV10616) – a 2007 hard red spring wheat from Resource Seeds, now Syngenta Cereals, Cabernet yields are similar to Jefferson with higher test weight, similar heading date, and is about five inches shorter with slightly lower protein.

Cataldo (IDO642) – a soft white spring wheat released in 2007 from Idaho AES. Cataldo is very similar to Alturas (both being partial waxy), and bred for Hessian Fly resistance for the rain-fed production areas of the PNW. It yields less, is earlier and shorter than Alturas, and has adult plant resistance for stripe rust. End-use quality is similar to Alturas for cookies and Asian noodles.

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 2013 irrigated trials. Test weight and heading date was average, protein was below average and Dayn was 2 inches taller than average.

Glee (WA8074) - a hard red spring wheat released by Washington State AES in 2012. Glee has adult plant resistance to stripe rust and Hessian Fly resistance. In the second year of testing in southern Idaho, Glee performed average in yield, and was average in test weight and grain protein. Glee is one to two inches taller than average and two days earlier in heading date. Under the 2012 harsh dryland conditions, Glee was the highest yielding hard spring wheat, but the lowest in 2013. Under late-season stress (2012 locations of Idaho Falls and Ashton) yields of Glee were average (Idaho Falls) to above average (Ashton).

Kelse (WA007954) – a hard red spring wheat released in 2008 through the Washington AES, and the USDA-ARS. Kelse was four to five inches taller than average under irrigation (Table 9), yields and test weight were average, with higher protein. Grain protein was higher than Westred 936 and lower than WB-Rockland. Kelse has seedling and adult plant resistance (HTAP) to stripe rust and Hessian Fly resistance.

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 4 inches shorter and heads 3-4 days earlier than Alturas. Yield of UI Pettit and other soft white spring wheat with high temperature adult plant resistance (HTAP) to stripe rust suffered yield loss due to unusually cold temperatures in April, May, and June which prevented the initiation of HTAP in many varieties.

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, Alturas and Penawawa. 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. Heading date, 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.

Volt (ACS 52610) – hard red spring wheat carried by WestBred (a unit of Monsanto) since 2007. In the past three years in the trials, Volt was agronomically similar to Choteau and Jefferson for yield with higher test weight and lower protein. Volt does well under irrigated high-yield environments, and has tolerance to Fusarium head blight (FHB or scab), and has reduced accumulation of DON toxins associated with FHB infection processes. Like UI Stone in the soft white class, Volt is the only hard red or white spring wheat in the PNW that should be grown following corn (if wheat is the only choice available to follow corn). When environmental conditions are favorable, even the least susceptible varieties and the application of fungicides may not control FHB nor reduce DON.

WB9229 – hard red spring wheat released by WestBred (a unit of Monsanto) in 2013 intended for irrigated production areas. WB9229 yields were greater than average in the first year of testing and had higher than average protein (Table 19). WB9229 has resistance to stripe rust, is shorter than average, and slightly shorter than WestBred 936.

WB9576 – a hard red spring wheat intended as a replacement for WestBred 936, WB9576 was released in 2013 by WestBred (a unit of Monsanto) in 2013. WB9576 has excellent protein and good yield potential with resistance to stripe rust. Irrigated yield of WB9576 was 10 bu/A greater than WestBred 936 in 2013 (Table 19) with high grain protein (16.5%). WB9576 is shorter than average, and is slightly shorter than WestBred 936.

WB-Idamax (BZ904-336) – hard white spring released by WestBred in 2009 with excellent quality, similar to Klasic. Three-year averages show WB-Idamax yields were slightly above WB-Paloma, similar to Jefferson (hrs) and Bullseye (hrs), and was at average for heading date, plant height, and protein.

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, Paloma had yield comparable to Blanca Grande under irrigation, yielding 105% of Snow Crest and 106% of Klasic.

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.

WINTER WHEAT

AP Badger (RemPop80-3) – a 2009 released soft white winter wheat from AgriPro (Syngenta Cereals), AP Badger has had average yield (see Table 5) in the past 3 years. AP Badger is two inches shorter than average with lower test weights and good straw strength.

Winter Wheat (cont.)

AP503 CL2 (CL03040-5-2) – a two-gene Clearfield hard red winter wheat developed and released by AgriPro (now Syngenta Cereals) in 2007 for dryland production areas. AP503 CL2 contains two genes for tolerance to BASF's grass herbicide 'Beyond'® and should have significantly less damage from herbicide application than the single gene imi's. AP503 CL2 is similar to it's parent 'Jagalene'.

AP700CL (99x1009-28-13-CL) – released in 2007 by AgriPro (now Syngenta Cereals), AP 700CL is an imi-tolerant, soft white winter wheat, containing a single gene for tolerance to BASF's grass herbicide 'Beyond'®. When placed under high-input irrigated conditions, AP 700 CL was tall, average for yield and heading.

Bearpaw (MTS0721) – released in 2011 by Montana Sate AES, Bearpaw is a hard red winter wheat for dryland production. 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 above average under severe conditions in Ririe (2013 in Table 27), above average in Soda Springs (Table 33), and below average in Rockland (Table 28).

Bitterroot (92-22407A) – released in 2007 by the University of Idaho AES, Bitterroot is an excellent quality soft white winter wheat. Yields have been similar to Brundage, having lower test weight, is a week later in heading and is 3-5 inches taller. Bitterroot also has better stripe rust resistance than Brundage.

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 was low, however, and heading date, protein and height were average in 2013 irrigated trials.

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

Cara (ARS97135-9) – Cara is a soft white club winter wheat released in 2007 by Washington AES and the USDA. Cara has resistance to stripe rust, powdery mildew, and strawbreaker foot rot. Yield of club wheats tend to be lower than most common soft winter wheat. Straw strength of Cara is significantly greater than for Coda (club).

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.

Eddy (BZ9W96-788-e) – a hard red winter wheat widely grown in Northern Idaho and Eastern Washington, Eddy was released in 2007 by WestBred, LLC (a unit of Monsanto). In the past three years irrigated yields have been below average, heading date, height and protein of Eddy were at average, while lodging was low and test weights were high (Table 4).

Winter Wheat (cont.)

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. In 2012 and 2013, irrigated yields were below average. Test weight, height and lodging were below average. Heading date was average. Greenville currently has fairly robust stripe rust resistance and moderate 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 below average under irrigated production in 2013, with yields similar to Moreland, Greenville and Juniper. Lodging under irrigation was less than Juniper. Heading and height were average, and grain protein and test weights were both above average.

Kaseberg (OR2071628) – a new 2012 release from Oregon State University and the USDA-ARS, Kaseberg has been average for yield (comparable to WB 528) and below average for test weight. Proteins were lower than average, but Kaseberg was average for heading date and height.

Keldin (ACS55017) – a hard red winter wheat distributed by WestBred, Keldin was tested in these trials in 2010, 2012 and 2013, so three year averages were not available. Comparable to Yellowstone and Norwest 553, yields in both years were 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.

Ladd (OR2070870) – a new 2012 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 shorter than average with a 2-day later heading date. Grain protein was high.

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 first year in the trials, LCS Artdeco yields were similar to Skiles and WB 528. While yields were above average, the test weight was below average, heading dates 2 days earlier, and height was average.

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, similar to Moreland, and had a heading date two days sooner than nursery average. In the first year of testing (2012), dryland yields were poor.

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 also has moderate resistance to dwarf bunt. Dryland yields so far have been similar to Deloris and UI Silver.

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 second year of Eastern Idaho trials, irrigated yields of Mary were comparable to Ladd and ORCF-101 (see Table 17). Heading date was earlier than average, test weight, and protein were average and height was 3 inches shorter than average.

Winter Wheat (cont.)

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 (check three-year averages in Table 4) comparable to Utah 100, Yellowstone and WB-Arrowhead. Norwest 553 was shorter than average with excellent lodging resistance. Grain protein and test weight were average.

Rosalyn (OR2071071) – a new 2012 release from Oregon State University and the USDA-ARS, Rosalyn yields in 2013 have been similar to Skiles, WB 528 and WB-Junction. Test weight, grain protein and height of Rosalyn were less than average.

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 and protein were average, was shorter with good lodging resistance. Test weight was above average.

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, and in 2011 showed a high level of resistance to stripe rust. Test weight, heading date, height and protein were average, and SY Ovation had lower lodging than average. In 2013, yields topped the chart with Bruneau for the average of irrigated nurseries (see Table 17) of the named varieties.

UI LHS (IDO835) – a hard white winter wheat released in 2010 by the Idaho AES for high yield potential under dryland conditions. In past three years of dryland trials, LHS yields were below average. While LHS yielded well under irrigation, it will lodge and is very susceptible to stripe rust.

UI Silver (IDO 658) – 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 UICF Grace 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, which can be a problem under irrigation.

UI SRG (IDO 656) – 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 average.

UICF Brundage (02-859) – a soft white winter Clearfield wheat 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 Grace (IDO 651) – a hard white winter Clearfield wheat released in 2009 for the rainfed production areas. UICF Grace has resistance to imazamox herbicides such as Beyond®, and will be useful in areas where jointed goatgrass and cheatgrass are problems. Yields are comparable to Juniper and Bonneville. Grace is tall and susceptible to black chaff, making it suited to dryland production.

Winter Wheat (cont.)

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, with greater than average lodging. The Clearfield varieties work well under dryland production systems where there are hard to control grassy weeds.

WestBred Arrowhead (ML9W05-2501) – a hard red winter wheat released by WestBred (a unit of Monsanto) in 2011. Irrigated yields of WestBred Arrowhead averaged over the last three years have been excellent, similar to Utah 100, Yellowstone, and Norwest 553 (see Table 4). WestBred 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.

WestBred 456 (BU6W99-456) – a soft white winter wheat from WestBred, (a unit of Monsanto), WetBred 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, 5-6 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. WestBred 456 is 3 inches shorter than average.

WestBred Junction (BZ6W02-616) – a soft white winter wheat released in 2011 by WestBred (a unit of Monsanto). In the third year in these trials, averaged over all irrigated locations, the yield of WestBred-Junction was excellent, equal to Bruneau, and SY Ovation and greater than WestBred 456, but with a little lower test weight than WestBred 456.

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 below average (Table 4). Whetstone has good protein and very good loaf volume. Whetstone is a PVP, Title V variety.

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

Table 3. Ten year averages of selected agronomic characteristics, 2003-2012 compared to 2013.

NOTE: "Average" values are for years 2003 to 2012

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	2004	3	2
2005	4	104	2008	5	60.9	2004	3	36	2010	5	6/18	171	2005	4	4
2009	5	102	2006	4	60.8	2009	5	35	2008	5	6/14	166	2008	5	4
2012	4	102	2007	4	60.3	2010	5	34	2009	5	6/9	162	2012	4	5
2003	4	101	2010	5	60.3	**Avg.**	---	**33**	**Avg.**	---	**6/7**	**160**	2003	4	7
Avg.	---	**98**	**Avg.**	---	**60**	2011	5	32	2005	4	6/7	159	2006	4	8
2006	4	98	2011	5	60.2	2006	4	32	2013	4	6/5	158	2013	4	8
2007	4	96	2009	5	60.0	2003	4	32	2012	4	6/3	156	**Avg.**	---	**8**
2010	5	95	2003	4	59.7	2013	4	31	2004	3	6/3	155	2007	4	9
2011	5	86	2012	4	59.7	2012	4	30	2006	4	6/1	153	2011	5	9
2008	5	80	2013	4	59.4	2007	4	30	2003	3	5/31	152	2009	5	17
2013	4	79	2005	4	59.3	2008	4	30	2007	4	5/30	151	2010	5	21

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.	%
2009	5	107	2006	5	62.1	2003	4	34	2008	5	7/9	192	2003	4	62
2008	5	102	2009	5	61.8	2009	5	34	2010	5	7/9	192	**Avg.**	---	**8**
2011	5	96	2013	5	61.4	2010	5	33	2011	5	7/9	192	2006	5	6
2003	4	96	2012	5	61.4	2005	5	32	2005	5	7/3	186	2007	5	5
2010	5	91	2008	5	60.7	2011	5	32	2009	5	7/3	185	2010	5	5
Avg.	---	**90**	2010	5	60.6	2004	4	32	**Avg.**	---	**7/1**	**184**	2011	5	3
2012	5	90	**Avg.**	---	**60**	**Avg.**	---	**32**	2004	4	7/1	183	2005	5	2
2005	5	87	2005	5	60.2	2007	5	30	2003	4	6/28	180	2013	5	2
2013	5	86	2004	4	59.6	2008	5	30	2006	5	6/27	179	2004	4	1
2007	5	81	2003	4	59.4	2012	5	30	2012	5	6/24	177	2008	5	0
2004	4	79	2011	5	59.2	2006	5	29	2013	5	6/22	175	2012	5	0.4
2006	5	72	2007	5	58.6	2013	5	28	2007	5	6/21	173	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	2003	4	78
2013	4	122	2005	5	52.0	2009	4	34	2011	5	7/9	191	2007	5	35
2009	4	118	2010	4	51.7	2004	4	34	2010	4	7/4	187	2013	4	33
2008	5	114	2013	4	51.6	2011	5	33	2005	5	7/4	186	2011	5	26
2011	5	112	2011	5	51.6	2013	4	33	2009	4	6/30	183	**Avg.**	---	**26**
Avg.	---	**106**	2006	5	51.5	2003	4	32	**Avg.**	---	**6/30**	**183**	2010	4	24
2010	4	106	2012	4	51.4	2005	5	32	2004	4	6/29	181	2004	4	23
2005	5	103	**Avg.**	---	**51**	**Avg.**	---	**32**	2006	5	6/28	180	2005	5	21
2003	4	102	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	2007	5	6/23	175	2008	5	15
2007	5	99	2003	4	49.2	2007	5	27	2013	4	6/20	173	2009	4	13
2006	5	82	2007	5	49.2	2006	5	26	2003	4	6/20	172	2012	4	0.4

Table 4. Hard Winter Wheat Irrigated Nurseries, 3-Year Averages (2011-2013; 9 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Utah 100	128.3	60.1	98	6/5	38	9	12.9
Yellowstone	128.3	60.9	97	6/3	39	15	12.9
Norwest 553	126.9	60.7	97	6/4	34	4	12.9
Juniper	125.2	61.7	98	6/1	43	13	14.3
Manning	124.3	60.7	97	6/3	36	30	13.3
WB-Arrowhead	123.9	61.6	99	6/3	37	14	12.6
Promontory	123.4	61.6	96	6/3	37	18	12.5
Moreland	122.9	60.2	98	6/2	34	8	13.9
Golden Spike (W)	122.6	60.4	98	6/6	38	34	12.8
Greenville	121.3	59.7	97	6/3	33	10	13.2
Eddy	120.4	61.4	98	6/3	34	11	12.9
Whetstone	119.6	60.7	98	6/1	36	13	13.7
Average	123.9	60.8	98	6/3	37	15	13.2
LSD (α =.05)	7.0	0.7	2.6	1.0	1.7	9.9	0.6
CV%	11.7	2.3	5.5	1.3	9.5	136.0	5.2
Pr > F	0.0920	<.0001	0.5427	<.0001	<.0001	<.0001	<.0001

(W) = white

Table 5. Soft White Winter Wheat Irrigated Nurseries, 3-Year Averages (2011-2013; 9 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Bruneau	134.4	59.6	98	6/8	36	6	10.3
SY Ovation	133.7	59.6	99	6/5	36	3	10.7
WB-Junction	129.7	60.0	99	6/1	34	10	10.9
Stephens	126.5	58.3	99	6/5	35	12	10.8
UICF Brundage	125.9	58.1	98	6/6	33	2	11.1
WB 528	125.8	59.7	98	6/5	34	9	10.8
ORCF-102	125.6	59.0	99	6/7	37	6	10.9
Madsen	124.5	59.0	98	6/8	36	6	11.8
AP Badger	124.4	57.4	99	6/6	33	2	11.2
Skiles	124.3	59.7	95	6/6	34	2	11.4
Bitterroot	123.7	59.3	96	6/8	37	9	10.8
ORCF-101	121.1	58.7	96	6/6	35	1	11.8
Brundage 96	120.7	58.4	98	6/5	34	1	10.6
Brundage	119.4	60.3	96	6/2	34	1	10.9
WB 456	114.6	60.6	98	6/1	32	2	11.4
Average	125.0	59.2	98	6/5	35	5	11.0
LSD (α =.05)	6.8	0.6	4.0	0.7	0.8	5.1	0.8
CV%	11.3	2.2	8.7	1.0	4.9	224.1	7.9
Pr > F	<.0001	<.0001	0.7547	<.0001	<.0001	<.0001	0.0170

Table 6. Winter Barley Irrigated Nurseries, 3-Year Averages (2011-2013; 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	158.4	48.1	94	5/27	35	18	11.5	70.8	16.8	12.7
Sunstar Pride	155.3	47.7	94	6/7	35	22	10.7	53.1	19.5	27.4
Strider	152.8	47.2	94	5/26	34	29	12.3	75.7	13.7	10.7
Sprinter	151.8	46.7	97	5/27	35	20	12.2	73.5	13.1	13.5
Alba	146.8	48.7	97	5/27	36	26	12.2	81.2	11.5	7.4
Schuyler	145.6	48.7	98	5/30	38	23	12.0	55.5	23.5	21.2
UTWB9703-19	142.2	47.5	95	5/30	37	16	11.4	69.2	18.4	12.2
Maja	140.7	48.2	95	5/26	37	25	12.3	66.9	15.4	17.9
Charles	139.4	48.9	96	5/26	31	39	13.1	84.1	8.4	7.7
Endeavor	139.0	50.2	93	5/29	38	31	12.7	76.9	11.5	11.8
Kamiak	132.6	48.2	97	5/23	35	34	12.5	70.2	17.0	11.4
Mathias (OR76)	128.6	49.1	97	5/22	36	4	13.1	85.6	9.4	5.1
Streaker*	122.5	53.0	88	5/25	35	38	11.8	41.4	27.0	31.9
Average	142.7	48.6	95	5/27	35	25	12.1	69.5	15.8	14.7
LSD (a =.05)	13.7	1.0	4.0	1.2	1.4	12.2	0.6	10.1	5.6	8.6
CV%	16.9	3.5	7.5	1.4	6.8	85.6	4.4	12.6	30.5	51.1
Pr > F	<.0001	<.0001	0.0002	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001

* indicates hulless variety

Table 7. Hard Winter Wheat Dryland Nurseries 3-Year Averages (2011-2013; 6 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Utah 100	22.9	59.7	83	6/14	26	0	12.8
UI SRG	22.5	59.9	87	6/13	26	0	13.3
Lucin-CL	22.5	60.8	82	6/14	26	0	12.8
Deloris	22.3	60.5	81	6/16	25	0	12.8
Yellowstone	21.9	60.4	84	6/12	23	0	12.4
UICF Grace (W)	21.7	59.4	81	6/12	28	0	12.4
UI Silver (W)	20.9	61.8	80	6/15	23	0	12.4
Curlew	20.9	60.6	80	6/13	25	0	13.5
Juniper	20.7	60.6	81	6/14	28	0	13.0
Greenville	20.7	59.2	80	6/10	20	0	12.6
Weston	20.2	60.9	79	6/13	27	0	13.2
Golden Spike (W)	20.0	60.1	83	6/15	23	0	12.4
UI LHS (W)	19.3	59.4	82	6/16	22	0	12.5
Promontory	17.7	60.4	85	6/13	23	0	12.9
Norwest 553	17.2	60.3	71	6/14	20	0	12.9
Average	20.8	60.3	81	6/14	24	0	12.8
LSD (α =.05)	2.4	0.6	5.8	0.9	1.1	0.0	1.0
CV%	20.1	1.8	12.4	1.0	7.9	.	6.7
Pr > F	<.0001	<.0001	0.0004	<.0001	<.0001	.	0.3393

(W) = white

Table 8. Soft White Winter Wheat Dryland Nurseries, 3-Year Averages (2011-2013; 3 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Bitterroot	16.9	59.9	75	6/25	20	0	13.7
Bruneau	16.8	58.4	69	6/24	20	0	12.1
ORCF-102	15.9	59.1	66	6/24	20	0	13.1
UICF Brundage	15.1	57.0	71	6/23	19	0	12.5
WB 528	15.0	59.0	71	6/23	19	0	12.9
Madsen	14.8	57.2	68	6/24	19	0	13.6
ORCF-101	14.5	57.4	63	6/24	19	0	13.1
Skiles	14.4	58.2	62	6/24	18	0	13.6
Brundage 96	13.6	56.3	76	6/23	19	0	12.4
Stephens	12.8	58.3	75	6/23	20	0	13.6
Brundage	12.6	58.8	70	6/20	19	0	11.8
Average	14.8	58.2	70	6/23	19	0	12.9
LSD (α =.05)	2.8	1.3	11.2	1.2	1.5	0.0	1.5
CV%	23.5	2.7	19.8	0.8	9.7	.	7.0
Pr > F	0.0373	<.0001	0.1685	<.0001	0.3254	.	0.1680

Table 9. Hard Spring Wheat Irrigated Nurseries, 3-Year Averages (2011-2013; 12 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Dayn (W)	110.2	61.0	99	6/26	32	0	13.6
Alzada (D)	100.2	61.3	99	6/25	30	5	14.3
Bullseye	99.9	61.9	99	6/26	29	4	14.4
Kelse	99.7	60.9	99	6/26	33	0	14.7
Choteau	99.6	61.0	99	6/28	33	1	14.6
WB-Idamax (W)	98.6	60.3	96	6/26	30	1	14.1
Volt	98.5	62.1	99	6/29	32	0	13.9
Jefferson	98.0	60.9	99	6/26	32	5	14.3
UI Winchester	96.1	61.1	99	6/26	31	5	14.0
Cabernet	95.9	61.1	99	6/26	27	1	13.7
WB-Paloma (W)	95.2	61.0	99	6/25	29	0	14.5
Blanca Grande (W)	94.5	62.3	99	6/23	28	0	13.8
Snow Crest (W)	90.7	60.9	99	6/23	27	1	14.5
Klasic (W)	90.0	60.9	99	6/23	24	2	14.3
WB-Rockland	85.3	60.9	99	6/26	26	0	15.3
Westbred 936	82.8	57.7	99	6/25	29	0	14.5
Average	95.9	61.0	99	6/25	30	2	14.3
LSD (α =.05)	3.6	0.4	1.6	0.4	0.8	3.4	0.5
CV%	9.2	1.6	3.9	0.5	6.3	530.0	4.0
Pr>F	<.0001	<.0001	0.0016	<.0001	<.0001	0.0034	<.0001

(W) = white

(D) = durum

Table 10. Soft White Spring Wheat Irrigated Nurseries, 3-Year Averages (2011-2013; 12 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
UI Stone	113.0	60.9	99	6/26	33	3	10.9
Alpowa	109.8	60.7	99	6/29	35	2	11.2
Babe	108.9	61.2	100	6/27	34	5	11.1
Alturas	108.3	60.5	99	6/27	33	2	10.7
UI Pettit	104.7	60.8	99	6/24	30	0	10.8
Penawawa	103.3	60.3	99	6/28	34	4	11.6
Cataldo	96.8	60.3	98	6/25	32	0	11.3
Average	106.4	60.7	99	6/27	33	2	11.1
LSD (α =.05)	3.7	0.3	1.0	0.3	0.7	3.9	0.3
CV %	8.5	1.4	2.4	0.5	5.5	424.7	3.7
Pr > F	<.0001	<.0001	0.0089	<.0001	<.0001	0.1725	<.0001

Table 11. 6-Row Spring Barley Irrigated Nurseries, 3-Year Averages (2011-2013; 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										
Goldeneye	141.4	51.1	99	6/24	35	20	13.0	85.7	9.2	5.2
UT2120-35	140.8	49.8	99	6/22	32	26	12.6	83.6	10.8	5.7
Millennium	139.3	49.4	99	6/22	36	12	12.3	71.1	18.0	11.0
Herald	131.3	49.1	98	6/24	36	20	11.8	82.6	11.3	6.3
Steptoe	128.5	48.3	99	6/24	35	38	11.8	81.6	11.1	7.4
Malt										
01Ab9663	128.2	50.4	99	6/25	39	34	11.4	85.2	8.7	6.1
Legacy	127.8	50.3	99	6/25	36	36	12.7	86.1	9.0	5.0
Tradition	124.5	51.1	99	6/25	37	29	12.8	90.1	7.1	3.0
Celebration	117.2	50.0	98	6/25	36	44	13.7	86.2	9.1	5.0
Morex	112.1	49.4	98	6/26	37	48	12.5	73.8	15.7	10.6
Average	129.1	49.9	99	6/24	36	31	12.5	82.6	11.0	6.5
LSD (α =.05)	5.8	0.5	0.7	0.5	0.9	8.0	0.6	3.9	2.0	2.2
CV%	11.2	2.3	1.7	0.7	6.5	64.9	6.1	5.9	22.7	41.6
Pr > F	<.0001	<.0001	0.0003	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001

Table 12. 2-Row Spring Malt Barley Irrigated Nurseries, 3-Year Averages (2011-2013; 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
ABI Voyager	132.6	51.7	98	6/27	33	26	12.1	93.0	4.2	3.1
Pinnacle	131.2	53.4	98	6/25	34	14	12.8	95.5	2.7	1.6
Baronesse (SB2 check)	131.0	51.9	99	6/27	31	34	11.2	86.1	8.3	5.6
Moravian 69	127.8	49.3	100	6/26	28	40	12.3	76.8	14.5	9.0
Copeland	126.3	51.7	99	6/29	35	28	12.6	90.6	6.0	3.4
Conrad	126.2	51.9	99	6/28	31	37	12.3	90.1	6.4	4.0
Idagold II (SB2 check)	126.2	50.4	99	6/29	28	16	12.2	75.3	15.3	9.3
2Ab04-X001084-27	124.7	50.0	99	6/27	30	44	12.1	84.4	8.9	6.5
Hockett	120.4	52.4	99	6/26	32	46	12.9	87.3	7.3	5.5
Merit 57	119.8	50.2	98	6/28	33	41	12.9	80.7	11.4	7.8
B1202	116.9	51.3	99	6/27	32	36	12.3	87.9	7.5	4.5
Metcalfe	116.3	51.8	99	6/27	35	43	12.8	87.2	7.2	5.8
Merit	116.1	49.9	99	6/30	34	35	12.7	78.5	10.9	10.6
Moravian 115	114.3	47.8	100	6/27	27	48	12.7	83.2	10.9	6.2
02Ab17271	113.6	50.6	99	7/1	34	35	13.1	81.3	10.2	8.2
Harrington	106.3	50.9	98	6/29	33	51	13.0	76.8	14.1	9.0
Average	121.9	51.0	99	6/28	32	36	12.5	84.7	9.1	6.3
LSD (α =.05)	5.5	0.5	1.5	0.5	1.0	8.7	0.5	4.5	2.2	2.7
CV%	11.1	2.7	3.7	0.6	7.8	59.9	5.2	6.5	30.4	52.8
Pr > F	<.0001	<.0001	0.3097	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001

Table 13. 2-Row Spring Feed Barley Irrigated Nurseries, 3-Year Averages (2011-2013; 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
Xena	145.2	52.6	98	6/26	33	28	12.6	90.3	5.9	3.9
Champion	144.8	53.4	99	6/26	33	19	13.4	91.5	5.3	3.2
Spaulding	143.5	53.6	99	6/27	33	19	13.0	87.3	7.6	5.1
Lenetah	136.9	52.6	98	6/27	34	29	13.4	91.4	5.1	3.6
08ID2661	136.4	51.8	99	6/30	33	25	11.9	84.5	10.6	4.7
Tetonia	134.4	52.3	99	6/29	32	32	12.5	83.1	9.9	7.2
RWA 1758	132.5	52.8	99	6/27	30	26	12.3	89.4	6.5	4.1
Herald	130.8	49.2	97	6/24	36	17	12.8	82.7	11.4	6.0
Idagold II	129.9	50.8	99	6/29	28	14	13.1	80.2	13.0	6.8
Baronesse	129.7	52.1	99	6/27	31	30	11.9	86.7	8.5	4.9
08ID1549*	119.6	58.9	95	6/29	33	29	14.0	73.6	17.6	8.4
CDC McGwire*	115.4	58.7	97	6/29	34	33	13.3	62.2	24.1	13.7
Julie*	112.9	57.7	97	7/2	33	20	15.1	81.0	12.1	6.5
Clearwater*	104.3	57.4	97	6/28	33	36	14.7	68.8	19.5	11.7
Transit*	97.0	56.9	98	6/29	34	20	14.9	77.8	15.8	6.3
CDC Fibar*	86.2	57.3	97	6/28	35	56	15.8	77.5	15.2	7.4
Average	125.0	54.3	98	6/28	33	27	13.4	81.7	11.7	6.5
LSD (α =.05)	5.6	0.5	1.1	0.4	1.0	8.4	0.7	4.9	2.8	2.5
CV%	11.2	2.4	2.7	0.6	7.8	77.9	6.6	7.4	30.0	47.1
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 (2011-2013; 3 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Kelse	45.3	60.5	82	7/7	24	0	15.0
Klasic (W)	43.6	60.1	90	7/5	17	0	13.9
UI Winchester	43.3	60.4	89	7/8	21	0	14.3
Dayn (W)	43.0	59.6	85	7/7	24	0	13.6
Blanca Grande (W)	42.9	61.1	86	7/6	20	0	14.6
Jefferson	41.3	60.8	90	7/7	23	0	14.6
Choteau	40.5	58.9	89	7/8	22	0	14.8
Westbred 936	39.2	59.7	90	7/8	22	0	15.0
Volt	37.6	60.7	88	7/11	23	0	13.6
Average	41.8	60.2	88	7/7	22	0	14.4
LSD (α =.05)	4.9	0.8	5.3	0.8	1.4	0.0	0.8
CV%	14.4	1.6	7.5	0.5	7.8	.	3.0
Pr>F	0.0711	<.0001	0.0408	<.0001	<.0001	.	0.003

(W) = white

Table 15. Soft White Spring Wheat Dryland Nurseries, 3-Year Averages (2011-2013; 3 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
UI Stone	50.7	61.1	88	7/7	24	0	11.7
Alturas	49.7	59.8	90	7/9	22	0	11.5
Penawawa	46.1	59.7	88	7/9	22	0	12.4
Cataldo	46.1	59.9	88	7/6	22	0	12.1
Alpowa	44.8	60.2	90	7/10	24	0	12.8
Babe	44.3	60.2	80	7/9	24	0	12.5
UI Pettit	44.2	60.2	82	7/5	21	0	12.2
Average	46.6	60.2	87	7/8	23	0	12.2
LSD (α =.05)	5.0	1.1	8.7	0.5	1.4	0.0	0.9
CV%	13.1	2.3	12.3	0.3	7.6	.	4.0
Pr > F	0.0545	0.2321	0.1527	<.0001	0.0006	.	0.0715

Table 16. Irrigated Hard Winter Wheat Data Combined from Kimberly, Rupert, and Aberdeen, 2013.

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in)	Lodging (%)	Protein (%)
Keldin	127.4	62.0	99	5/31	36	23	14.2
Norwest 553	124.6	61.0	100	6/1	33	0	13.7
OR208229H (W)	123.7	61.5	100	6/3	37	26	13.4
Yellowstone	122.1	60.9	98	5/31	39	5	14.3
Utah 100	120.1	59.5	96	6/4	43	8	14.2
OR2080227H (W)	119.9	59.7	100	6/1	36	25	13.2
NSA06-4663	119.5	57.1	98	5/30	31	16	13.6
IDO1101 (W)	119.2	62.0	100	6/1	35	25	14.6
WB-Arrowhead	119.0	62.1	100	6/1	39	20	13.5
DAS001	115.5	61.3	99	5/29	38	10	14.4
Whetstone	111.9	60.7	97	5/27	37	15	15.1
IDO1102	110.6	61.3	97	6/3	38	42	15.2
Promontory	110.2	60.6	98	5/31	38	27	14.1
OR2080236H (W)	108.0	57.7	100	6/5	34	17	15.5
LCS Azimut	106.7	55.3	97	5/30	30	7	14.3
Eddy	106.5	62.5	100	5/30	35	16	13.7
Moreland	105.3	58.9	98	5/31	35	4	15.1
Judee	105.1	61.9	100	5/31	36	24	15.4
Greenville	102.4	57.8	100	6/1	32	23	15.0
Juniper	100.8	62.0	98	6/3	49	23	15.3
DAS002	99.6	61.2	96	5/31	37	14	14.9
IDO1103	98.5	61.0	100	6/2	38	30	15.1
Manning	97.5	60.4	96	6/2	37	48	14.3
Golden Spike (W)	94.7	59.5	99	6/4	38	38	14.3
Average	111.2	60.3	98	6/1	37	20	14.4
LSD (α = .05)	13.3	1.3	4.9	1.2	1.9	18.2	1.1
CV%	14.9	2.6	6.2	1.0	6.4	112.2	4.6
Pr >F	<.0001	<.0001	0.8783	<.0001	<.0001	<.0001	0.0002

Table 17. Irrigated Soft White Winter Wheat Data Combined from Kimberly, Rupert, and Aberdeen, 2013.

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in)	Lodging (%)	Protein (%)
Bobtail	124.7	56.1	99	6/2	34	0	12.4
LWW04-4009	121.0	59.4	99	6/6	35	14	12.5
Bruneau	120.8	58.9	99	6/4	38	6	11.5
OR2080924	118.9	56.9	100	6/3	36	4	12.1
03-29902A	118.0	59.1	100	6/3	37	0	13.3
02-10606A	117.6	58.8	100	6/4	36	13	11.7
UICF Brundage	115.8	57.5	99	6/2	33	0	12.1
LCS Artdeco	115.2	56.3	100	5/31	35	1	11.1
Skiles	113.3	58.8	99	6/4	36	2	13.8
99-06202A	112.7	58.2	99	6/3	37	9	9.5
WB 528	112.5	59.2	97	6/1	35	11	11.8
Kaseberg	111.4	57.3	99	6/2	35	3	12.0
Rosalyn	111.0	56.4	99	6/3	33	1	11.5
Madsen	110.8	58.6	100	6/4	36	7	13.2
WB-Junction	110.3	59.0	100	5/28	35	0	12.3
Stephens	109.8	56.4	99	6/1	35	7	12.2
ORCF-102	109.7	58.0	99	6/4	38	6	12.7
SY Ovation	109.3	58.8	99	6/1	36	2	12.0
WBEXP-436	108.5	60.0	100	5/30	34	3	12.4
AP Badger	108.1	57.0	100	6/2	33	4	12.8
WBEXP-458	107.6	58.1	99	5/29	33	4	12.2
IDO1108	107.1	56.8	99	6/4	38	6	12.2
Bitterroot	107.1	58.9	99	6/4	37	2	12.7
ORCF-101	105.9	57.8	100	6/2	35	0	13.7
Brundage	105.8	59.9	100	5/29	34	0	12.1
Ladd	104.8	59.2	100	6/4	33	5	13.1
Mary	104.7	57.8	99	5/31	32	0	13.5
WBEXP-427	104.6	59.4	99	5/30	33	0	13.7
Eltan	102.7	57.3	100	6/5	37	13	13.2
AP700 CL	102.4	57.7	100	6/2	38	2	12.6
ARS970230-6C*	102.4	56.3	99	6/5	34	1	14.0
LWW10-1018	101.7	56.2	99	6/5	34	9	13.0
Brundage 96	101.7	57.5	98	6/2	35	0	12.4
WB-1070CL	101.0	60.1	100	5/28	33	10	12.7
Cara*	99.0	55.6	98	6/6	36	3	14.0
WB 456	96.5	59.3	99	5/29	33	0	12.9
Average	109.3	58.0	99	6/2	35	4	12.5
LSD ($\alpha = .05$)	13.1	1.4	1.6	1.2	1.5	8.4	2.1
CV %	14.9	2.9	2.1	1.0	5.3	255.2	10.3
Pr > F	0.0009	<.0001	<.0001	<.0001	<.0001	0.0016	0.0950

* indicates club wheat variety

Table 18. Irrigated Winter Barley Data Combined from Rupert and Aberdeen 2013.

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand	Heading Date	Height (in)	Lodging (%)	Protein (%)	Plump (>6/64)	Plump (>5.5/64)	% Thin
UT9401-19	142.8	48.0	98	5/19	36	26	12.4	68.7	14.9	16.4
6Ab08-X03W047-28	139.7	43.5	89	5/23	33	28	11.9	53.6	23.6	22.7
Eight-Twelve	133.6	46.8	90	5/20	35	42	11.7	51.0	24.3	24.6
2Ab08-X05W061-42	129.9	47.3	95	5/22	31	51	14.1	73.5	15.4	11.3
Maja	128.7	46.0	95	5/19	35	53	12.0	44.9	25.4	29.7
02Ab2732	128.2	45.6	89	5/26	37	26	11.9	62.8	23.3	13.7
UTWB9703-19	127.5	46.1	94	5/23	36	13	12.0	58.3	23.3	18.2
02Ab671	124.6	47.9	94	5/24	33	49	13.9	72.5	16.2	11.8
Charles	123.9	46.6	95	5/22	29	53	14.1	76.4	13.3	10.2
02Ab669	122.9	48.7	89	5/23	34	45	13.4	68.7	17.7	12.9
Strider	121.9	46.3	90	5/20	33	49	12.7	68.5	17.0	14.6
09OR-55	119.3	45.0	92	5/17	26	66	13.4	58.7	21.4	19.9
02Ab431	113.4	49.1	94	5/23	32	72	14.3	85.1	5.9	9.4
Sunstar Pride	113.1	45.4	90	5/31	36	32	11.3	34.1	18.5	47.7
Sprinter	112.4	43.6	99	5/21	35	32	12.3	47.2	21.0	31.6
Schuyler	111.5	46.8	97	5/25	38	38	12.2	38.2	23.5	38.3
Mathias	110.8	48.2	97	5/18	34	11	13.1	75.1	15.2	9.5
Streaker*	110.7	51.1	86	5/20	36	78	12.0	24.4	27.7	48.2
Endeavor	110.2	47.1	95	5/23	37	41	13.2	57.3	18.4	24.4
Alba	109.9	46.6	98	5/22	35	61	12.4	66.4	17.6	15.8
Kamiak	109.6	46.6	98	5/17	34	55	12.4	53.2	22.5	19.2
Average	121.2	46.8	94	5/22	34	44	12.7	58.9	19.3	21.4
LSD (α = .05)	26.1	2.1	10.2	2.2	2.6	28.4	1.2	19.9	12.2	16.4
CV %	21.7	4.5	11.0	1.5	7.7	65.3	4.4	16.2	30.3	36.8
Pr > F	0.1874	<.0001	0.4033	<.0001	<.0001	<.0001	0.0004	0.0003	0.1941	0.0008

*indicates hulless variety

Table 19. Irrigated Hard Spring Wheat Data Combined from Rupert, Idaho Falls, Ashton, and Aberdeen, 2013.

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in)	Lodging (%)	Protein (%)
Dayn (W)	103.2	61.7	100	6/20	31	0	14.1
IDO 1202S	94.9	61.7	100	6/22	32	0	15.0
Bullseye	92.9	62.5	100	6/21	28	3	15.4
Volt	92.4	62.7	100	6/22	31	0	14.7
Choteau	92.4	61.4	100	6/22	32	4	15.2
WB9229	92.3	61.3	94	6/23	27	0	15.6
Kelse	92.0	61.7	100	6/20	31	0	15.4
IDO862T	89.3	61.9	100	6/20	32	0	15.4
IDO862E	89.0	62.5	94	6/18	31	0	15.3
SY40240R	88.6	58.9	100	6/23	27	0	14.0
WB-Idamax (W)	88.0	60.9	100	6/20	28	2	15.0
Jefferson	87.9	61.6	100	6/20	30	4	15.4
Glee (WA 8074)	87.9	61.9	100	6/18	30	3	15.1
WB9576	87.1	60.6	100	6/20	27	0	16.5
Cabernet	85.7	61.5	100	6/20	27	1	14.5
WB-Paloma (W)	84.0	61.6	100	6/19	29	0	15.2
IDO694C	83.7	61.7	100	6/18	28	0	14.3
UI Winchester	83.4	61.7	100	6/20	29	1	14.7
Blanca Grande (W)	83.1	62.5	100	6/18	27	0	15.1
Alzada (D)	82.6	61.0	100	6/19	29	8	15.5
Snow Crest (W)	79.8	61.5	100	6/18	26	3	15.3
Klasic (W)	78.4	61.5	100	6/18	23	0	15.0
WB-Rockland	77.4	61.2	100	6/21	26	0	16.5
Westbred 936	73.4	58.5	100	6/20	28	0	15.1
Average	87.0	61.4	99	6/20	29	1	15.1
LSD ($\alpha = .05$)	6.1	0.6	4.7	0.7	1.5	5	0.9
CV%	10.1	1.3	6.8	0.6	7.6	611.5	4.1
Pr > F	<.0001	<.0001	0.4867	<.0001	<.0001	0.2505	<.0001

(W) = white

(D) = durum

Table 20. Irrigated Soft White Spring Wheat Data Combined from Rupert, Idaho Falls, Ashton, and Aberdeen 2013.

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in)	Lodging (%)	Protein (%)
IDO 851	106.8	61.2	99	6/22	32	8	11.1
WBexp-125	105.0	61.9	100	6/20	28	1	11.6
UI Stone	103.7	62.1	100	6/20	31	1	11.7
WA 8162	103.6	61.2	99	6/24	33	14	12.3
IDO 854	103.5	61.9	100	6/22	35	0	12.0
IDO 852	103.5	62.5	100	6/19	31	0	11.4
WB6121	101.6	62.1	100	6/19	30	2	12.8
Alturas	100.7	61.2	100	6/22	31	6	11.1
UI Pettit	97.5	62.0	100	6/18	28	0	11.3
Penawawa	96.5	60.8	100	6/22	33	9	12.4
Alpowa	96.3	61.4	100	6/23	32	4	11.7
Babe	93.5	61.3	100	6/22	32	8	11.9
08SB0658-B	92.7	60.8	100	6/22	28	3	13.3
Cataldo	92.3	60.8	97	6/19	31	0	11.9
11SB0096	86.3	60.8	100	6/23	29	0	13.6
Average	98.9	61.5	100	6/21	31	4	12.0
LSD (α = .05)	7.0	0.6	2.0	0.7	1.5	8.1	0.7
CV%	10.1	1.3	2.9	0.6	6.8	309.4	4.2
Pr > F	<.0001	<.0001	0.4287	<.0001	<.0001	0.0078	<.0001

Table 21. Irrigated 6-Row Spring Barley Data Combined from Rupert, Idaho Falls, Ashton, and Aberdeen, 2013.

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										
UT2121-12	145.4	49.6	100	6/19	32	18	12.4	83.0	11.3	6.2
UT2120-35	138.3	49.1	100	6/18	30	20	12.2	82.2	12.0	6.0
Goldeneye	132.1	50.6	100	6/19	33	17	12.4	85.1	9.8	5.5
Millennium	129.9	48.7	100	6/18	34	8	11.5	68.1	20.6	11.4
Herald	124.4	48.7	100	6/19	34	21	11.9	82.1	12.1	6.3
Steptoe	123.8	48.4	100	6/19	33	28	11.4	83.6	10.3	6.2
Malt										
Legacy	126.9	50.4	100	6/19	34	25	12.4	88.9	7.8	3.6
Tradition	123.5	51.0	100	6/19	34	23	12.4	91.7	6.2	2.4
01Ab9663	118.7	50.2	99	6/20	36	29	10.8	86.3	9.2	5.5
Celebration	117.0	50.1	100	6/19	34	39	13.3	88.9	7.9	3.5
Morex	116.9	49.9	100	6/21	35	29	11.5	80.5	12.8	7.0
Quest	115.1	50.6	99	6/20	36	23	12.7	86.8	9.0	4.5
Average	126.0	49.8	100	6/19	34	23	12.1	83.9	10.7	5.7
LSD (α = .05)	9.8	0.5	0.7	0.6	1.7	10.0	0.6	5.4	3.0	2.8
CV%	11.1	1.5	1.0	0.5	7.1	61.5	3.7	4.5	19.6	34.2
Pr > F	<.0001	<.0001	0.1089	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001

Table 22. Irrigated 2-Row Spring Malt Barley Data Combined from Rupert, Idaho Falls, Ashton, and Aberdeen, 2013.

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in)	Lodging (%)	Protein (%)	Plumps (>6/64)	Plumps (>5.5/64)	% Thin
2Ab07-X031098-31	134.3	51.6	94	6/23	33	27	11.5	86.1	8.7	5.7
B0811	132.8	50.9	100	6/23	31	29	10.7	87.2	7.5	5.6
Baronesse (feed check)	129.4	51.7	100	6/23	31	31	9.4	86.6	8.3	5.3
ABI Voyager	127.1	51.2	97	6/23	33	21	10.7	93.4	4.2	2.8
2Ab08-X05M010-82	126.9	51.0	100	6/23	32	42	10.4	85.7	8.7	5.7
Moravian 69	126.7	49.3	100	6/26	27	37	10.5	74.9	16.0	9.5
Pinnacle	126.3	52.7	96	6/21	33	24	11.4	95.3	3.2	1.8
Moravian 143	125.8	48.5	100	6/25	28	29	11.3	89.0	7.4	4.0
Copeland	125.5	51.5	100	6/25	35	26	11.1	90.9	6.0	3.4
Odyssey	124.9	48.9	100	6/26	28	32	10.6	85.9	8.7	5.8
Genie	123.1	50.3	100	6/25	28	56	10.9	81.5	11.4	7.4
Merit	123.1	50.0	99	6/26	34	34	10.8	80.8	10.7	8.8
2Ab07-X04M219-46	122.4	48.8	100	6/26	31	30	11.2	80.8	11.7	7.7
Idagold II (feed check)	121.6	50.1	100	6/25	29	26	10.7	71.7	16.7	11.6
Conrad	120.3	51.3	100	6/23	30	47	10.8	88.1	7.7	5.4
2Ab04-X001084-27	118.9	49.6	100	6/23	30	35	10.5	83.6	8.9	7.5
Hockett	118.7	52.3	100	6/22	33	47	11.3	88.4	6.6	5.5
B1202	118.5	51.0	100	6/23	32	39	10.7	86.7	8.1	5.4
Moravian 115	117.3	48.5	100	6/25	27	45	10.9	87.8	8.0	4.7
Merit 57	116.6	50.3	100	6/23	33	36	11.0	81.0	10.9	8.3
LCS1820	116.0	49.4	100	6/27	29	46	10.7	84.6	9.5	6.3
Meredith	114.9	49.8	99	6/26	31	47	11.0	85.8	8.5	5.9
02Ab17271	113.4	50.2	100	6/27	33	36	11.4	80.0	11.8	8.4
Overture	112.6	46.5	100	6/27	30	56	11.5	80.5	10.6	9.3
Metcalfe	112.2	51.5	99	6/22	33	39	11.0	87.2	7.6	5.5
Harrington	108.6	50.4	97.438	6/25	32	49	11.3	76.3	14.6	9.5
Average	121.5	50.3	99	6/24	31	37	10.9	84.6	9.3	6.4
LSD (α = .05)	8.1	0.9	4.1	0.8	1.8	13.4	0.6	7.1	3.6	3.9
CV%	9.7	2.7	6.0	0.6	8.6	52.0	4.0	6.0	27.6	42.9
Pr > F	<.0001	<.0001	0.5981	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	0.0004

Table 23. Irrigated 2-Row Spring Feed Barley Data Combined from Rupert, Idaho Falls, Ashton, and Aberdeen, 2013.

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	144.0	53.1	100	6/21	32	21	13.4	91.4	5.8	3.2
Vespa	139.7	51.7	100	6/24	29	35	13.1	89.7	6.7	3.7
Spaulding	136.8	53.2	100	6/23	32	21	13.2	86.1	8.4	6.0
Lenetah	136.5	52.6	100	6/23	33	26	13.4	91.9	4.7	3.7
Xena	136.5	52.1	100	6/21	31	25	12.9	90.1	5.9	4.4
Herald	134.9	49.3	100	6/19	33	2	13.0	85.9	9.9	4.7
RWA 1758	133.6	52.4	100	6/23	30	31	12.0	89.7	6.4	4.2
Tetonia	132.1	52.1	100	6/25	32	27	12.3	83.5	9.7	7.2
08ID2661	127.3	51.2	100	6/26	32	28	11.8	85.0	10.7	4.4
Idagold II	125.2	51.2	100	6/25	26	15	13.2	81.8	12.6	6.0
Baronesse	124.0	51.4	100	6/23	30	28	11.8	86.9	8.1	5.3
2Ab09-X06F084-51	123.7	50.9	99	6/26	33	27	13.5	86.1	9.1	5.2
CDC McGwire*	117.5	58.4	99	6/24	32	26	12.6	63.8	22.9	13.8
Julie*	116.0	58.7	100	6/26	31	20	15.5	85.6	10.6	4.0
08ID1549*	113.8	58.9	99	6/25	32	26	14.4	68.5	21.7	9.9
Clearwater*	101.7	57.1	99	6/24	32	35	15.1	65.3	21.4	13.8
2Ab09-X06F058HL-31*	100.2	58.8	99	6/24	31	38	15.6	83.2	10.3	7.0
Transit*	99.9	57.4	100	6/24	33	17	15.3	79.8	14.7	6.1
2Ab09-X06F052HL-39*	95.2	59.4	99	6/25	30	23	16.1	77.6	15.0	7.9
2Ab09-X06F058HL-21*	91.0	58.7	92	6/25	32	31	15.7	85.7	9.2	5.5
CDC Fibar*	85.7	58.4	100	6/24	34	53	16.3	79.8	13.7	6.9
Average	119.8	54.6	99	6/24	31	26	13.8	82.7	11.3	6.3
LSD (α = .05)	9.1	0.7	2.0	0.7	2.1	12.5	0.9	9.5	5.2	4.8
CV%	10.9	1.8	2.8	0.5	9.4	68.1	4.9	8.1	32.3	53.3
Pr > F	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	0.0004

* indicates hulless variety

Table 24. Agronomic data for winter wheat at Kimberly, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand%**	**Date**	**(in.)**	**(%)**	**(%)**
Hard Winter Wheat									
Norwest 553	131.8	154.3	136.1	62.5	99	5/28	33	0	12.7
Promontory	133.6	153.9	129.2	63.2	98	5/27	38	8	13.1
Keldin	---	172.4	125.2	62.8	98	5/28	36	13	14.1
OR208229H (W)	---	---	120.2	62.6	100	6/1	35	10	12.9
WB-Arrowhead	137.2	153.2	119.4	63.8	100	5/29	38	0	12.8
NSA06-4663	---	---	116.5	59.5	93	5/27	29	13	13.3
Yellowstone	128.9	164.4	116.5	62.0	93	5/29	39	1	14.4
Utah 100	120.2	164.1	116.2	60.6	88	6/2	42	0	14.3
IDO1102	---	---	114.7	62.9	91	6/1	36	36	14.9
OR2080227H (W)	---	---	114.7	60.0	100	5/29	36	22	13.5
OR2080236H (W)	---	---	111.8	58.5	99	6/4	35	20	15.8
DAS001	---	---	110.0	62.1	98	5/26	37	13	13.6
Moreland	123.1	161.2	107.8	60.8	99	5/30	35	13	15.2
LCS Azimut	---	139.8	106.7	58.5	99	5/26	28	0	13.4
IDO1101 (W)	---	---	103.8	62.7	99	5/29	34	39	15.2
Juniper	---	147.0	103.5	63.0	93	6/1	48	21	15.4
DAS002	---	---	99.5	62.2	88	5/29	36	0	14.7
Judee	---	152.5	99.5	62.6	100	5/29	35	18	15.8
Whetstone	126.3	161.5	96.9	62.1	93	5/24	36	8	15.2
Eddy	110.0	151.4	96.2	63.3	99	5/28	34	8	13.6
Golden Spike (W)	116.2	135.8	96.2	61.1	97	6/1	38	30	13.8
Greenville	119.1	152.5	95.1	59.9	99	5/30	31	3	14.6
IDO1103	---	---	92.9	62.6	100	5/31	37	23	15.3
Manning	114.0	151.4	90.0	62.1	87	6/1	37	44	14.4
Average	117.2	152.4	109.1	61.7	96	5/29	36	14	14.2
LSD (α=.05)	16.6	14.1	24.3	1.7	14.3	2.4	3.9	32.7	
CV %	9.9	6.5	15.8	1.9	10.5	1.1	7.7	164.7	
Pr > F	<.0001	<.0001	0.0	<.0001	0.7908	<.0001	<.0001	0.2184	

(W) = White

Table 25. Agronomic data for winter wheat at Rupert, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand%**	**Date**	**(in.)**	**(%)**	**(%)**
Hard Winter Wheat									
OR2080227H (W)	---	---	117.3	59.5	100	6/2	35	0	13.1
IDO1101 (W)	---	---	116.5	62.3	100	6/2	33	0	14.1
Keldin	---	129.2	113.6	61.9	100	6/1	34	5	14.2
OR208229H (W)	---	---	112.9	60.7	100	6/5	36	0	13.8
Whetstone	93.3	119.1	112.2	60.3	99	5/26	36	0	15.0
Utah 100	106.4	128.5	104.9	59.1	100	6/4	38	0	14.0
DAS001	---	---	97.7	60.6	100	5/31	35	8	14.8
Eddy	96.6	113.3	94.7	61.6	100	6/1	33	0	14.1
DAS002	---	---	93.3	60.7	100	6/2	34	3	15.6
Judee	---	127.1	93.3	61.4	100	6/1	35	0	14.2
Yellowstone	102.0	121.2	92.6	59.9	100	6/2	39	0	15.5
WB-Arrowhead	99.1	123.8	91.8	61.4	100	6/3	37	1	13.8
IDO1103	---	---	89.3	59.7	100	6/3	36	8	15.1
Norwest 553	94.7	117.6	88.6	59.5	100	6/4	31	0	14.6
Juniper	---	108.5	87.9	61.8	100	6/4	48	1	15.7
NSA06-4663	---	---	84.9	53.6	100	6/2	29	0	14.8
IDO1102	---	---	83.1	60.1	100	6/4	37	15	15.2
Golden Spike (W)	110.7	124.1	82.0	58.5	99	6/5	35	26	14.8
Manning	106.7	107.4	78.8	58.9	100	6/3	37	31	14.6
Promontory	103.8	110.7	78.4	58.9	98	6/3	35	1	15.4
OR2080236H (W)	---	---	78.1	57.1	100	6/6	32	0	15.4
Greenville	111.4	118.3	77.0	54.9	100	6/2	29	0	14.8
LCS Azimut	---	109.6	74.1	52.8	93	6/1	27	0	15.9
Moreland	93.7	124.5	66.1	55.9	95	6/2	32	0	16.1
Average	95.7	117.0	92.0	59.2	99	6/2	35	4	14.8
LSD (α=.05)	15.6	19.4	24.3	2.9	4.0	1.7	2.4	16	
CV %	11.5	11.8	18.7	3.5	2.9	0.8	5.0	276.1	
Pr > F	<.0001	0.0979	0.0005	<.0001	0.1136	<.0001	<.0001	0.0054	

(W) = White

Table 26. Agronomic data for winter wheat at Aberdeen, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**
Hard Winter Wheat									
Yellowstone	156.9	172.5	157.3	60.9	100	5/31	38	14	13.2
NSA06-4663	---	---	156.9	58.3	100	5/31	34	34	12.9
Norwest 553	148.3	155.7	149.1	61.0	100	6/1	35	1	13.8
WB-Arrowhead	140.5	151.5	145.6	61.1	99	6/2	41	58	14.1
Keldin	---	153.0	143.3	61.2	100	6/1	37	53	14.5
Moreland	121.0	151.1	142.1	59.9	100	6/1	38	0	14.1
LCS Azimut	---	146.4	139.4	54.6	100	5/31	34	21	13.5
Utah 100	152.2	157.3	139.4	58.9	100	6/6	48	25	14.4
DAS001	---	---	139.0	61.2	100	5/31	41	10	14.8
OR208229H (W)	---	---	138.2	61.3	100	6/4	38	68	13.3
IDO1101 (W)	---	---	137.4	61.1	100	6/3	37	35	14.5
Greenville	161.6	133.9	135.1	58.6	100	6/3	36	65	15.5
OR2080236H (W)	---	---	134.3	57.7	100	6/6	36	30	15.4
IDO1102	---	---	133.9	60.9	100	6/4	40	73	15.6
Eddy	116.3	150.3	128.4	62.5	100	5/31	39	41	13.5
OR2080227H (W)	---	---	127.6	59.6	100	6/2	38	53	12.9
Whetstone	137.4	132.3	126.5	59.7	100	5/30	38	38	15.0
Manning	129.6	163.9	123.7	60.1	100	6/2	37	70	13.8
Promontory	135.1	156.5	123.0	59.8	100	6/2	41	73	13.9
Judee	---	162.8	122.6	61.7	100	6/2	37	54	16.4
IDO1103	---	---	113.2	60.6	100	6/4	41	59	14.9
Juniper	121.8	146.8	111.2	61.2	100	6/3	53	48	14.8
DAS002	---	---	106.2	60.6	100	6/2	41	40	14.5
Golden Spike (W)	131.1	153.4	105.8	58.8	100	6/5	41	59	14.2
Average	128.0	152.2	132.4	60.0	100	6/2	39	42	14.3
LSD (α=.05)	---	20.1	21.2	1.8	0.7	2.1	3.4	41.7	
CV %	11.1	9.4	11.3	2.2	0.5	1.0	6.1	69.7	
Pr > F	<.0001	0.0028	<.0001	<.0001	0.2837	<.0001	<.0001	0.0050	

(W) = White

Table 27. Agronomic data for winter wheat at Ririe, dryland, 2013.

Variety	Yield (bu/A) 2011	2012	2013	Test Wt. (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Hard Winter Wheat									
UICF Grace (W)	13.8	17.1	23.2	58.5	95	6/15	26	0	15.6
WB-Arrowhead	---	18.2	20.0	60.5	97	6/16	23	0	14.9
Weston	11.3	17.1	18.9	60.5	100	6/17	23	0	15.0
Utah 100	13.8	18.9	18.2	59.0	98	6/14	24	0	14.9
Curlew	18.5	17.1	18.2	60.0	98	6/14	23	0	15.2
IDO816	---	18.9	17.8	60.5	99	6/17	22	0	14.6
UI SRG	10.9	19.2	17.8	60.0	99	6/15	24	0	15.2
DAS002	---	---	17.4	59.0	99	6/16	19	0	14.4
Yellowstone	11.3	23.6	17.4	60.5	98	6/17	20	0	13.8
Manning	---	---	16.7	59.5	99	6/16	19	0	14.4
Bearpaw	---	20.3	16.7	60.0	97	6/16	18	0	14.2
Juniper	11.6	17.8	16.3	60.0	99	6/17	24	0	15.0
IDO1103	---	---	16.0	59.5	97	6/14	18	0	15.1
Deloris	12.3	17.4	15.6	60.0	97	6/21	22	0	15.7
Judee	---	20.3	14.9	60.0	97	6/17	20	0	15.3
Keldin	---	21.4	14.5	59.5	96	6/15	20	0	13.9
Norwest 553	13.1	6.5	14.5	59.5	94	6/21	19	0	16.0
OR2080227H (W)	---	---	14.5	58.0	80	6/19	21	0	13.3
Golden Spike (W)	12.3	19.6	14.2	59.5	97	6/20	20	0	14.4
Promontory	9.8	20.0	14.2	60.0	97	6/16	21	0	13.8
DAS001	---	---	13.8	56.5	100	6/14	19	0	13.0
Moreland	---	---	13.8	59.5	95	6/15	17	0	14.9
Lucin-CL	15.2	18.9	13.4	60.0	95	6/20	23	0	15.9
UI Silver (W)	9.4	21.8	13.4	61.0	89	6/19	20	0	14.3
AP503CL2	---	20.3	13.1	60.0	96	6/13	18	0	14.6
OR208229H (W)	---	---	12.7	60.0	93	6/21	19	0	13.3
UI LHS (W)	12.7	16.7	12.7	59.5	99	6/21	18	0	13.4
IDO1102	---	---	12.3	60.0	99	6/16	18	0	14.0
OR2080236H (W)	---	---	12.3	58.5	96	6/21	17	0	12.6
Greenville	---	19.6	10.9	59.5	97	6/17	16	0	13.8
Average	12.4	18.0	15.5	59.6	96	6/17	20	0	14.5
LSD (α=.05)	4.7	6.3	6.1	1.7	9.4	2.9	2.3	0.0	
CV %	26.8	25.0	27.9	2.1	6.9	1.2	8.0	.	
Pr > F	0.0314	0.0121	0.0602	0.0067	0.1748	<.0001	<.0001	.	

(W) = White

Table 28. Agronomic data for winter wheat at Rockland, dryland, 2013.

Variety	Yield (bu/A) 2011	2012	2013	Test Wt. (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Hard Winter Wheat									
UI SRG	31.4	30.3	25.5	62.7	88	6/1	29	0	12.1
Deloris	27.8	37.0	23.7	62.2	79	6/3	27	0	11.0
Utah 100	31.4	31.6	23.6	62.0	84	6/2	29	0	10.8
Keldin	---	38.4	22.8	62.2	85	5/31	24	0	12.3
Lucin-CL	29.3	35.7	22.4	61.8	88	6/2	27	0	10.5
UI Silver (W)	29.1	29.8	21.7	63.9	86	6/2	24	0	11.9
IDO816	---	34.9	21.5	61.8	85	6/4	26	0	10.4
UICF Grace (W)	25.4	34.1	21.2	61.7	89	6/1	30	0	10.0
Golden Spike (W)	23.1	30.0	20.6	62.5	88	6/3	24	0	10.9
Promontory	22.3	19.6	20.4	63.1	83	5/31	27	0	12.7
IDO1103	---	---	20.2	62.3	85	6/2	22	0	12.9
Juniper	26.1	32.8	19.5	63.1	91	6/2	29	0	12.7
UI LHS (W)	28.2	26.1	19.5	61.8	74	6/5	24	0	10.0
Judee	---	29.8	19.3	63.9	81	5/31	24	0	12.2
Greenville	26.5	27.6	18.9	62.2	75	6/1	23	0	12.3
Norwest 553	24.5	26.1	18.4	62.8	90	5/31	22	0	11.7
Weston	29.4	26.2	18.2	63.2	86	5/31	30	0	10.9
IDO1102	---	---	18.0	61.6	86	6/2	23	0	11.2
DAS001	---	---	17.4	60.7	85	5/29	21	0	11.1
DAS002	---	---	16.6	61.2	79	5/31	24	0	12.4
WB-Arrowhead	---	25.7	16.3	62.0	85	6/1	25	0	11.2
Moreland	---	---	16.1	59.1	79	5/31	22	0	11.0
Manning	---	---	16.0	61.7	88	5/31	26	0	12.1
Yellowstone	28.9	34.6	15.7	62.3	88	5/31	26	0	11.6
Bearpaw	---	25.6	14.4	61.9	86	5/30	21	0	13.2
AP503CL2	---	31.7	12.2	61.9	83	5/29	23	0	14.6
OR208229H (W)	---	---	11.0	61.5	89	6/2	26	0	12.4
Curlew	29.1	31.6	10.7	61.3	86	6/1	26	0	13.8
OR2080236H (W)	---	---	7.9	59.3	84	6/4	21	0	13.2
OR2080227H (W)	---	---	3.8	59.8	93	5/30	23	0	14.5
Average	26.6	29.9	17.8	61.9	85	6/1	25	0	11.9
LSD (a=.05)	5.5	7.6	5.3	1.5	12.2	1.5	2.3	0	
CV %	14.7	18.1	21.0	1.7	10.3	0.7	6.5	.	
Pr >F	0.0117	<.0001	<.0001	<.0001	0.4523	<.0001	<.0001	.	

(W) = White

Table 29. Agronomic data for winter wheat at Kimberly, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand%**	**Date**	**(in.)**	**(%)**	**(%)**
Soft White Winter Wheat									
Stephens	129.6	163.0	133.2	59.7	100	5/28	36	0	11.6
LCS Artdeco	---	---	126.3	59.8	100	5/26	35	0	10.0
Bobtail	---	159.7	126.0	58.0	100	5/30	35	0	12.0
OR2080924	---	---	125.6	58.9	100	6/2	37	0	12.2
UICF Brundage	110.4	159.4	124.2	58.6	99	5/31	33	0	11.5
ORCF-102	126.3	157.5	122.3	60.2	99	6/1	39	0	12.7
LWW04-4009	---	178.6	119.1	62.0	99	6/4	34	1	13.9
Bruneau	149.2	160.8	117.6	60.6	99	6/2	36	0	11.3
03-29902A	---	---	117.3	61.8	100	5/31	37	0	12.1
02-10606A	---	---	115.4	60.4	100	6/3	36	19	12.1
Kaseberg	---	169.5	114.7	60.1	98	5/30	34	0	11.7
Skiles	134.3	149.2	113.7	61.1	100	5/31	35	0	13.3
Rosalyn	---	---	112.3	59.8	100	5/30	33	0	11.1
WB 528	132.5	151.0	109.6	60.2	99	5/29	35	6	10.4
ARS970230-6C*	---	130.0	108.9	58.0	98	6/3	33	0	13.5
ORCF-101	120.2	151.0	106.4	59.9	100	6/2	35	0	14.8
Eltan	---	---	106.0	59.4	100	6/3	36	13	13.8
AP Badger	137.2	160.8	105.6	59.2	100	5/29	32	0	13.0
WBEXP-427	---	155.0	103.8	61.5	99	5/26	32	0	14.0
99-06202A	---	---	102.4	60.0	97	5/31	35	0	2.7
Madsen	127.8	155.0	102.0	59.8	100	6/1	34	0	13.8
WBEXP-436	---	164.1	102.0	62.4	100	5/25	33	0	12.7
Cara*	---	126.3	100.6	57.2	98	6/5	35	0	13.6
IDO1108	---	---	99.5	59.3	99	6/2	36	0	12.9
AP700 CL	---	155.4	97.3	59.7	100	5/30	37	0	13.0
Bitterroot	131.4	153.9	96.6	60.5	98	6/2	36	0	12.7
Brundage 96	123.8	153.5	96.6	59.5	98	5/30	33	0	12.6
WB-1070CL	---	165.2	96.6	62.2	99	5/22	33	0	11.7
LWW10-1018	---	---	96.2	58.6	100	6/1	32	0	14.0
WBEXP-458	---	159.0	96.2	60.2	98	5/23	34	0	13.1
Brundage	102.0	161.5	95.8	61.4	100	5/25	32	0	12.0
WB-Junction	147.0	167.0	94.7	60.7	99	5/24	35	0	13.1
SY Ovation	155.7	186.9	93.3	61.1	97	5/29	34	0	12.6
WB 456	134.7	151.7	87.9	60.9	97	5/24	31	0	13.9
Ladd	---	156.1	86.8	61.4	100	6/1	31	0	13.9
Mary	---	167.0	86.0	59.6	100	5/28	30	0	15.0
Average	129.0	157.7	106.6	60.1	99	5/30	34	1	12.4
LSD (α=.05)	19.0	12.1	27.4	1.6	3	1.9	3.4	10.7	
CV %	10.5	5.5	18.1	1.9	2	0.9	7.1	722.1	
Pr > F	<.0001	<.0001	0.0282	<.0001	0.8346	<.0001	0.0001	0.4855	

* = Club Wheat

Table 30. Agronomic data for winter wheat at Rupert, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand%**	**Date**	**(in.)**	**(%)**	**(%)**
Soft White Winter Wheat									
Bruneau	98.4	151.4	91.1	55.9	100	6/8	36	0	13.4
Madsen	96.6	118.0	87.9	56.5	100	6/5	33	0	14.3
99-06202A	---	---	86.8	55.0	99	6/5	36	0	14.7
OR2080924	---	---	83.9	54.1	100	6/5	33	0	14.1
Brundage	95.8	142.7	83.1	56.7	100	6/1	34	0	14.2
Ladd	---	133.2	83.1	56.9	100	6/6	32	0	14.3
LWW04-4009	---	139.8	82.4	55.9	99	6/9	33	1	14.0
02-10606A	---	---	81.0	55.9	99	6/6	34	0	13.4
SY Ovation	94.7	134.3	81.0	55.4	100	6/4	35	0	13.5
03-29902A	---	---	80.2	55.0	100	6/5	35	0	15.7
WB-Junction	104.2	128.9	79.1	55.2	100	5/28	33	0	14.6
LCS Artdeco	---	---	78.8	52.8	100	6/4	34	0	13.1
Skiles	89.5	128.1	75.5	56.2	98	6/6	34	0	15.0
WBEXP-436	---	139.8	75.5	56.0	100	6/2	32	0	13.7
IDO1108	---	---	74.4	53.6	99	6/6	37	0	13.6
UICF Brundage	109.3	126.3	74.4	55.0	100	6/3	31	0	14.0
WB 528	96.9	136.5	74.4	56.5	92	6/4	33	10	14.9
Bitterroot	109.4	119.8	74.1	55.9	100	6/7	35	0	15.0
WB-1070CL	---	133.6	74.1	56.7	100	5/29	31	0	14.6
AP Badger	92.6	136.9	73.3	54.2	99	6/6	31	0	13.9
Bobtail	---	136.9	73.0	51.5	98	6/5	32	0	14.6
WB 456	92.9	118.0	73.0	55.6	99	6/1	31	0	15.3
LWW10-1018	---	---	71.2	52.4	97	6/7	33	0	14.3
WBEXP-458	---	136.9	71.2	54.0	98	5/31	30	5	12.6
Mary	---	148.8	70.1	52.9	99	6/2	32	0	15.4
Eltan	---	---	69.0	53.9	100	6/8	35	0	15.1
AP700 CL	---	128.9	68.6	54.3	100	6/4	35	0	14.9
Brundage 96	100.2	136.5	66.4	53.7	97	6/5	33	0	14.3
Kaseberg	---	138.3	65.7	52.7	100	6/5	34	0	14.0
ORCF-101	102.1	125.6	65.3	53.8	100	6/3	33	0	15.3
ORCF-102	116.2	129.2	65.0	54.4	99	6/5	35	0	15.5
Rosalyn	---	---	64.6	52.2	99	6/6	31	0	13.9
Stephens	106.4	136.9	63.5	51.7	99	6/3	32	0	16.0
WBEXP-427	---	130.3	63.2	54.7	99	6/2	32	0	15.4
ARS970230-6C*	---	127.8	57.0	52.2	98	6/8	31	0	16.0
Cara*	---	118.3	57.0	52.1	96	6/9	34	0	15.7
Average	100.6	132.5	73.8	54.5	99	6/4	33	0	14.5
LSD (α=.05)	13.9	16.4	23.2	3.6	3.9	1.6	2.0	4.0	
CV %	9.5	8.8	22.5	4.7	2.8	0.7	4.2	634.5	
Pr > F	0.0004	0.0008	0.4641	0.0494	0.2001	<.0001	<.0001	0.0256	

* = Club Wheat

Table 31. Agronomic data for winter wheat at Aberdeen, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**
Soft White Winter Wheat									
Bobtail	---	136.6	175.3	58.9	99	6/1	37	0	10.7
LWW04-4009	---	157.2	161.6	60.4	100	6/6	37	41	9.7
Mary	---	141.3	158.1	60.8	100	5/31	36	0	10.2
WB-Junction	175.6	137.0	156.9	61.2	100	5/31	37	0	9.3
02-10606A	---	---	156.5	60.1	100	6/4	39	19	9.8
03-29902A	---	---	156.5	60.5	100	6/5	39	1	12.0
Rosalyn	---	---	156.5	57.3	100	6/4	36	3	9.6
WBEXP-458	---	110.9	155.3	60.2	100	6/2	36	6	10.9
Bruneau	157.7	141.3	153.8	60.3	100	6/4	40	19	9.8
Kaseberg	---	153.0	153.8	59.1	100	6/2	38	9	10.3
SY Ovation	178.8	147.2	153.8	59.9	100	6/2	39	5	9.9
WB 528	167.1	131.2	153.4	60.9	100	6/2	36	16	10.0
Bitterroot	169.4	127.6	150.7	60.4	100	6/4	41	6	10.6
Skiles	169.4	119.1	150.7	59.1	100	6/5	39	6	13.1
99-06202A	---	---	149.1	59.8	100	6/5	41	28	11.1
UICF Brundage	151.4	141.7	148.7	58.9	100	6/2	35	0	11.0
WBEXP-436	---	114.4	147.9	61.7	100	5/31	36	9	10.9
IDO1108	---	---	147.5	57.7	100	6/4	42	18	10.0
OR2080924	---	---	147.2	57.7	100	6/3	37	13	10.1
WBEXP-427	---	136.6	146.8	62.1	100	6/2	35	0	11.8
ORCF-101	146.0	135.4	146.0	59.8	100	6/2	38	0	11.1
AP Badger	129.6	141.3	145.2	57.6	100	6/4	35	13	11.3
Ladd	---	133.1	144.4	59.4	100	6/5	36	16	11.0
Madsen	152.2	152.2	142.5	59.4	100	6/5	40	21	11.4
Brundage 96	160.0	126.9	142.1	59.4	100	6/3	39	0	10.4
ORCF-102	149.1	134.7	141.7	59.6	100	6/4	39	18	10.0
AP700 CL	---	140.9	141.3	59.2	100	6/4	41	6	10.1
ARS970230-6C*	---	124.1	141.3	58.6	100	6/5	38	3	12.5
LCS Artdeco	---	---	140.5	56.3	100	6/2	36	3	10.2
Cara*	---	140.9	139.3	57.5	100	6/6	41	8	12.6
Brundage	139.0	125.7	138.6	61.6	100	5/31	37	0	10.1
LWW10-1018	---	---	137.8	57.7	100	6/6	38	28	10.6
Eltan	---	---	133.1	58.6	100	6/4	41	25	10.8
Stephens	156.1	132.3	132.7	57.8	100	6/2	37	20	9.0
WB-1070CL	---	136.2	132.3	61.5	100	6/1	33	29	11.8
WB 456	156.1	108.9	128.8	61.4	100	5/31	36	1	9.6
Average	154.1	134.6	147.4	59.5	100	6/3	38	11	10.6
LSD (α=.05)	---	23.9	17.2	1.2	0.7	2.6	2.3	22.6	
CV %	8.6	12.6	8.3	1.4	0.5	1.2	4.4	149.9	
Pr > F	<.0001	0.0019	0.0004	<.0001	0.6483	<.0001	<.0001	0.0173	

* = Club Wheat

Table 32. Agronomic data for winter wheat at Ririe, dryland, 2013.

Variety	Yield (bu/A) 2011	2012	2013	Test Wt. (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Soft White Winter Wheat									
Bitterroot	7.6	25.4	17.8	59.5	98	6/23	20	0	15.6
Eltan	---	29.0	17.1	59.5	100	6/24	18	0	13.8
IDO1108	---	---	16.7	58.5	99	6/22	20	0	13.5
Bruneau	8.3	25.8	16.3	59.0	98	6/22	20	0	14.1
Madsen	7.6	21.4	15.2	57.5	97	6/21	18	0	15.2
Skiles	10.5	17.4	15.2	56.5	95	6/21	16	0	16.0
Kaseberg	---	15.6	14.2	57.5	97	6/19	17	0	12.7
WB 456	---	---	13.8	57.0	97	6/15	18	0	14.6
LWW04-4009	---	20.0	13.4	58.0	97	6/24	18	0	15.0
WB 528	11.6	20.0	13.4	60.5	98	6/19	19	0	14.6
Mary	---	19.6	12.3	56.0	97	6/17	18	0	14.0
ORCF-101	9.4	21.8	12.3	58.0	97	6/20	18	0	14.9
UICF Brundage	9.1	24.3	12.0	56.0	98	6/20	18	0	13.5
Cara*	---	---	11.6	56.0	97	6/24	17	0	13.9
Bobtail	---	19.2	11.6	55.5	96	6/22	17	0	12.4
ORCF-102	11.3	24.7	11.6	58.5	98	6/23	19	0	14.1
ARS970230-6C*	---	21.4	11.3	58.5	98	6/23	15	0	14.2
Rosalyn	---	---	11.3	56.5	98	6/22	20	0	12.1
Stephens	7.6	20.0	10.9	58.0	99	6/17	19	0	14.1
AP700 CL	---	19.6	10.5	57.0	96	6/21	20	0	14.8
Brundage	8.7	18.5	10.5	59.5	99	6/14	18	0	11.9
Ladd	---	16.7	9.4	56.5	96	6/22	17	0	16.4
Brundage 96	9.8	22.1	8.7	56.0	94	6/19	17	0	13.1
LWW10-1018	---	---	7.6	58.0	96	6/24	16	0	14.3
Average	9.3	21.1	12.7	57.6	97	6/21	18	0	14.1
LSD (α=.05)	4.2	6.2	4.6	1.7	2.7	2.3	2.5	0	
CV %	32.4	20.9	25.4	2.1	1.9	0.9	9.9	.	
Pr > F	0.1428	0.0044	0.0007	<.0001	0.0337	<.0001	0.0033	.	

* = Club Wheat

Table 33. Agronomic data for winter wheat at Soda Springs, dryland, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**
Yellowstone	---	83.8	40.0	60.0	20	6/25	23	0	14.3
UICF Grace (W)	69.7	71.8	37.4	54.0	27	6/26	29	0	15.7
Bearpaw	---	---	33.4	58.0	20	6/24	18	0	14.0
Deloris	---	77.3	32.7	---	17	6/26	24	0	---
Keldin	---	83.4	32.2	56.0	18	6/25	22	0	15.0
ORCF-102 (SWW)	64.4	63.2	31.3	54.0	20	6/28	23	0	14.2
UI LHS (W)	---	---	28.5	54.0	20	6/27	22	0	14.4
UI SRG	---	70.2	27.9	---	43	6/25	23	0	---
Judee	---	71.8	27.5	---	23	6/24	21	0	---
WB-Arrowhead	---	---	25.5	57.0	43	6/21	22	0	13.7
Promontory	---	76.3	25.0	---	37	6/22	22	0	---
Lucin-CL	---	---	24.8	58.0	27	6/26	25	0	14.2
AP700CL (SWW)	---	---	24.7	---	27	6/27	21	0	---
Madsen (SWW)	---	74.7	23.5	60.0	33	6/28	19	0	13.7
Curlew	---	78.5	23.1	57.0	23	6/25	24	0	14.8
Weston	---	67.3	23.1	56.0	33	6/24	25	0	15.2
Norwest 553	---	65.5	19.8	56.0	33	6/24	19	0	14.0
Golden Spike (W)	72.1	71.5	18.3	56.0	18	6/26	25	0	14.6
Eltan (SWW)	---	79.6	15.9	56.0	20	6/28	21	0	14.2
Brundage (SWW)	---	72.9	15.8	56.0	30	6/21	17	0	14.8
Bruneau (SWW)	---	79.0	14.9	55.0	23	6/27	22	0	14.1
UI Silver (W)	---	---	13.8	58.0	8	6/25	21	0	13.8
AP503 CL2	---	---	10.2	56.0	12	6/24	19	0	15.2
Juniper	78.4	79.8	10.1	---	27	6/23	25	0	---
UICF Brundage (SWW)	66.3	80.7	9.9	---	27	6/28	20	0	---
Greenville	---	78.9	9.2	---	17	6/24	18	0	---
Average	70.4	73.8	23.0	56.5	25	6/25	22	0	14.4
LSD (α=.05)	17.9	13.2	24.8	4.4	17.6	2.8	4.6	0.0	
CV %	15.2	10.9	65.6	2.5	43.1	1.0	12.7	.	
Pr > F	0.3857	0.0864	0.4718	0.1979	0.0216	<.0001	0.0003	.	

(W) = Hard White Winter

(SWW) = Soft White Winter

Table 34. Agronomic data for winter barley at Rupert, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand %**	**Date**	**(in)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
6Ab08-X03W047-28	---	---	105.3	42.4	80	5/24	31	0	12.0	48.8	25.1	25.4
2Ab08-X05W061-42	---	---	99.8	46.0	90	5/23	32	28	13.9	66.3	19.1	14.6
Eight-Twelve	144.3	174.7	92.6	47.1	80	5/20	33	0	11.4	42.8	28.3	28.6
02Ab671	---	135.7	92.1	47.5	89	5/25	31	36	13.4	70.2	18.7	10.8
02Ab669	139.3	185.6	91.2	47.7	79	5/25	32	23	12.9	62.8	23.0	13.0
UT9401-19	---	170.2	89.8	45.8	95	5/19	35	33	12.1	48.5	21.4	29.5
Alba	141.1	187.0	87.6	44.8	97	5/24	31	68	11.6	53.0	26.1	20.5
UTWB9703-19	153.4	139.3	87.1	44.2	88	5/24	35	0	12.4	48.1	25.4	25.9
Charles	113.4	159.3	85.8	45.6	90	5/23	29	25	13.9	71.5	15.6	12.5
Endeavor	119.3	165.6	85.8	45.7	90	5/24	35	15	13.4	44.3	23.7	31.6
02Ab431	---	166.1	78.5	49.1	87	5/25	33	57	14.0	90.6	0.0	9.4
Mathias	114.4	122.5	76.7	45.4	95	5/17	30	21	12.9	57.4	24.9	17.3
Strider	141.6	172.9	74.0	44.0	79	5/20	32	23	12.2	46.9	26.5	26.6
Maja	123.0	136.1	73.1	43.9	90	5/17	32	23	12.0	34.6	26.6	38.4
Streaker*	120.7	138.4	67.6	48.7	75	5/20	35	67	12.3	17.6	24.1	58.1
09OR-55	---	---	64.0	43.4	85	5/17	26	36	13.3	47.2	24.6	27.6
Sunstar Pride	172.4	191.5	62.2	42.8	80	6/3	36	0	11.7	16.2	15.5	68.1
Schuyler	144.3	164.3	60.5	45.0	95	5/28	36	13	1.4	21.8	25.8	51.7
Kamiak	106.6	148.8	57.6	45.1	95	5/17	33	25	12.5	39.8	25.0	24.5
02Ab2732	---	---	49.0	45.0	78	5/28	37	3	12.6	48.2	32.3	18.9
Sprinter	145.7	176.1	46.3	40.6	98	5/21	36	0	12.2	28.0	23.5	48.1
Average	133.2	158.4	77.4	45.2	87	5/23	33	23	12.1	47.8	22.6	28.6
LSD (α=.05)	26.0	39.2	42.4	3.8	20.6	2.4	3.7	45				
CV %	13.7	17.5	38.3	6.0	16.7	1.2	8.0	135				
Pr > F	0.0002	0.0152	0.2745	0.0056	0.5115	<.0001	<.0001	0.0478				

*indicates hulless variety

Table 35. Agronomic data for winter barley at Aberdeen, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
02Ab2732	---	---	207.4	46.2	100	5/24	38	49	6.9	77.3	14.2	8.5
UT9401-19	---	177.6	195.7	50.1	100	5/20	38	19	7.8	88.8	8.3	3.3
Maja	155.2	172.2	184.4	48.1	100	5/20	37	84	7.5	55.1	24.2	21.0
Sprinter	193.7	170.3	178.6	46.7	100	5/21	35	64	7.6	66.4	18.5	15.1
Eight-Twelve	173.2	190.8	174.7	46.6	100	5/19	38	85	7.4	59.2	20.2	20.6
09OR-55	---	---	174.7	46.7	100	5/17	26	96	8.3	70.2	18.1	12.2
6Ab08-X03W047-28	---	---	174.2	44.6	99	5/22	35	55	7.3	58.4	22.0	19.9
Strider	169.8	188.8	169.8	48.6	100	5/21	34	76	8.2	90.1	7.5	2.5
UTWB9703-19	129.8	175.7	167.8	48.1	100	5/22	36	26	7.2	68.5	21.2	10.5
Sunstar Pride	157.1	184.9	163.9	47.9	100	5/29	37	65	6.8	51.9	21.5	27.2
Charles	177.1	138.6	162.0	47.6	100	5/21	30	82	8.8	81.2	11.0	7.9
Kamiak	144.9	176.1	161.5	48.2	100	5/18	34	84	7.6	66.5	20.0	13.8
2Ab08-X05W061-42	---	---	160.0	48.6	100	5/21	30	75	8.9	80.6	11.6	8.0
02Ab671	---	159.5	157.1	48.2	100	5/23	34	61	8.9	74.7	13.6	12.7
02Ab669	173.7	170.3	154.7	49.6	100	5/21	36	68	8.6	74.5	12.4	12.7
Streaker*	141.5	113.2	153.7	53.5	98	5/20	37	90	11.8	31.1	31.3	38.2
Schuyler	146.4	186.9	149.8	48.7	100	5/22	39	63	8.1	54.5	21.1	24.8
02Ab431	---	160.0	148.3	49.1	100	5/20	32	87	9.0	79.5	11.7	9.3
Mathias	180.0	133.0	144.9	51.1	100	5/18	39	0	8.2	92.8	5.5	1.7
Endeavor	170.8	158.1	134.7	48.6	100	5/21	38	67	8.0	70.2	13.0	17.1
Alba	159.5	173.2	132.2	48.4	100	5/21	39	55	8.2	79.7	9.0	11.0
Average	164.2	167.2	164.3	48.3	100	5/21	35	64	8.1	70.1	16.0	14.2
LSD (α=.05)	35.8	43.9	31.7	1.8	0.8	3.7	3.7	35.9				
CV %	15.4	18.6	13.6	2.6	0.6	1.8	7.5	39.5				
Pr > F	0.0119	0.0781	0.0014	<.0001	<.0001	<.0001	<.0001	<.0001				

*indicates hulless variety

Table 36. Agronomic data for winter barley at Ririe, dryland, 2013.

Variety	Yield (bu/A)† 2013	Test Wt. (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)
Endeavor	10.9	50.0	60	6/23	17	0
Maja	9.1	50.0	70	6/15	14	0
Sprinter	9.1	50.0	60	6/20	15	0
Charles	7.3	48.0	30	6/22	14	0
Eight-Twelve	5.4	50.0	92	6/26	13	0
Kamiak	5.4	50.0	65	6/14	13	0
UT9401-19	5.4	50.0	80	6/17	10	0
2Ab08-X05W061-42	5.4	46.0	50	6/24	11	0
6Ab08-X03W047-28	5.4	42.0	55	6/22	11	0
09OR-55	5.4	---	10	6/24	11	0
02Ab669	3.6	---	20	6/26	13	0
Alba	3.6	48.0	50	6/24	11	0
Streaker*	3.6	---	7	6/22	13	0
Strider	3.6	---	40	6/23	11	0
Sunstar Pride	3.6	46.0	35	6/25	13	0
UTWB9703-19	3.6	46.0	55	6/23	12	0
02Ab671	1.8	---	5	6/23	11	0
Mathias	1.8	---	55	6/15	9	0
Schuyler	1.8	42.0	65	6/25	10	0
02Ab2732	1.8	---	10	6/26	10	0
02Ab431	0.0	---	20	6/26	9	0
Average	4.7	47.5	44.5	6/22	12.0	0.0

*indicates hulless variety

† Only one replication was planted in Ririe.

Table 37. Agronomic data for spring wheat at Rupert, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand%**	**Date**	**(in)**	**(%)**	**(%)**
Hard Spring Wheat									
Alzada (D)	104.5	111.1	99.5	59.5	100	6/11	32	33	14.7
IDO862T	---	113.6	98.7	61.4	100	6/11	35	0	14.8
IDO862E	---	118.7	96.6	61.4	75	6/8	33	0	14.9
Dayn (W)	---	---	96.6	60.1	99	6/12	33	0	14.7
Bullseye	91.5	122.0	94.4	61.4	100	6/13	31	13	15.9
IDO 1202S	---	---	94.0	60.6	100	6/15	33	0	15.7
Kelse	88.2	115.1	92.2	61.3	100	6/10	34	0	15.0
WB9229	---	---	92.2	60.8	78	6/14	29	0	15.4
IDO694C	---	103.5	91.5	60.2	100	6/9	30	0	14.7
WB9576	---	---	90.8	59.2	100	6/12	30	0	15.7
Jefferson	92.6	116.9	90.4	60.8	100	6/11	34	15	15.2
Choteau	101.6	99.8	90.0	60.4	100	6/14	33	16	16.1
Snow Crest (W)	95.5	104.2	90.0	61.0	100	6/9	29	13	16.2
Cabernet	99.8	115.4	88.9	61.1	100	6/10	30	3	14.6
WB-Paloma (W)	91.1	98.0	88.9	60.4	100	6/10	32	1	16.4
Klasic (W)	92.2	98.7	88.6	61.0	100	6/9	24	0	15.9
Glee (WA 8074)	---	121.2	88.2	60.6	100	6/9	32	13	15.3
Volt	97.6	106.7	88.2	61.8	100	6/13	35	0	15.0
SY40240R	---	---	87.5	58.4	100	6/15	30	0	14.1
Blanca Grande (W)	95.1	107.1	85.3	61.1	99	6/9	29	0	15.0
WB-Idamax (W)	94.4	108.2	84.9	59.8	100	6/10	30	8	16.1
UI Winchester	91.1	111.1	84.2	60.8	99	6/12	32	5	15.2
WB-Rockland	88.6	106.4	80.6	60.9	100	6/12	28	0	15.8
Westbred 936	46.5	106.0	79.1	57.0	100	6/12	31	0	14.8
Average	91.5	107.9	90.1	60.4	98	6/11	31	5	15.3
LSD (α=.05)	12.5	10.9	9.7	1.3	19.0	1.8	4.3	21.0	
CV %	9.7	7.2	7.6	1.5	13.8	0.8	9.7	306.2	
Pr > F	<.0001	<.0001	0.0057	<.0001	0.5062	<.0001	0	0.2735	

(W) = White

(D) = Durum

Table 38. Agronomic data for spring wheat at Aberdeen, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**
Hard Spring Wheat									
Dayn (W)	---	---	119.4	62.0	100	6/9	32	0	13.7
IDO 1202S	---	---	117.9	62.4	100	6/12	36	0	14.1
Volt	115.5	131.5	112.4	63.7	100	6/11	31	0	14.6
Jefferson	96.8	140.5	110.1	62.0	100	6/10	31	0	13.6
SY40240R	---	---	107.7	59.4	100	6/13	28	0	13.0
Kelse	117.9	133.5	107.3	63.1	100	6/10	33	0	14.4
IDO862T	---	139.3	106.9	63.2	100	6/11	32	0	14.4
Bullseye	114.8	129.6	105.8	61.8	100	6/11	30	0	14.5
Choteau	114.8	135.1	104.2	62.0	100	6/14	33	0	14.0
Glee	---	138.2	104.2	62.7	100	6/9	32	0	14.4
WB9229	---	---	103.8	62.1	100	6/12	27	0	15.2
IDO862E	---	131.5	103.4	63.4	100	6/9	32	0	14.6
Cabernet	104.6	124.1	100.7	62.6	100	6/9	27	0	14.1
WB9576	---	---	98.0	60.4	100	6/10	28	0	16.8
UI Winchester	97.6	133.5	95.2	62.3	100	6/10	31	0	13.5
Blanca Grande (W)	96.8	134.7	94.8	63.2	100	6/8	28	0	14.8
IDO694C	---	128.4	93.3	61.9	100	6/8	29	0	13.8
WB-Idamax (W)	101.5	125.3	93.3	61.5	100	6/9	30	0	13.9
Snow Crest (W)	79.6	126.1	87.8	62.0	100	6/8	28	0	14.8
WB-Paloma (W)	96.8	127.2	85.9	61.8	100	6/9	29	0	14.6
Klasic (W)	90.6	140.5	85.5	61.7	100	6/8	25	0	14.6
Alzada (D)	113.2	150.7	82.0	60.1	100	6/8	29	0	15.8
WB-Rockland	85.1	113.6	77.7	61.3	100	6/9	26	0	17.0
Westbred 936	85.1	123.0	64.0	56.0	100	6/9	29	0	13.8
Average	102.2	130.7	98.4	61.8	100	6/10	30	0	14.5
LSD (α=.05)	---	10.3	9.6	0.6	0.0	1.4	1.6	0.0	
CV %	14.1	5.6	6.9	0.7	0.0	0.6	3.9	.	
Pr > F	0.1887	<.0001	<.0001	<.0001	.	<.0001	<.0001	.	

(W) = White

(D) = Durum

Table 39. Agronomic data for spring wheat, Idaho Falls, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand%**	**Date**	**(in)**	**(%)**	**(%)**
Hard Spring Wheat									
Dayn (W)	---	---	110.7	63.0	100	6/19	31	0	14.4
Bullseye	125.1	103.5	98.7	64.3	100	6/19	27	0	15.4
WB9229	---	---	98.4	62.2	99.5	6/24	27	0	15.9
WB-Idamax (W)	128.3	101.6	95.8	62.3	75	6/18	28	0	15.6
Volt	124.4	100.6	92.9	63.7	100	6/23	29	0	14.9
Kelse	118.6	115.1	92.6	62.6	99	6/18	29	0	15.6
Choteau	125.6	109.6	91.1	62.1	99.5	6/21	31	0	15.4
IDO 1202S	---	---	91.1	62.6	100	6/20	30	0	15.5
SY40240R	---	---	88.6	60.0	100	6/23	27	0	14.5
Cabernet	114.7	100.9	87.1	62.4	100	6/19	26	0	14.7
WB-Paloma (W)	131.5	102.0	86.8	63.6	100	6/15	26	0	15.2
Jefferson	129.8	104.9	85.3	62.7	100	6/18	29	0	16.6
Snow Crest (W)	114.0	109.3	84.6	62.2	100	6/14	25	0	15.2
IDO694C	---	88.9	84.2	63.1	100	6/14	26	0	14.0
IDO862T	---	106.7	83.5	62.4	100	6/19	30	0	15.6
Blanca Grande (W)	112.2	109.6	82.8	63.7	100	6/14	27	0	14.9
Glee	---	102.4	82.0	62.3	100	6/16	28	0	15.3
IDO862E	---	107.8	81.7	63.2	99.5	6/15	32	0	15.8
WB9576	---	---	80.9	61.5	100	6/18	26	0	17.2
WB-Rockland	98.0	96.9	78.8	62.0	100	6/21	26	0	17.2
Westbred 936	111.3	105.3	78.4	61.3	100	6/17	28	0	15.7
UI Winchester	122.1	100.2	76.2	62.4	100	6/18	28	0	15.6
Klasic (W)	119.8	109.6	74.1	61.8	100	6/14	21	0	14.5
Alzada (D)	134.9	108.5	71.9	62.7	100	6/18	28	0	16.9
Average	125.2	103.4	86.6	62.5	99.9	6/18	28	0	15.5
LSD (α=.05)	9.5	8.7	11.3	0.9	0.8	1.1	3.0	0.0	
CV %	5.4	6.0	9.1	1.0	0.5	0.4	7.5	.	
Pr > F	<.0001	<.0001	<.0001	<.0001	0.6583	<.0001	<.0001	.	

(W) = White

(D) = Durum

Table 40. Agronomic data for spring wheat at Ashton, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand %**	**Date**	**(in)**	**(%)**	**(%)**
Hard Spring Wheat									
Dayn (W)	---	---	86.0	61.7	100	7/10	27	0	13.8
Choteau	88.9	57.4	84.2	61.1	100	7/11	30	0	15.3
WB-Idamax (W)	112.4	58.1	79.9	60.3	100	7/12	26	0	14.5
WB9576	---	---	78.8	61.1	100	7/11	25	0	16.2
UI Winchester	107.0	58.1	78.0	61.3	100	7/11	27	0	14.7
Glee	---	62.1	77.0	62.0	100	7/10	28	0	15.5
Alzada (D)	98.6	56.6	77.0	61.7	100	7/11	27	0	14.7
IDO 1202S	---	---	76.6	61.3	100	7/10	29	0	14.9
Volt	90.7	53.0	76.2	61.5	100	7/11	29	0	14.3
Kelse	94.6	54.1	75.9	59.8	100	7/10	29	0	16.4
WB9229	---	---	74.8	60.0	100	7/12	27	0	16.0
IDO862E	---	52.6	74.4	62.1	100	7/11	27	0	16.1
WB-Paloma (W)	93.2	67.9	74.4	60.5	100	7/11	27	0	14.7
Bullseye	87.1	61.3	72.6	62.5	100	7/10	24	0	15.9
WB-Rockland	76.4	48.6	72.6	60.4	100	7/10	26	0	16.2
Westbred 936	79.8	44.3	72.2	59.6	100	7/11	26	0	16.0
SY40240R	---	---	70.4	57.7	100	7/12	25	0	14.4
Blanca Grande (W)	84.5	63.2	69.3	62.0	100	7/10	23	0	15.6
IDO862T	---	52.3	67.9	60.6	100	7/10	29	0	16.6
Cabernet	94.8	55.2	66.4	60.2	100	7/11	24	0	14.7
Jefferson	99.7	53.4	65.7	60.9	99	7/11	28	0	16.1
IDO694C	---	50.8	65.7	61.7	100	7/11	26	0	14.6
Klasic (W)	72.2	43.6	65.3	61.6	100	7/10	23	0	15.0
Snow Crest (W)	91.1	44.3	56.6	60.7	100	7/10	23	0	15.0
Average	94.2	55.3	73.3	60.9	100	7/11	26	0	15.3
LSD (α=.05)	14.0	12.7	17.5	1.6	0.8	0.9	2.9	0	
CV %	10.6	16.3	16.9	1.9	0.6	0.3	7.9	.	
Pr > F	<.0001	0.007	0.3471	<.0001	0.5269	<.0001	<.0001	.	

(W) = White

(D) = Durum

Table 41. Agronomic data for spring wheat at Soda Springs, dryland, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand %**	**Date**	**(in)**	**(%)**	**(%)**
Hard Spring Wheat									
UI Winchester	34.8	26.9	68.2	62.2	88	6/29	22	0	14.3
Blanca Grande (W)	34.8	30.1	63.6	62.1	85	6/27	20	0	14.7
Kelse	41.7	31.6	62.5	61.8	85	6/28	24	0	15.4
IDO694C	---	25.8	60.7	62.7	86	6/27	18	0	13.3
Choteau	30.5	31.2	59.8	60.7	86	6/29	25	0	14.1
Dayn (W)	---	---	59.5	60.9	80	6/28	26	0	13.8
Volt	25.0	29.0	58.7	61.8	83	7/3	23	0	13.8
IDO862E	---	29.8	58.6	62.2	86	6/27	24	0	14.5
Klasic (W)	44.6	27.6	58.4	60.5	85	6/26	16	0	14.4
Jefferson	41.0	24.7	58.2	62.0	89	6/29	23	0	14.3
WB9879CLP	---	---	55.8	60.8	86	6/30	23	0	14.3
IDO 1202S	---	---	54.4	61.7	89	7/2	25	0	13.5
Westbred 936	33.4	33.0	51.1	60.7	88	6/29	21	0	14.7
Glee	---	34.5	50.9	62.2	84	6/29	24	0	13.8
Average	36.9	29.2	58.6	61.6	86	6/29	22	0	14.2
LSD (α=.05)	7.1	9.4	10.9	1.4	6.2	1.7	2.5	0	
CV %	13.6	22.8	13.0	1.6	5.1	0.6	7.8	.	
Pr > F	<.0001	0.6194	0.1669	0.0467	0.3139	<.0001	<.0001	.	

(W) = White

Table 42. Agronomic data for spring wheat at Rupert, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand%**	**Date**	**(in)**	**(%)**	**(%)**
Soft White Spring Wheat									
IDO 851	---	---	119.4	60.1	100	6/13	34	33	11.9
IDO 854	---	---	118.0	61.9	100	6/13	39	1	11.8
WBexp-125	---	---	118.0	60.9	100	6/11	31	4	11.8
UI Stone	103.8	124.1	117.6	61.0	100	6/9	31	5	12.0
IDO 852	---	---	117.2	61.9	100	6/9	32	0	11.9
UI Pettit	88.2	112.5	117.2	61.1	100	6/8	32	0	11.5
WB6121	---	---	116.9	61.7	100	6/10	32	6	13.0
Penawawa	101.6	110.7	115.1	60.2	100	6/13	36	36	13.4
Alturas	115.8	107.4	109.6	60.4	100	6/14	34	23	11.6
Alpowa	94.0	125.6	107.1	61.5	100	6/16	34	18	12.5
Cataldo	90.8	95.1	107.1	60.0	100	6/11	34	0	12.7
WA 8162	---	---	107.1	59.6	100	6/16	38	58	14.1
11SB0096	---	---	105.6	60.1	100	6/14	32	0	13.8
Babe	104.2	128.1	103.1	61.0	100	6/13	37	30	12.7
08SB0658-B	---	---	102.4	60.1	100	6/14	33	13	14.0
Average	101.3	113.5	112.1	60.7	100	6/12	34	15	12.6
LSD (α=.05)	10.8	11.7	13.5	1.4	0.6	2.1	4.2	33.1	
CV %	7.5	7.2	8.5	1.7	0.4	0.9	8.7	154.7	
Pr > F	<.0001	<.0001	0.0904	0.0179	0.5935	<.0001	0.0032	0.0213	

Table 43. Agronomic data for spring wheat at Aberdeen, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**
Soft White Spring Wheat									
WA 8162	---	---	123.7	62.3	100	6/14	35	0	11.0
WBexp-125	---	---	121.4	62.2	100	6/10	30	0	11.1
IDO 851	---	---	117.9	61.7	100	6/13	34	0	10.9
IDO 852	---	---	115.9	62.7	100	6/10	34	0	10.8
Alturas	129.6	146.8	115.1	61.5	100	6/13	33	0	10.7
UI Stone	135.1	154.2	114.8	62.4	100	6/11	34	0	12.5
IDO 854	---	---	105.8	62.5	100	6/11	34	0	12.0
08SB0658-B	---	---	102.7	61.5	100	6/12	28	0	13.2
WB6121	---	---	101.5	62.2	100	6/9	30	0	12.7
Babe	131.1	156.9	100.3	61.3	100	6/12	33	0	10.8
Penawawa	119.4	140.1	99.1	61.1	100	6/13	33	0	11.7
11SB0096	---	---	98.8	61.9	100	6/14	31	0	13.6
Alpowa	138.2	153.0	98.4	61.3	100	6/13	33	0	10.8
UI Pettit	130.4	147.9	95.6	61.5	100	6/8	30	0	10.6
Cataldo	112.4	131.5	92.5	60.6	100	6/9	32	0	11.6
Average	126.8	144.7	106.9	61.8	100	6/11	32	0	11.6
LSD (α=.05)	---	11.0	8.6	0.5	0.0	1.4	2.0	0.0	
CV %	9.3	5.2	5.7	0.6	0.0	0.6	4.3	.	
Pr > F	0.0005	<.0001	<.0001	<.0001	.	<.0001	<.0001	.	

Table 44. Agronomic data for spring wheat, Idaho Falls, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand %**	**Date**	**(in)**	**(%)**	**(%)**
Soft White Spring Wheat									
IDO 852	---	---	106.0	63.6	99	6/18	29	0	11.7
WBexp-125	---	---	105.6	63.4	100	6/18	28	0	11.9
IDO 851	---	---	104.9	62.0	96	6/21	30	0	11.2
UI Stone	140.6	116.5	104.2	62.7	100	6/18	30	0	11.9
WA 8162	---	---	103.8	62.5	95	6/24	31	0	12.3
WB6121	---	---	103.8	62.3	100	6/18	30	0	13.4
Alturas	131.4	116.2	102.0	62.5	100	6/20	29	0	11.4
IDO 854	---	---	100.9	62.5	100	6/21	33	0	12.6
08SB0658-B	---	---	99.8	61.3	100	6/21	27	0	13.5
Penawawa	125.5	104.9	95.5	61.4	100	6/22	31	0	13.0
UI Pettit	130.0	120.5	95.5	63.2	100	6/16	27	0	11.9
Alpowa	138.6	129.2	93.3	61.5	100	6/24	32	0	12.9
Cataldo	116.5	103.1	91.5	61.9	90	6/18	30	0	12.4
11SB0096	---	---	88.6	61.1	100	6/21	29	0	14.1
Babe	131.2	122.0	88.6	61.4	99	6/21	30	0	12.9
Average	133.2	115.6	98.9	62.2	99	6/20	30	0	12.5
LSD (α=.05)	12.2	8.5	16.2	1.0	8.1	1.2	2.5	0.0	
CV %	6.5	5.1	11.5	1.1	5.7	0.5	5.9	.	
Pr > F	0.0074	<.0001	0.3030	<.0001	0.4708	<.0001	0.0003	.	

Table 45. Agronomic data for spring wheat at Ashton, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand %**	**Date**	**(in)**	**(%)**	**(%)**
Soft White Spring Wheat									
IDO 854	---	---	89.3	60.6	99	7/12	33	0	11.7
Alpowa	95.4	72.2	86.4	61.5	100	7/11	31	0	10.7
IDO 851	---	---	84.9	61.0	100	7/11	29	0	10.5
WB6121	---	---	84.2	62.1	100	7/11	27	0	12.1
Babe	108.1	61.7	82.0	61.4	100	7/11	30	0	11.4
UI Pettit	94.9	55.2	81.7	62.0	100	7/10	25	0	11.0
WA 8162	---	---	79.9	60.6	100	7/11	28	0	11.9
UI Stone	112.2	65.7	78.4	62.3	100	7/10	29	0	10.3
Cataldo	91.3	59.5	78.0	60.7	100	7/10	30	0	10.8
Penawawa	101.0	58.1	76.2	60.4	100	7/12	31	0	11.3
Alturas	96.6	63.9	75.9	60.7	100	7/11	30	0	10.5
WBexp-125	---	---	75.1	61.3	100	7/10	25	0	11.6
IDO 852	---	---	74.8	61.7	100	7/11	29	0	11.4
08SB0658-B	---	---	66.1	60.4	100	7/12	25	0	12.6
11SB0096	---	---	52.3	60.0	100	7/12	26	0	13.0
Average	99.8	62.0	77.7	61.1	100	7/11	28	0	11.4
LSD (α=.05)	14.7	12.3	17.3	1.5	0.8	0.9	2.9	0.0	
CV %	10.2	13.8	15.6	1.7	0.6	0.3	7.1	.	
Pr > F	0.1967	0.3480	0.0234	0.0574	0.2781	0.0008	<.0001	.	

Table 46. Agronomic data for spring wheat at Soda Springs, dryland, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand %**	**Date**	**(in)**	**(%)**	**(%)**
Soft White Spring Wheat									
Alpowa	35.6	34.1	64.6	61.5	90	7/2	26	0	13.6
Babe	33.8	35.6	63.7	61.7	84	6/30	26	0	12.6
WA 8162	---	---	63.1	62.0	91	7/2	24	0	13.2
IDO 851	---	---	62.9	61.2	95	7/1	23	0	11.9
WB6121	---	---	61.8	62.1	91	6/27	21	0	13.9
Penawawa	47.9	28.7	61.7	60.3	91	6/30	24	0	13.1
Alturas	56.6	31.2	61.3	60.5	94	7/2	23	0	11.6
IDO 854	---	---	59.1	61.5	90	7/1	25	0	12.3
UI Stone	59.5	34.8	57.8	62.3	85	6/27	24	0	12.2
UI Pettit	41.0	35.2	56.3	62.2	89	6/26	21	0	12.0
WBexp-125	---	---	55.8	62.3	89	6/27	22	0	12.0
IDO 852	---	---	55.0	62.5	91	6/27	23	0	13.3
08SB0658-B	---	---	53.9	60.8	88	6/29	20	0	13.0
Cataldo	55.9	29.0	53.2	60.6	91	6/27	23	0	12.3
11SB0096	---	---	49.7	59.2	89	7/1	22	0	14.3
Average	50.2	33.5	58.7	61.4	90	6/29	23	0	12.8
LSD (α=.05)	8.5	7.7	10.8	1.3	6.9	1.1	2.6	0	
CV %	11.9	16.0	12.9	1.5	5.4	0.4	7.9	.	
Pr > F	<.0001	0.4328	0.1843	0.0001	0.1627	<.0001	0.0014	.	

Table 47. Agronomic data for spring barley at Rupert, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
6- Row Spring Feed Barley												
UT2121-12	---	---	123.9	47.6	100	6/9	36	73	13.9	79.1	14.3	7.0
UT2120-35	132.9	134.3	123.0	47.4	100	6/9	34	75	14.2	74.5	17.8	8.1
Goldeneye	146.1	118.4	117.1	49.0	99	6/10	37	59	14.9	79.2	13.9	7.5
Herald	118.9	132.5	114.8	47.4	100	6/9	38	82	13.7	76.6	16.8	7.1
Millennium	135.7	137.0	110.3	47.1	99	6/10	37	30	12.4	60.5	25.4	14.8
Steptoe	108.9	117.5	97.6	45.8	100	6/10	39	95	13.9	75.5	14.7	10.0
6- Row Spring Malt Barley												
Legacy	123.9	116.2	121.6	49.7	100	6/10	37	71	14.3	87.3	9.0	4.0
Tradition	112.5	135.2	112.5	50.0	100	6/11	37	73	13.9	91.5	6.8	2.1
Celebration	109.4	102.5	104.4	48.4	98	6/11	39	97	15.3	85.1	10.5	5.0
01Ab9663	97.6	125.7	103.9	48.5	100	6/11	38	64	12.9	83.6	10.6	6.2
Morex	92.1	108.9	101.2	48.4	100	6/11	40	89	13.3	75.4	15.4	9.9
Quest	---	119.8	89.4	49.2	99	6/11	40	76	15.4	80.0	12.3	7.8
Average	122.9	118.6	110.0	48.2	99	6/10	38	74	14.0	79.0	14.0	7.5
LSD (α=.05)	17.6	20.1	16.3	1.2	1.9	1.2	3.0	26.9				
CV %	10.1	11.9	10.3	1.8	1.3	0.5	5.6	25.5				
Pr > F	<.0001	0.0001	0.0018	<.0001	0.5635	0.0006	0.0202	0.0018				

Table 48. Agronomic data for spring barley, Aberdeen, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
6-Row Spring Feed Barley												
UT2121-12	---	---	171.7	48.8	100	6/9	31	1	13.5	72.0	16.2	11.9
Goldeneye	166.9	145.4	163.4	50.5	100	6/10	34	0	14.0	84.3	10.5	5.7
UT2120-35	161.0	160.0	161.5	48.7	100	6/8	29	3	12.9	73.3	16.1	10.3
Millennium	161.0	178.6	161.0	47.9	100	6/8	35	0	13.2	55.0	27.8	17.1
Herald	150.8	144.9	140.0	47.7	100	6/11	35	1	12.5	70.7	16.5	13.2
Steptoe	151.7	128.8	138.6	47.6	100	6/10	35	16	12.4	73.0	16.2	10.9
6-Row Spring Malt Barley												
Legacy	142.5	143.0	144.9	50.2	100	6/11	34	24	12.9	85.8	10.1	4.3
01Ab9663	135.6	149.8	143.9	48.4	100	6/11	37	38	11.3	76.7	15.7	10.9
Tradition	142.5	128.8	143.4	50.4	100	6/10	37	18	13.3	82.8	12.0	5.2
Morex	118.6	126.9	132.2	50.1	100	6/12	35	21	12.6	78.7	13.5	7.7
Celebration	126.9	140.0	131.2	50.2	100	6/10	35	58	13.9	86.5	9.8	4.4
Quest	---	114.2	127.3	50.4	100	6/10	37	14	13.5	80.5	12.7	6.9
Average	147.6	142.2	146.6	49.2	100	6/10	34	16	13.0	76.6	14.8	9.0
LSD (α=.05)	17.5	21.5	14.6	1.0	0.0	1.7	3.1	27.4				
CV %	8.3	10.6	6.9	1.4	0.0	0.7	6.3	119.1				
Pr > F	<.0001	<.0001	<.0001	<.0001	.	0.0016	0.0001	0.0030				

Table 49. Agronomic data for spring barley at Idaho Falls, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
6 - Row Spring Feed Barley												
UT2121-12	---	---	181.5	50.4	100	6/15	33	0	12.7	90.2	7.9	3.5
Steptoe	134.3	196.0	168.8	49.7	100	6/16	35	0	10.4	92.5	5.2	2.4
UT2120-35	143.8	203.7	165.6	49.1	100	6/14	31	1	12.3	91.8	6.4	2.8
Millennium	154.3	191.0	156.1	49.3	100	6/13	36	3	11.7	79.1	13.8	7.3
Herald	146.1	196.9	151.6	48.8	100	6/16	36	0	12.0	88.7	9.2	2.8
Goldeneye	132.9	211.4	147.9	51.5	100	6/16	36	8	12.0	88.9	6.7	4.6
6 - Row Spring Malt Barley												
Quest	---	181.0	155.6	51.1	100	6/17	37	3	12.8	94.7	5.2	1.1
Celebration	116.2	174.7	149.7	50.9	100	6/15	35	0	14.1	94.7	3.7	1.6
Morex	107.1	165.6	149.7	50.3	100	6/18	35	8	11.5	84.4	11.1	5.0
Legacy	116.6	181.0	146.1	50.3	100	6/16	35	4	12.7	90.6	6.6	3.1
Tradition	104.8	186.0	141.1	51.2	100	6/18	36	0	12.4	95.9	3.1	1.5
01Ab9663	142.0	196.9	133.4	52.4	100	6/18	41	15	10.6	94.4	3.6	2.3
Average	134.6	186.1	153.9	50.4	100	6/16	36	3	12.1	90.5	6.9	3.2
LSD (α=.05)	15.1	14.3	23.2	1.1	0.0	0.9	3.3	14.5				
CV %	7.8	5.4	10.5	1.4	0.0	0.4	6.4	302.6				
Pr > F	<.0001	<.0001	0.0173	<.0001	.	<.0001	0.0012	0.6122				

Table 50. Agronomic data for spring barley at Ashton, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
6-Row Spring Feed Barley												
UT2121-12	---	---	104.4	51.6	100	7/12	27	0	14.2	90.8	6.8	2.2
UT2120-35	130.2	70.3	103.0	51.4	100	7/10	26	0	14.2	89.3	7.7	2.8
Goldeneye	138.8	108.5	99.8	51.7	100	7/11	24	0	13.4	88.1	7.9	4.0
Millennium	119.8	74.4	92.1	50.5	100	7/10	27	0	13.2	77.7	15.5	6.5
Herald	118.9	69.0	91.2	51.1	100	7/10	28	0	13.8	92.3	5.7	2.0
Steptoe	116.2	82.3	90.3	50.6	100	7/11	26	0	12.8	93.4	5.0	1.6
6-Row Spring Malt Barley												
Tradition	118.0	72.2	97.1	52.4	100	7/9	28	0	14.7	96.6	2.9	0.6
Legacy	119.3	83.9	94.8	51.6	100	7/10	31	0	14.4	91.8	5.5	3.0
01Ab9663	132.0	83.9	93.5	51.4	97	7/11	30	0	12.5	90.3	6.8	2.4
Quest	---	73.5	88.0	52.0	99	7/10	31	0	14.2	92.1	5.7	2.0
Morex	91.7	66.7	84.4	51.0	99	7/11	29	0	13.0	83.5	11.2	5.2
Celebration	102.5	66.3	82.6	50.9	100	7/10	30	0	15.3	89.3	7.4	2.9
Average	118.6	76.4	93.4	51.3	100	7/10	28	0	13.8	89.6	7.3	2.9
LSD (α=.05)	19.3	28.4	24.4	1.1	2.0332	1.2	4.2	0.0				
CV %	11.4	25.8	18.1	1.4	1.419828	0.4	10.6	.				
Pr > F	0.0016	0.3449	0.7742	0.0238	0.0712	0.0039	0.0314	.				

Table 51. Agronomic data for spring barley at Rupert, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protien	Plump		
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
2-Row Spring Malt Barley												
Moravian 143	---	150.2	151.1	47.8	99	6/17	36	75	14.2	87.2	8.8	4.7
2Ab07-X031098-31	---	140.2	142.9	50.4	77	6/13	39	97	15.3	79.3	10.7	10.4
Moravian 69	105.3	144.7	139.3	47.0	100	6/18	37	87	13.4	57.1	25.8	17.7
2B05-0811	---	---	129.3	48.6	100	6/13	37	96	14.1	75.0	13.6	11.8
ABI Voyager	133.9	145.2	128.4	49.6	100	6/13	37	35	13.7	88.6	6.6	5.2
Genie	---	131.1	128.4	47.6	100	6/18	36	100	13.5	69.3	18.5	12.1
Odyssey	---	---	128.0	47.0	99	6/19	34	46	13.3	77.8	12.3	9.9
2Ab08-X05M010-82	---	---	124.8	49.6	100	6/14	36	92	13.6	79.9	10.9	9.2
Moravian 115	95.3	136.1	124.8	48.2	99	6/17	37	96	13.6	83.8	11.1	5.9
Pinnacle	107.1	139.8	124.8	51.4	100	6/12	37	96	15.0	92.9	4.4	2.9
B1202	108.5	124.3	124.3	49.9	99	6/13	36	96	13.9	81.8	10.7	7.7
Baronesse (feed check)	120.2	138.4	123.9	49.6	100	6/14	38	91	12.0	75.3	13.9	11.0
Meredith	---	---	123.9	48.9	95	6/18	34	93	14.4	79.4	10.9	9.6
Hockett	103.0	121.2	123.0	50.3	100	6/12	40	93	14.7	80.0	10.3	10.1
Idagold II (feed check)	106.6	145.7	122.1	47.0	100	6/17	34	100	14.1	51.8	22.7	25.4
2Ab07-X04M219-46	---	---	120.2	48.3	100	6/16	31	78	14.6	74.3	13.3	12.4
Metcalfe	95.3	124.3	116.2	50.0	98	6/12	37	86	14.1	83.6	9.2	7.5
Merit	86.7	122.1	114.8	47.6	98	6/18	40	93	14.3	68.8	14.2	16.7
Copeland	115.7	147.0	112.1	50.5	100	6/15	36	74	14.0	84.5	9.3	6.6
Conrad	113.4	137.9	111.2	49.6	100	6/15	32	95	13.3	84.6	10.4	8.3
LCS1820	---	---	108.9	46.4	100	6/19	38	83	13.7	67.5	18.9	13.5
02Ab17271	90.8	133.4	106.6	49.4	100	6/18	36	96	15.9	75.4	13.2	11.3
2Ab04-X001084-27	119.3	142.9	105.7	47.8	100	6/14	33	96	13.8	73.7	13.5	12.9
Merit 57	112.1	124.3	104.8	48.9	100	6/12	36	88	14.2	74.4	12.9	12.8
Harrington	101.6	108.0	100.3	47.4	97	6/16	37	100	14.5	60.8	20.4	18.7
Overture	---	---	97.1	42.1	100	6/19	34	90	15.6	53.6	21.7	24.8
Average	108.2	135.4	120.0	48.5	98	6/15	36	88	14.1	75.5	13.3	11.5
LSD (α=.05)	20.8	18.7	21.1	2.8	12.6	2.3	5.6	27.7				
CV %	13.7	9.8	12.5	4.0	9.1	1.0	11.0	22.5				
Pr > F	<.0001	<.0001	<.0001	<.0001	0.4957	<.0001	0.3620	0.0013				

Table 52. Agronomic data for spring barley, Aberdeen, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
2-Row Spring Malt Barley												
Copeland	142.0	162.5	151.7	52.0	100	6/19	41	21	13.8	90.5	6.1	3.7
2Ab07-X031098-31	---	166.4	151.3	52.9	100	6/16	35	13	14.5	85.6	9.7	5.0
Pinnacle	154.7	169.8	147.3	51.9	100	6/12	35	0	13.9	92.8	4.9	2.6
ABI Voyager	158.6	161.0	146.9	51.7	100	6/15	33	48	13.0	92.9	5.1	2.5
2B05-0811	---	---	143.0	50.1	100	6/15	32	21	12.8	82.7	10.4	7.6
Moravian 69	---	163.9	141.5	48.6	100	6/17	25	61	13.3	67.7	19.4	13.3
Baronesse (feed check)	151.3	153.7	139.5	50.9	100	6/15	30	19	11.8	81.9	11.4	6.8
Genie	---	152.2	138.6	49.3	100	6/17	28	88	13.2	74.9	14.7	10.6
2Ab07-X04M219-46	---	---	137.1	49.7	100	6/18	34	33	13.7	79.3	13.7	7.3
Conrad	148.3	144.9	135.6	50.6	100	6/15	32	75	14.4	78.6	12.2	9.4
Idagold II (feed check)	150.3	167.8	135.6	50.1	100	6/17	28	5	13.3	64.3	23.2	12.7
Merit	144.9	127.8	135.1	50.5	100	6/19	36	43	13.2	78.9	12.1	9.5
Harrington	129.3	119.0	134.7	51.1	100	6/18	34	73	13.9	72.5	17.9	10.1
Moravian 143	---	175.2	133.2	48.1	100	6/17	28	20	14.6	84.3	9.3	7.0
02Ab17271	132.2	141.0	132.2	50.8	100	6/19	39	48	14.1	75.5	14.3	10.4
Hockett	140.0	139.1	132.2	51.8	100	6/13	34	70	13.8	85.9	7.7	6.7
Odyssey	---	---	132.2	47.2	100	6/17	27	61	12.9	76.0	14.4	10.2
2Ab08-X05M010-82	---	---	131.2	50.1	100	6/15	34	73	13.2	81.3	12.2	6.9
Merit 57	138.1	125.4	130.3	50.7	100	6/17	36	29	13.7	76.7	13.3	10.3
Moravian 115	---	147.8	129.3	48.3	100	6/17	27	70	12.8	84.2	9.4	6.8
2Ab04-X001084-27	158.6	146.9	128.3	47.9	100	6/15	31	43	13.4	70.6	15.1	14.1
Metcalfe	142.0	130.8	128.3	51.2	100	6/15	36	39	13.8	78.5	12.2	9.4
B1202	142.5	139.5	125.4	50.2	100	6/15	35	60	13.2	80.1	11.6	8.7
LCS1820	---	---	118.6	48.2	100	6/18	28	80	13.7	78.4	13.1	8.9
Meredith	---	128.8	118.6	48.9	100	6/19	33	90	13.9	80.1	12.6	7.6
Overture	---	---	114.2	46.2	100	6/18	29	89	14.1	80.8	11.5	8.5
Average	138.6	152.4	133.7	50.0	100	6/16	32	49	13.6	79.9	12.1	8.3
LSD (α=.05)	17.8	19.8	14.5	1.6	0.0	1.0	2.7	34.7				
CV %	9.2	9.3	7.7	2.3	0.0	0.4	6.0	50.5				
Pr > F	<.0001	<.0001	<.0001	<.0001	.	<.0001	<.0001	<.0001				

Table 53. Agronomic data for spring barley at Idaho Falls, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
2-Row Spring Malt Barley												
2Ab07-X031098-31	---	159.7	150.6	52.2	100	6/20	32	0	12.9	92.9	5.4	2.0
2B05-0811	---	---	148.4	52.9	100	6/21	31	0	12.2	96.5	2.2	1.4
2Ab08-X05M010-82	---	---	147.0	52.4	100	6/22	32	4	11.6	93.6	4.2	2.2
2Ab04-X001084-27	126.1	134.3	141.6	51.4	100	6/21	30	0	11.2	94.3	4.0	1.7
ABI Voyager	143.7	161.5	140.2	52.2	100	6/20	35	1	12.7	95.1	2.7	2.3
Baronesse (feed check)	129.3	141.6	140.2	53.0	100	6/21	32	15	10.4	92.7	5.0	2.3
Merit	106.2	147.5	138.8	50.6	100	6/25	33	0	12.2	86.4	9.2	4.7
Pinnacle	142.9	154.3	138.8	53.7	100	6/18	34	0	13.2	97.8	1.7	0.7
Copeland	115.7	148.8	137.9	52.4	100	6/23	37	10	12.9	94.7	3.7	1.5
Moravian 143	---	149.3	137.9	47.7	100	6/25	27	20	12.4	89.0	8.1	2.6
Odyssey	---	---	137.5	49.4	100	6/25	29	19	12.0	92.5	5.6	2.1
Conrad	137.5	143.8	133.9	51.9	100	6/21	33	18	12.7	92.6	5.3	2.6
Merit 57	121.3	154.7	133.9	50.9	100	6/22	35	26	12.7	84.4	9.6	6.1
LCS1820	---	---	132.9	50.5	100	6/26	27	23	11.9	95.1	3.8	1.4
Idagold II (feed check)	136.6	148.8	132.5	51.5	100	6/23	31	0	12.2	81.0	12.8	6.0
2Ab07-X04M219-46	---	---	132.0	48.1	100	6/24	33	11	13.0	83.1	10.7	6.1
B1202	115.7	133.4	130.7	52.4	100	6/21	32	0	12.3	94.5	3.6	1.6
02Ab17271	109.8	128.4	129.3	49.8	100	6/25	32	0	12.0	83.9	10.7	5.4
Meredith	---	149.7	128.0	51.0	100	6/25	33	4	11.8	91.9	4.4	3.8
Overture	---	---	127.1	47.3	100	6/26	32	45	12.6	90.3	7.1	2.9
Metcalfe	119.2	142.9	126.6	52.7	100	6/20	35	30	12.4	92.2	4.7	3.3
Moravian 115	119.8	118.4	126.6	47.7	100	6/25	24	13	13.4	88.6	7.4	4.1
Genie	---	140.2	126.1	51.7	100	6/23	26	35	12.9	87.3	8.2	4.8
Hockett	125.2	140.2	124.3	54.1	100	6/20	33	25	13.2	94.5	3.7	2.2
Moravian 69	132.5	141.6	121.6	50.0	100	6/24	26	0	12.3	83.2	12.7	4.3
Harrington	106.6	103.5	115.3	52.1	100	6/23	33	24	13.1	85.7	10.3	4.5
Average	123.9	144.2	133.0	51.2	100	6/22	31	12	12.5	90.7	6.3	3.1
LSD (α=.05)	14.4	18.7	12.2	1.6	0.0	1.2	3.3	31.5				
CV %	8.3	9.2	6.5	2.2	0.0	0.5	7.4	181.7				
Pr > F	<.0001	<.0001	<.0001	<.0001	.	<.0001	<.0001	0.1812				

Table 54. Agronomic data for spring barley at Ashton, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
2-Row Spring Malt Barley												
Baronesse (feed check)	115.6	103.9	113.9	53.4	100	6/15	30	19	11.8	96.5	2.7	1.1
Overture	---	---	112.1	51.8	100	6/18	29	89	13.6	97.2	2.1	1.1
2B05-0811	---	---	110.7	52.0	100	6/15	32	21	13.5	94.6	3.7	1.7
2Ab08-X05M010-82	---	---	104.4	51.8	100	6/15	34	73	12.3	88.0	7.3	4.6
Moravian 69	---	83.0	104.4	51.4	100	6/17	25	61	12.4	91.6	6.0	2.8
LCS1820	---	---	103.5	52.4	100	6/18	28	80	13.0	97.4	2.0	1.2
Merit	106.7	59.0	103.5	51.5	100	6/19	36	43	13.2	89.1	7.1	4.3
Odyssey	---	---	102.1	52.0	100	6/17	27	61	14.1	97.1	2.4	0.8
Conrad	124.4	68.4	100.7	53.0	100	6/15	32	75	12.5	96.5	3.0	1.2
2Ab07-X04M219-46	---	---	100.3	49.2	100	6/18	34	33	13.4	86.6	8.9	4.8
Copeland	103.8	77.6	100.3	51.2	100	6/19	41	21	13.8	93.7	4.8	1.9
2Ab04-X001084-27	113.4	79.9	99.8	51.4	100	6/15	31	43	12.5	95.9	2.9	1.2
Genie	---	87.1	99.4	52.9	100	6/17	28	88	14.4	94.5	4.0	2.0
Merit 57	110.5	84.9	97.6	50.6	100	6/17	36	29	13.3	88.6	7.9	4.1
Idagold II (feed check)	101.2	70.8	96.2	51.9	100	6/17	28	5	12.6	89.8	8.1	2.4
Hockett	109.5	91.7	95.3	53.0	100	6/13	34	70	13.7	93.3	4.5	2.9
Pinnacle	111.6	88.9	94.4	53.7	85	6/12	35	0	14.2	97.6	1.8	1.1
B1202	105.5	78.7	93.5	51.5	100	6/15	35	60	12.8	90.5	6.3	3.4
ABI Voyager	112.6	65.8	93.0	51.3	88	6/15	33	48	13.7	96.8	2.2	1.1
2Ab07-X031098-31	---	78.1	92.6	51.0	100	6/16	35	13	13.4	86.4	9.0	5.2
Meredith	---	77.6	89.4	50.3	100	6/19	33	90	13.3	91.8	6.0	2.7
Moravian 115	---	75.6	88.5	49.9	100	6/17	27	70	14.6	94.5	3.9	2.1
02Ab17271	102.3	72.2	85.3	51.0	99	6/19	39	48	13.1	85.1	8.9	6.3
Harrington	101.3	71.7	84.4	51.1	93	6/18	34	73	14.3	86.1	9.6	4.5
Moravian 143	---	72.2	80.8	50.5	100	6/17	28	20	14.3	95.3	3.4	1.8
Metcalfe	111.3	80.8	77.6	52.0	100	6/15	36	39	13.6	94.3	4.1	1.9
Average	106.8	79.7	96.9	51.6	99	6/16	32	49	13.4	92.8	5.0	2.6
LSD (α=.05)	16.2	31.0	14.5	1.4	0.0	1.0	2.7	34.7				
CV %	10.9	27.1	7.7	1.9	0.0	0.4	6.0	50.5				
Pr > F	<.0001	0.4627	<.0001	<.0001	.	<.0001	<.0001	<.0001				

Table 55. Agronomic data for spring barley at Rupert, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protien	Plump		
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
2-Row Spring Feed Barley												
Vespa	---	---	162.4	50.1	100	6/16	35	97	12.9	85.6	9.8	4.8
Herald	117.1	131.6	156.5	48.0	99	6/10	35	5	14.2	85.5	9.7	5.1
Champion	134.3	143.4	147.5	51.5	100	6/12	34	81	14.1	90.3	7.2	3.0
Xena	133.4	143.8	144.7	50.1	100	6/12	34	95	13.9	89.6	6.2	4.4
Spaulding	123.9	137.0	136.1	51.3	99	6/15	33	58	14.4	85.0	7.7	7.6
RWA 1758	127.1	141.6	135.7	50.6	100	6/14	33	100	12.2	87.0	8.7	4.8
Lenetah	118.4	130.2	134.8	50.2	99	6/16	35	93	15.2	85.9	7.5	6.9
Tetonia	123.4	128.0	130.7	49.7	99	6/16	35	90	13.9	74.4	13.8	12.1
Idagold II	106.6	135.7	129.3	50.1	99	6/17	24	49	14.3	79.8	12.9	7.8
Julie*	101.2	106.2	129.3	56.3	100	6/18	34	81	14.4	77.5	16.0	6.9
Baronesse	120.2	137.5	123.4	49.5	99	6/15	32	99	12.5	81.0	11.1	7.9
CDC McGwire*	108.9	106.6	123.0	56.8	98	6/16	35	77	12.3	53.2	29.2	18.3
08ID2661	142.0	134.3	122.5	48.9	98	6/18	33	90	12.1	82.2	12.8	5.3
2Ab09-X06F084-51	---	---	118.4	50.3	99	6/19	34	70	13.3	88.9	7.7	3.5
08ID1549*	---	109.4	110.3	57.4	97	6/16	35	94	13.8	54.5	33.2	12.3
Clearwater*	93.9	94.8	103.0	52.6	98	6/15	33	94	15.4	33.0	37.0	30.0
2Ab09-X06F052HL-39*	---	---	98.5	57.9	97	6/17	33	81	15.3	71.2	18.2	11.1
Transit*	88.5	87.1	90.8	55.3	99	6/17	34	55	15.5	70.9	19.9	9.8
2Ab09-X06F058HL-31*	---	---	88.9	55.1	97	6/18	32	99	15.5	66.1	19.0	15.7
2Ab09-X06F058HL-21*	---	---	83.5	54.1	75	6/18	36	100	15.0	71.1	17.0	12.3
CDC Fibar*	---	79.0	82.1	55.3	99	6/17	34	98	16.3	61.3	23.4	16.1
Average	108.2	121.4	121.5	52.4	98	6/16	33	81	14.1	75.0	15.6	9.8
LSD (α=.05)	20.8	20.9	19.8	1.6	7.8	1.6	6.0	31.9				
CV %	13.7	12.2	11.5	2.2	5.6	0.7	12.7	27.9				
Pr > F	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	0.2572	<.0001				

* indicates hulless variety

Table 56. Agronomic data for spring barley, Aberdeen, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
2-Row Spring Feed Barley												
Champion	161.0	167.8	164.4	52.4	100	6/11	34	1	13.8	84.6	9.5	6.5
Spaulding	171.7	182.0	161.5	53.3	100	6/15	35	28	12.7	88.1	8.0	4.6
Lenetah	147.8	161.5	152.2	52.4	100	6/14	36	10	12.5	90.0	6.0	4.4
Vespa	---	---	149.8	51.0	100	6/16	29	41	13.1	82.9	10.4	6.9
Tetonia	154.7	153.2	146.9	51.5	100	6/17	33	15	12.1	76.5	14.5	9.6
08ID2661	163.0	169.8	145.9	51.2	100	6/18	34	24	12.3	82.4	12.8	5.4
RWA 1758	131.7	153.2	143.9	51.0	100	6/13	31	25	12.3	81.5	10.8	8.0
Xena	162.0	176.6	143.9	51.0	100	6/11	32	5	12.7	80.2	10.5	9.5
Herald	154.7	154.7	141.0	48.2	100	6/11	33	4	13.4	74.3	17.0	9.6
Idagold II	150.3	169.8	140.5	51.0	100	6/18	31	10	13.7	73.0	18.2	9.3
2Ab09-X06F084-51	---	---	138.1	50.5	100	6/18	36	23	13.1	78.4	12.3	9.8
Baronesse	151.3	154.2	137.6	51.4	100	6/16	31	13	11.8	87.5	8.0	4.7
Transit*	113.7	121.5	133.7	57.5	100	6/16	33	10	14.8	75.1	19.2	6.4
08ID1549*	142.0	148.3	132.2	58.4	100	6/17	33	8	13.9	65.6	21.9	13.2
Julie*	115.1	136.1	129.3	58.9	100	6/18	34	1	15.8	83.4	12.9	4.3
CDC McGwire*	130.8	138.1	125.4	57.3	100	6/17	32	20	13.4	47.6	29.3	23.8
2Ab09-X06F058HL-31*	---	---	122.5	59.3	100	6/16	35	43	15.9	85.2	9.8	5.7
Clearwater*	111.2	116.6	114.2	57.5	100	6/16	33	43	15.1	65.2	22.6	12.9
2Ab09-X06F052HL-39*	---	---	112.2	58.7	99	6/17	32	13	16.2	77.8	14.9	7.8
CDC Fibar*	---	107.8	100.0	59.2	100	6/16	36	58	16.1	83.7	12.5	4.4
2Ab09-X06F058HL-21*	---	---	98.6	59.2	100	6/18	34	15	15.6	87.2	8.2	5.1
Average	138.6	152.1	134.9	54.3	100	6/16	33	19	13.8	78.6	13.8	8.2
LSD (α=.05)	17.8	19.7	18.8	1.5	0.9	1.3	4.0	37.7				
CV %	9.2	9.2	9.8	1.9	0.7	0.6	8.6	138.0				
Pr > F	<.0001	<.0001	<.0001	<.0001	0.6056	<.0001	0.0448	0.1835				

* indicates hulless variety

Table 57. Agronomic data for spring barley at Idaho Falls, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
2-Row Spring Feed Barley												
Xena	155.1	177.9	156.1	54.1	100	6/20	33	0	11.9	96.9	2.6	1.4
Champion	136.7	186.0	153.6	54.6	100	6/19	35	1	12.5	96.7	2.5	1.2
Spaulding	140.5	191.0	150.2	55.3	100	6/21	33	0	12.4	92.7	4.3	3.7
Lenetah	132.5	172.0	148.0	54.0	100	6/20	34	3	12.8	95.7	2.9	2.0
Vespa	---	---	145.2	52.5	100	6/22	29	1	12.7	95.0	3.8	1.8
Herald	141.1	167.4	143.8	50.2	100	6/16	37	0	11.8	89.1	8.8	2.5
Tetonia	148.8	167.4	142.9	54.0	100	6/22	34	3	11.5	92.7	4.7	3.0
08ID2661	150.2	181.0	140.9	53.0	100	6/22	33	0	11.1	89.9	7.8	2.3
Baronesse	129.3	170.6	140.7	53.3	100	6/20	32	0	11.2	94.8	3.9	1.9
RWA 1758	137.7	168.8	139.1	54.0	100	6/20	31	0	11.1	95.9	2.7	1.9
Idagold II	136.6	161.5	136.1	52.4	100	6/23	30	0	11.8	86.4	10.5	3.6
2Ab09-X06F084-51	---	---	133.0	51.1	99	6/23	34	15	12.7	85.6	9.9	5.0
CDC McGwire*	127.3	155.2	129.3	60.2	100	6/22	36	8	11.5	80.1	15.8	4.8
08ID1549*	132.4	149.3	122.2	59.4	100	6/23	35	3	14.6	74.6	18.7	6.7
Julie*	116.2	144.3	120.2	60.0	100	6/24	33	1	15.1	90.8	6.9	2.8
2Ab09-X06F058HL-31*	---	---	110.0	59.9	100	6/21	32	11	14.9	90.6	6.9	2.9
Clearwater*	99.1	140.7	107.1	58.3	100	6/21	33	3	14.9	80.7	13.6	6.8
Transit*	101.9	110.3	107.1	58.2	100	6/21	35	1	15.0	86.1	9.6	4.9
2Ab09-X06F058HL-21*	---	---	104.8	60.6	95	6/23	33	8	15.3	91.9	6.3	2.6
2Ab09-X06F052HL-39*	---	---	100.7	60.9	99	6/22	31	0	15.3	84.6	11.0	4.9
CDC Fibar*	79.4	113.9	90.5	58.9	100	6/21	38	56	16.1	82.8	12.4	4.8
Average	123.9	157.5	129.6	55.9	100	6/21	33	5	13.2	89.2	7.9	3.4
LSD (α=.05)	14.4	15.6	14.6	1.2	1.1	1.1	2.8	12.3				
CV %	8.3	7.0	7.9	1.6	0.8	0.5	5.8	162.8				
Pr > F	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001				

* indicates hulless variety

Table 58. Agronomic data for spring barley at Ashton, irrigated, 2013.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2011**	**2012**	**2013**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
2-Row Spring Feed Barley												
RWA 1758	111.3	83.9	115.7	53.9	100	7/13	24	0	12.5	94.2	3.5	2.1
Lenetah	121.6	113.0	111.2	53.7	100	7/13	26	0	13.2	95.9	2.5	1.4
Champion	123.6	109.4	110.3	54.1	100	7/12	27	0	13.3	93.8	4.1	2.1
Tetonia	117.3	91.2	108.0	53.1	100	7/14	27	0	11.7	90.2	5.8	4.1
2Ab09-X06F084-51	---	---	105.3	51.6	100	7/14	27	0	14.7	91.4	6.5	2.3
Vespa	---	---	101.2	53.0	100	7/13	23	0	13.6	95.4	2.9	1.4
Xena	140.6	107.5	101.2	53.1	100	7/12	27	0	13.1	93.8	4.2	2.1
08ID2661	101.0	86.7	99.8	52.0	100	7/14	29	0	11.7	85.6	9.4	4.6
Spaulding	131.4	97.6	99.4	53.2	100	7/12	27	0	13.3	78.6	13.4	8.0
Herald	97.6	66.3	98.0	50.9	100	7/10	28	0	12.6	94.8	4.1	1.4
Idagold II	101.2	95.7	94.8	51.4	100	7/13	21	0	13.2	88.1	8.6	3.4
Baronesse	115.6	81.7	94.4	51.7	100	7/12	25	0	11.8	84.3	9.3	6.8
CDC McGwire*	103.4	44.5	92.5	59.6	100	7/12	26	0	13.1	74.3	17.3	8.2
08ID1549*	107.1	85.8	90.6	60.3	100	7/13	26	0	15.4	79.4	12.9	7.4
Julie*	94.5	77.1	85.0	59.6	100	7/16	25	0	16.9	90.5	6.7	2.1
Clearwater*	99.0	89.4	82.4	59.9	100	7/13	28	0	15.0	82.2	12.4	5.6
2Ab09-X06F058HL-31*	---	---	79.3	61.1	99	7/12	24	0	16.3	91.0	5.3	3.5
2Ab09-X06F058HL-21*	---	---	76.9	60.9	99	7/12	27	0	16.9	92.7	5.3	2.0
CDC Fibar*	79.4	54.0	70.0	60.2	100	7/12	29	0	16.8	91.4	6.5	2.2
2Ab09-X06F052HL-39*	---	---	69.4	60.1	99	7/13	24	0	17.6	76.7	15.8	7.8
Transit*	79.3	62.2	68.0	58.7	100	7/13	28	0	16.0	87.2	9.9	3.1
Average	106.8	80.6	93.0	55.8	100	7/13	26	0	14.2	88.2	7.9	3.9
LSD (α=.05)	16.2	32.6	20.2	1.1	0.9	1.1	3.2	0.0				
CV %	10.9	28.6	15.4	1.4	0.6	0.4	8.6	.				
Pr > F	<.0001	0.0009	<.0001	<.0001	0.1508	<.0001	<.0001	.				

* indicates hulless variety

Table 59. Hard Winter Wheat Yield Percentage of Location Averages, 2013.

	(100% =Average)					Variety
Variety	**Kimberly**	**Rupert**	**Aberdeen**	**Ririe**	**Rockland**	**Average**
UICF Grace (W)	---	---	---	150	119	134
UI SRG	---	---	---	115	144	129
IDO816	---	---	---	115	121	118
Deloris	---	---	---	101	133	117
Utah 100	106	114	105	117	132	115
Keldin	115	123	108	94	128	114
Weston	---	---	---	122	102	112
IDO1101 (W)	95	127	104	---	---	108
WB-Arrowhead	109	100	110	129	92	108
Lucin-CL	---	---	---	87	126	106
Norwest 553	125	96	113	94	103	106
NSA06-4663	107	92	118	---	---	106
Yellowstone	107	101	119	112	88	105
UI Silver (W)	---	---	---	87	122	104
Whetstone	89	122	95	---	---	102
Promontory	118	85	93	91	115	101
DAS001	101	106	105	89	98	100
Judee	91	101	93	96	109	98
Juniper	95	95	84	105	110	98
IDO1103	85	97	85	103	114	97
OR208229H (W)	110	123	104	82	62	96
Eddy	88	103	97	---	---	96
UI LHS (W)	---	---	---	82	110	96
DAS002	91	101	80	112	93	96
IDO1102	105	90	101	80	101	95
LCS Azimut	98	80	105	---	---	94
Bearpaw	---	---	---	108	81	94
Golden Spike (W)	88	89	80	91	116	93
Manning	83	86	93	108	90	92
Moreland	99	72	107	89	91	91
Greenville	87	84	102	70	106	90
OR2080227H (W)	105	127	96	94	21	89
Curlew	---	---	---	117	60	89
OR2080236H (W)	102	85	101	80	44	83
AP503CL2	---	---	---	84	68	76
Location Average (bu/A)	109	92	132	16	18	

(W) = White

Table 60. Soft White Winter Wheat Yield Percentage of Location Averages, 2013.

	(100% =Average)				Variety
	Kimberly	**Rupert**	**Aberdeen**	**Ririe**	**Average**
Bruneau	110	123	104	129	117
OR2080924	118	114	100	---	110
LWW04-4009	112	112	110	106	110
03-29902A	110	109	106	---	108
Bitterroot	91	100	102	140	108
02-10606A	108	110	106	---	108
Madsen	96	119	97	120	108
Skiles	107	102	102	120	108
LCS Artdeco	118	107	95	---	107
Bobtail	118	99	119	91	107
IDO1108	93	101	100	131	106
99-06202A	96	118	101	---	105
Eltan	99	93	90	134	104
WB 528	103	101	104	106	103
UICF Brundage	116	101	101	94	103
Kaseberg	108	89	104	111	103
WB-Junction	89	107	106	---	101
SY Ovation	87	110	104	---	100
WBEXP-436	96	102	100	---	99
AP Badger	99	99	98	---	99
ORCF-102	115	88	96	91	98
WBEXP-458	90	96	105	---	97
Rosalyn	105	88	106	89	97
Stephens	125	86	90	86	97
ORCF-101	100	89	99	97	96
Mary	81	95	107	97	95
Brundage	90	113	94	83	95
WB 456	82	99	87	109	94
WBEXP-427	97	86	100	---	94
WB-1070CL	91	100	90	---	94
Ladd	81	113	98	74	92
ARS970230-6C*	102	77	96	89	91
AP700 CL	91	93	96	83	91
Cara*	94	77	95	91	89
Brundage 96	91	90	96	69	86
LWW10-1018	90	96	93	60	85
Location Average (bu/A)	107	74	147	13	

* = Club Wheat

Table 61. Winter Barley Yield Percentage of Location Averages, 2013.

	(100% =Average)		Variety
	Rupert	Aberdeen	Average
6Ab08-X03W047-28	136	106	121
UT9401-19	116	119	118
2Ab08-X05W061-42	129	97	113
Eight-Twelve	120	106	113
UTWB9703-19	112	102	107
02Ab671	119	96	107
02Ab669	118	94	106
Charles	111	99	105
Maja	94	112	103
Strider	95	103	99
Alba	113	80	97
Endeavor	111	82	96
02Ab431	101	90	96
02Ab2732	63	126	95
09OR-55	83	106	94
Mathias	99	88	94
Streaker*	87	94	90
Sunstar Pride	80	100	90
Kamiak	74	98	86
Schuyler	78	91	85
Sprinter	60	109	84
Location Average (bu/A)	77	164	

* indicates hulless variety

Table 62. Hard Spring Wheat Yield Percentage of Location Averages, 2013.

		(100% =Average)				
Variety	**Rupert**	**Aberdeen**	**Idaho Falls**	**Ashton**	**Soda Springs**	**Variety Average**
Dayn (W)	107	121	128	117	102	115
Bullseye	105	108	114	99	---	106
WB9229	102	106	114	102	---	106
Kelse	102	109	107	104	107	106
Choteau	100	106	105	115	102	106
IDO 1202S	104	120	105	105	93	105
Volt	98	114	107	104	100	105
WB-Idamax (W)	94	95	111	109	---	102
IDO862T	110	109	96	93	---	102
IDO862E	107	105	94	102	100	102
SY40240R	97	109	102	96	---	101
WB9576	101	100	93	108	---	100
UI Winchester	94	97	88	107	116	100
Jefferson	100	112	99	90	99	100
Glee	98	106	95	105	87	98
Cabernet	99	102	101	91	---	98
Blanca Grande (W)	95	96	96	95	109	98
IDO694C	102	95	97	90	104	97
WB-Paloma (W)	99	87	100	102	---	97
Alzada (D)	110	83	83	105	---	95
WB9879CLP	---	---	---	---	95	95
Klasic (W)	98	87	86	89	100	92
Snow Crest (W)	100	89	98	77	---	91
WB-Rockland	89	79	91	99	---	90
Westbred 936	88	65	91	99	87	86
Location Average (bu/A)	90	98	87	73	59	

(W) = White
(D) = Durum

Table 63. Soft White Spring Wheat Yield Percentage of Location Averages, 2013.

	(100% =Average)					
	Rupert	**Aberdeen**	**Idaho Falls**	**Ashton**	**Soda Springs**	**Variety Average**
IDO 851	107	110	106	109	107	108
WA 8162	96	116	105	103	107	105
IDO 854	105	99	102	115	101	104
WB6121	104	95	105	108	105	104
WBexp-125	105	114	107	97	95	103
UI Stone	105	107	105	101	99	103
Alturas	98	108	103	98	105	102
IDO 852	105	108	107	96	94	102
Alpowa	96	92	94	111	110	101
Penawawa	103	93	97	98	105	99
UI Pettit	105	89	97	105	96	98
Babe	92	94	90	106	109	98
Cataldo	96	87	92	100	91	93
08SB0658-B	91	96	101	85	92	93
11SB0096	94	92	90	67	85	86
Location Average (bu/A)	112	107	99	78	59	

Table 64. 6-Row Barley Yield Percentage of Location Averages, 2013.

	(100% =Average)				Variety
	Rupert	**Aberdeen**	**Idaho Falls**	**Ashton**	**Average**
Feed					
UT2121-12	113	117	118	112	115
UT2120-35	112	110	108	110	110
Goldeneye	106	111	96	107	105
Millennium	100	110	101	99	103
Herald	104	96	98	98	99
Steptoe	89	95	110	97	97
Malt					
Legacy	111	99	95	101	101
Tradition	102	98	92	104	99
01Ab9663	94	98	87	100	95
Celebration	95	90	97	88	93
Morex	92	90	97	90	92
Quest	81	87	101	94	91
Location Average (bu/A)	110	147	154	93	

Table 65. 2-Row Malt Barley Yield Percentage of Location Averages, 2013.

	(100% =Average)				
	Rupert	**Aberdeen**	**Idaho Falls**	**Ashton**	**Variety Average**
2Ab07-X031098-31	119	113	113	96	110
2B05-0811	108	107	112	114	110
Baronesse (feed check)	103	104	105	118	108
Moravian 69	116	106	91	108	105
2Ab08-X05M010-82	104	98	111	108	105
ABI Voyager	107	110	105	96	105
Pinnacle	104	110	104	97	104
Odyssey	107	99	103	105	104
Copeland	93	114	104	104	104
Moravian 143	126	100	104	83	103
Genie	107	104	95	103	102
Merit	96	101	104	107	102
2Ab07-X04M219-46	100	103	99	104	101
Idagold II (feed check)	102	101	100	99	101
Conrad	93	101	101	104	100
2Ab04-X001084-27	88	96	106	103	98
Hockett	102	99	93	98	98
B1202	104	94	98	96	98
Moravian 115	104	97	95	91	97
LCS1820	91	89	100	107	97
Merit 57	87	97	101	101	97
Meredith	103	89	96	92	95
Overture	81	85	96	116	94
02Ab17271	89	99	97	88	93
Metcalfe	97	96	95	80	92
Harrington	84	101	87	87	90
Location Average (bu/A)	120	134	133	97	

Table 66. 2-Row Feed Barley Yield Percentage of Location Averages, 2013.

	(100% =Average)				Variety
	Rupert	**Aberdeen**	**Idaho Falls**	**Ashton**	**Average**
Champion	121	122	119	119	120
Vespa	134	111	112	109	116
Lenetah	111	113	114	120	114
Xena	119	107	120	109	114
Spaulding	112	120	116	107	114
RWA 1758	112	107	107	124	113
Herald	129	104	111	105	112
Tetonia	108	109	110	116	111
08ID2661	101	108	109	107	106
Idagold II	106	104	105	102	104
2Ab09-X06F084-51	97	102	103	113	104
Baronesse	102	102	109	101	103
CDC McGwire*	101	93	100	99	98
Julie*	106	96	93	91	97
08ID1549*	91	98	94	97	95
Clearwater*	85	85	83	89	85
2Ab09-X06F058HL-31*	73	91	85	85	84
Transit*	75	99	83	73	82
2Ab09-X06F052HL-39*	81	83	78	75	79
2Ab09-X06F058HL-21*	69	73	81	83	76
CDC Fibar*	68	74	70	75	72
Location Average (bu/A)	121	135	130	93	

* indicates hulless variety

2013 Winter Grain Yield Percentage Across All Locations Charts

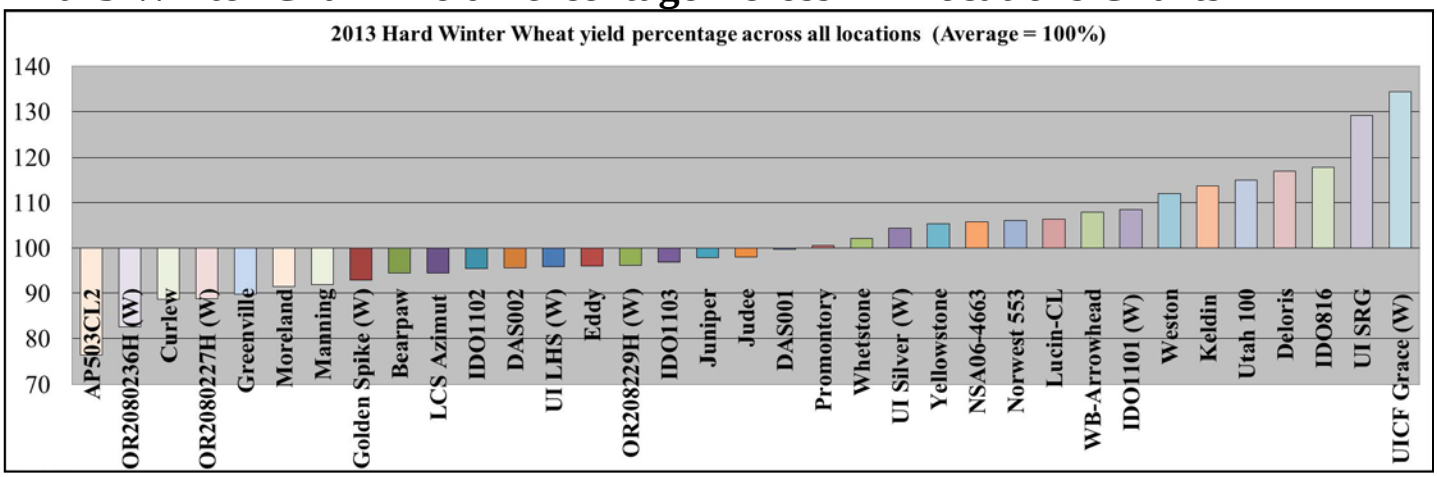


Chart 2. Hard Winter Wheat Yield Percentage Across All Locations.

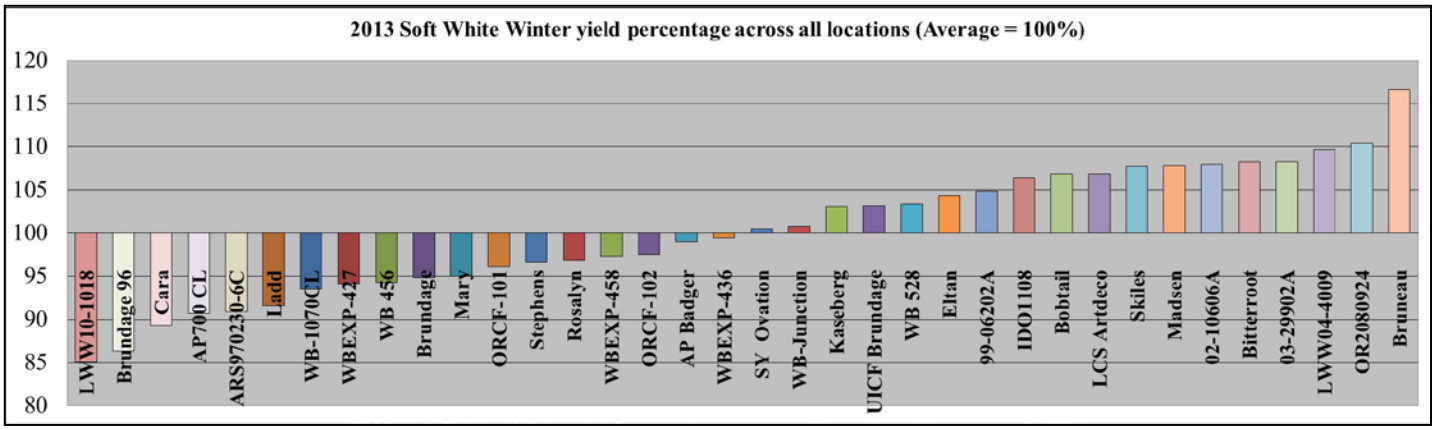


Chart 3. Soft White Winter Wheat Yield Percentage Across All Locations.

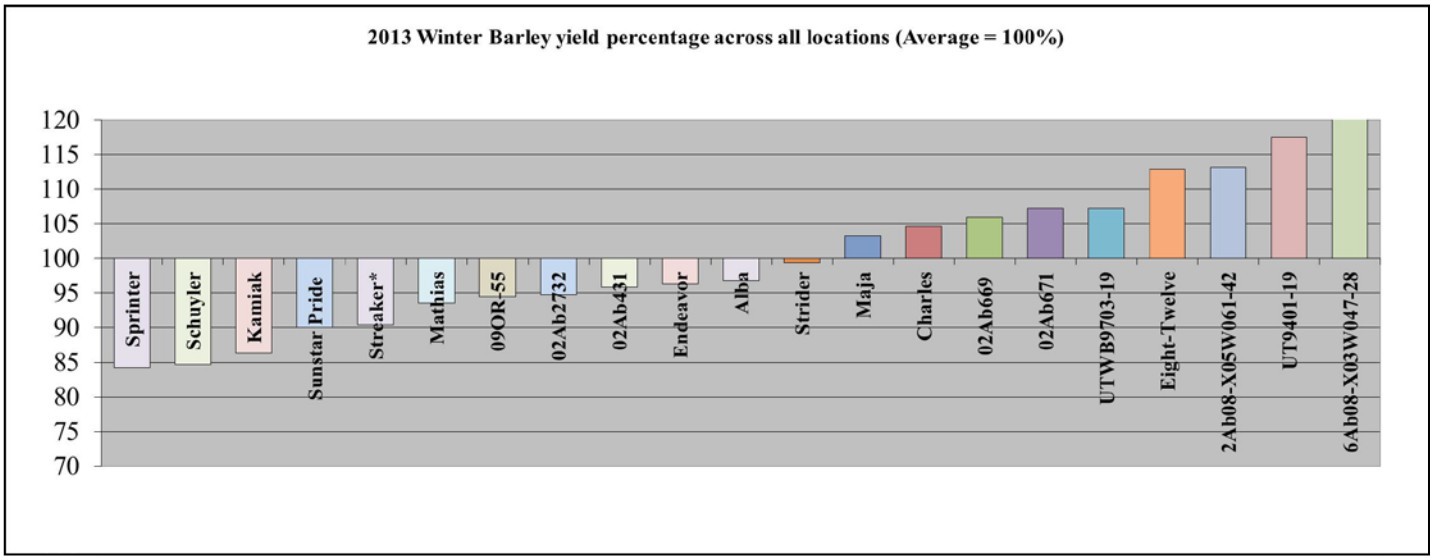


Chart 4. Winter Barley Yield Percentage Across All Locations. * indicates hulless variety.

2013 Spring Grain Yield Percentages Across All Locations Charts

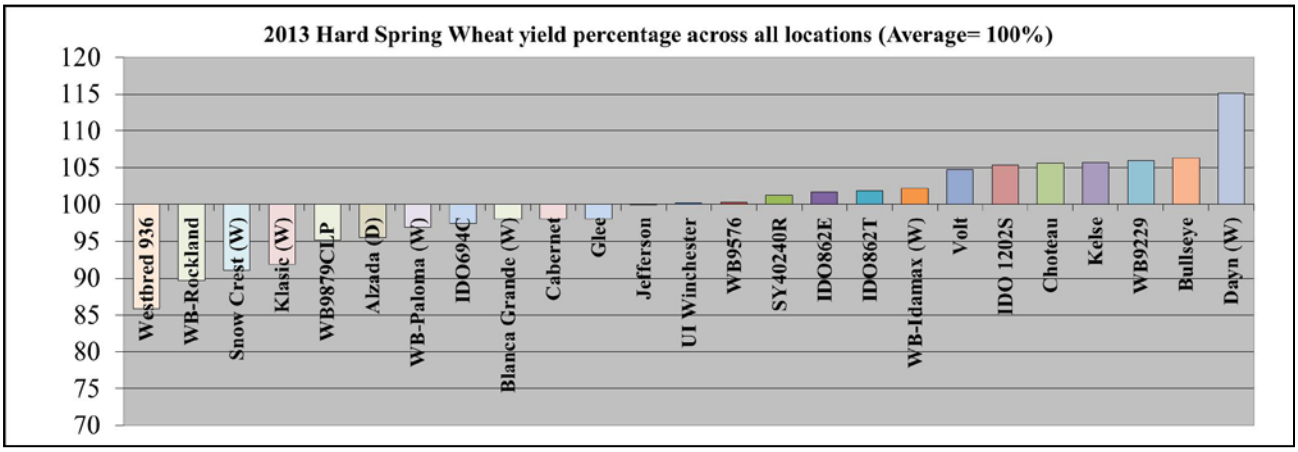


Chart 5. Hard Spring Wheat Yield Percentage Across All Locations.

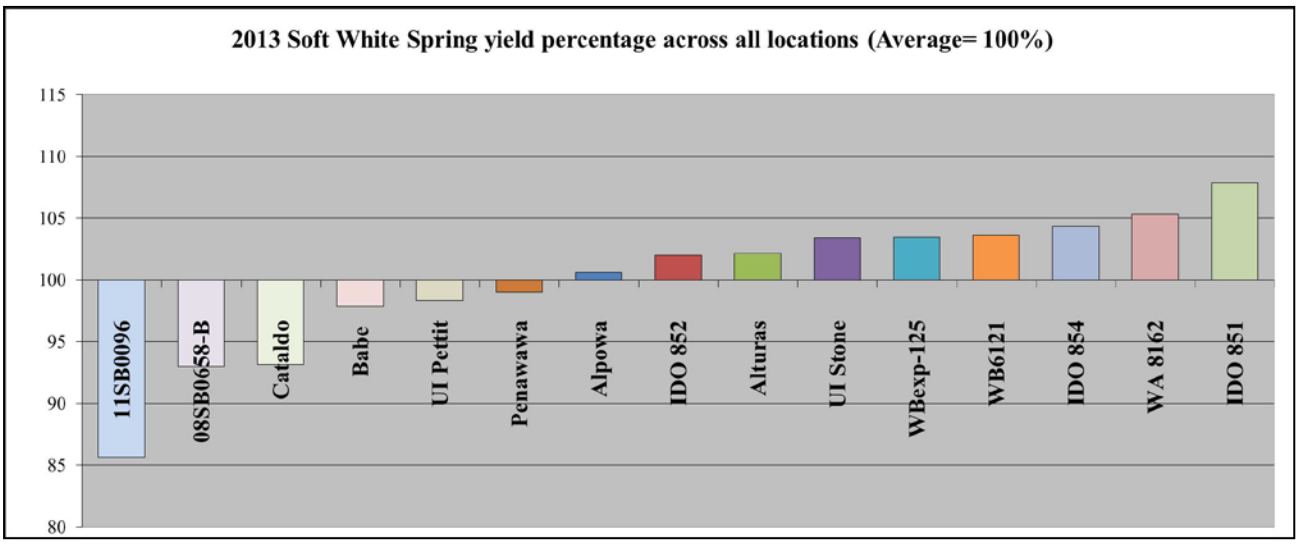


Chart 6. Soft White Spring Yield Percentage Across All Locations.

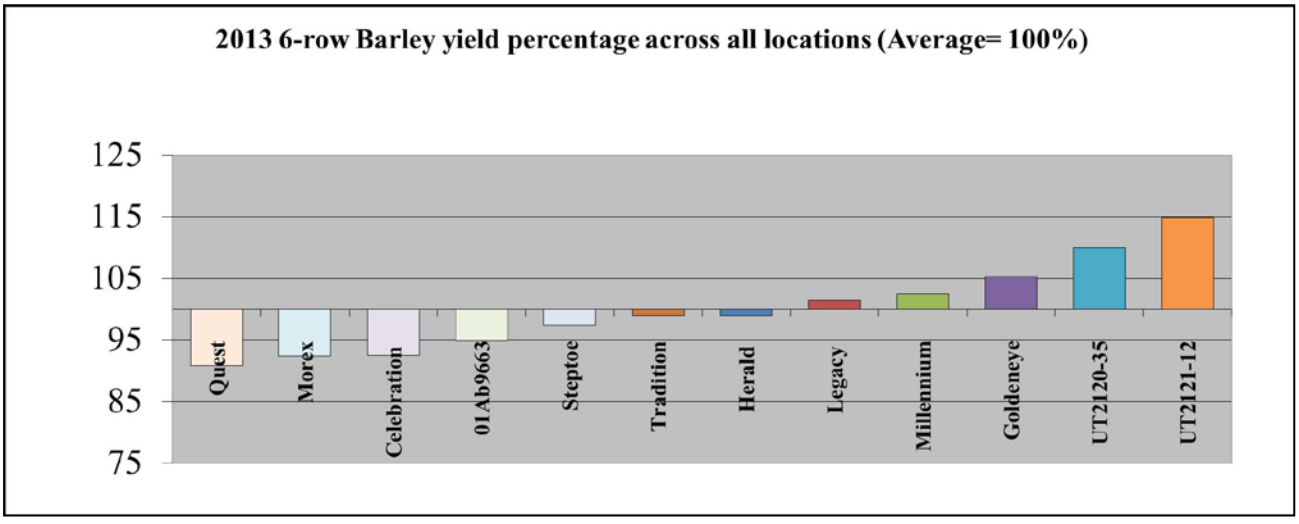


Chart 7. 6-Row Barley Yield Percentage Across All Locations.

2013 2-Row Barley Yield Percentage Across All Locations Charts

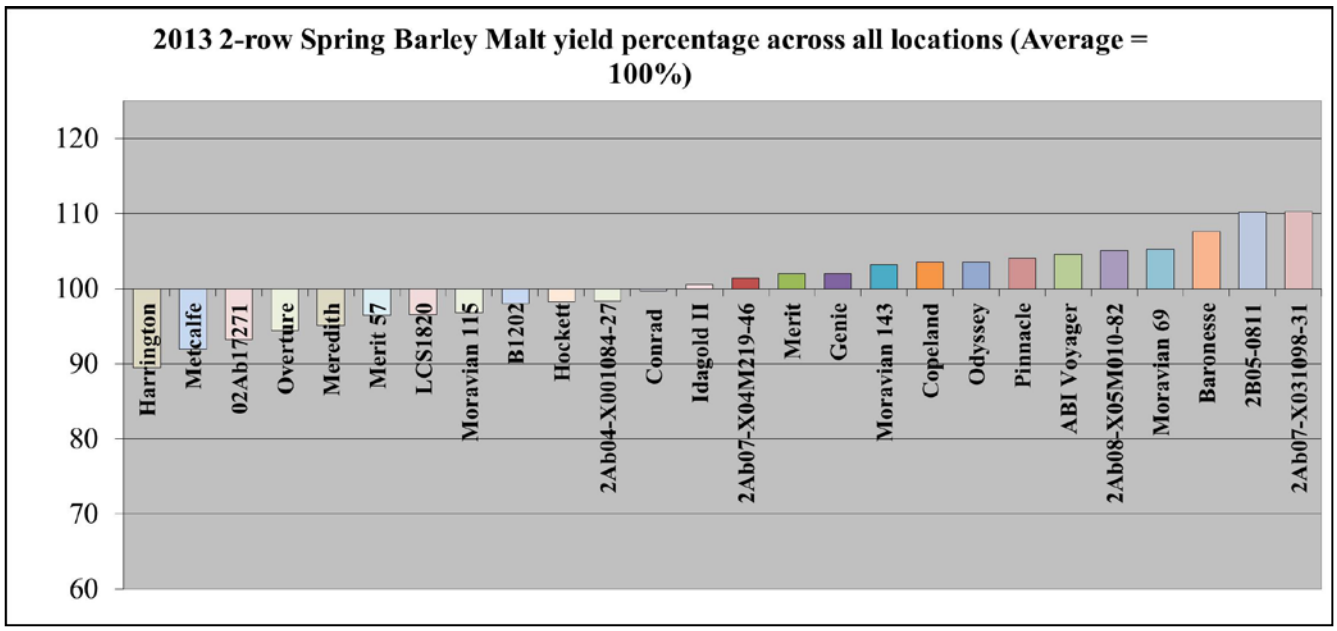


Chart 8. 2-Row Spring Malt Barley Yield Percentage Across All Locations.

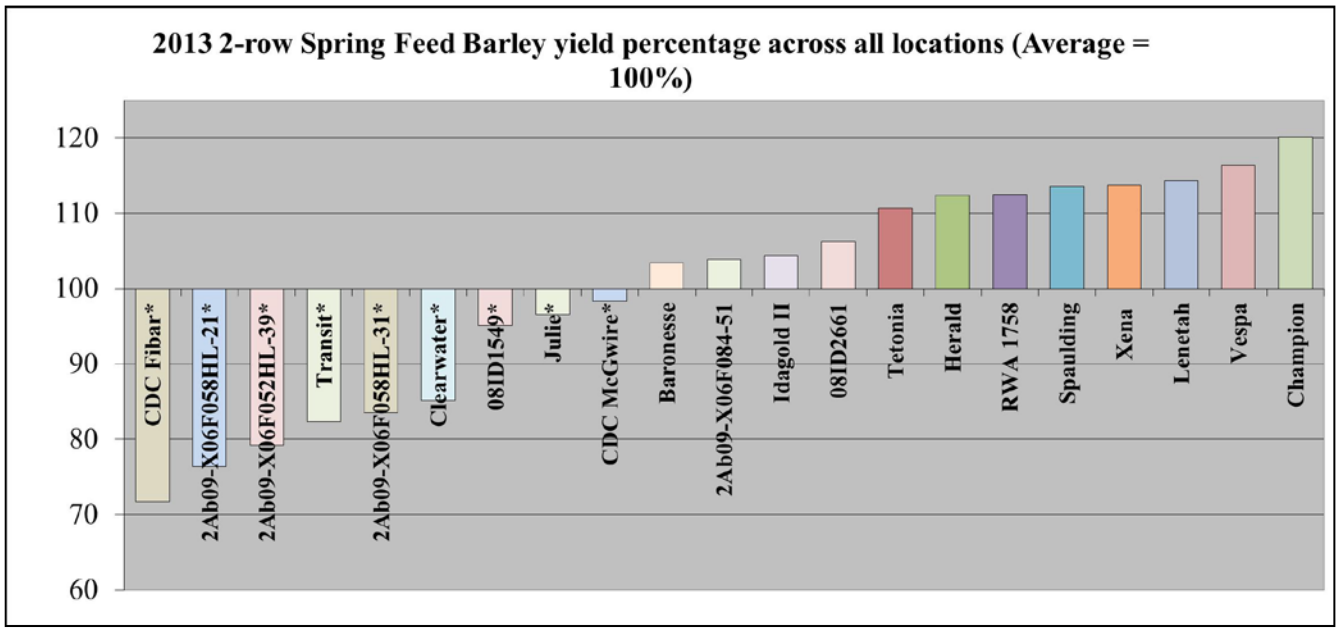


Chart 9. 2-Row Spring Feed Barley Yield Percentage Across All Locations. *indicates hulless variety.

Table 67. Hard Winter Wheat Grain Protein & Kernel Hardness, 2012.

	----------Grain Protein %----------						----------Kernel Hardness 0-100----------					
Variety	**Kimberly**	**Rupert**	**Aberdeen**	**Ririe**	**Rockland**	**Average**	**Kimberly**	**Rupert**	**Aberdeen**	**Ririe**	**Rockland**	**Average**
AgriPro Paladin	13.7	12.5	12.9	---	---	**13.0**	76	76	79	---	---	**77.0**
Altigo	12.0	11.3	12.1	14.1	11.8	**12.3**	71	75	71	56	50	**64.6**
AP503 CL2	12.6	12.5	12.8	16.1	12.7	**13.3**	79	74	76	73	64	**73.2**
Azimut	12.4	12.9	12.1	14.8	11.7	**12.8**	73	67	71	55	56	**64.4**
Bonneville	14.7	13.5	13.6	16.3	12.7	**14.2**	79	73	75	80	61	**73.6**
Boundary	11.4	12.0	12.0	---	---	**11.8**	78	78	77	---	---	**77.7**
Deloris	12.7	12.7	12.7	15.7	12.3	**13.2**	85	78	82	71	67	**76.6**
Eddy	11.8	12.2	12.3	---	---	**12.1**	83	77	74	---	---	**78.0**
Garland	13.5	12.8	12.7	16.4	13.5	**13.8**	73	79	63	78	64	**71.4**
Golden Spike (W)	12.9	11.4	13.3	15.1	11.9	**12.9**	79	70	77	76	51	**70.6**
Greenville	12.7	12.5	11.9	14.7	11.8	**12.7**	73	70	68	64	52	**65.4**
Judee	13.3	12.4	13.3	16.4	13.9	**13.9**	80	77	78	71	67	**74.6**
Juniper	13.5	12.6	13.7	15.6	13.0	**13.7**	92	89	84	82	73	**84.0**
Keldin	12.2	12.1	12.2	15.6	11.8	**12.8**	77	74	71	60	53	**67.0**
Manning	12.3	12.8	13.0	---	---	**12.7**	82	77	78	---	---	**79.0**
Moreland	13.3	12.3	13.5	---	---	**13.0**	80	76	78	---	---	**78.0**
Norwest 553	12.4	11.5	12.1	13.4	13.6	**12.6**	78	78	75	71	67	**73.8**
OR2080156H (W)	13.1	12.2	12.3	15.9	12.9	**13.3**	78	76	72	72	58	**71.2**
OR2080277H (W)	11.8	11.1	12.2	14.1	12.0	**12.2**	98	92	84	89	69	**86.4**
Promontory	11.8	11.3	11.9	15.1	13.5	**12.7**	76	75	70	70	69	**72.0**
Utah 100	12.5	12.3	12.8	15.7	12.1	**13.1**	91	84	91	85	67	**83.6**
WB-Arrowhead	12.0	11.4	11.6	15.1	13.6	**12.7**	74	70	77	64	65	**70.0**
Whetstone	13.2	12.0	14.1	---	---	**13.1**	86	77	84	---	---	**82.3**
Yellowstone	12.1	11.0	12.3	14.6	12.7	**12.5**	80	76	79	76	68	**75.8**
Bearpaw	---	---	---	15.9	13.5	**14.7**	---	---	---	86	70	**78.0**
Curlew	---	---	---	15.9	12.5	**14.2**	---	---	---	81	66	**73.5**
DW	---	---	---	15.2	13.7	**14.5**	---	---	---	75	68	**71.5**
Gary (W)	---	---	---	15.2	11.4	**13.3**	---	---	---	75	59	**67.0**
IDO816	---	---	---	15.2	11.8	**13.5**	---	---	---	80	66	**73.0**
Lucin-CL	---	---	---	15.1	12.0	**13.6**	---	---	---	71	64	**67.5**
UI Darwin	---	---	---	15.4	12.1	**13.8**	---	---	---	72	62	**67.0**
UI LHS (W)	---	---	---	16.8	12.5	**14.7**	---	---	---	68	53	**60.5**
UI Silver (W)	---	---	---	15.1	12.0	**13.6**	---	---	---	87	64	**75.5**
UI SRG	---	---	---	15.8	12.9	**14.4**	---	---	---	84	70	**77.0**
UICF Grace (W)	---	---	---	16.0	12.2	**14.1**	---	---	---	83	74	**78.5**
Weston	---	---	---	16.0	13.1	**14.6**	---	---	---	72	60	**66.0**
	12.7	**12.1**	**12.6**	**15.4**	**12.6**	**13.3**	**80.0**	**76.6**	**76.4**	**74.2**	**63.2**	**73.5**

(W) = White

Table 68. Soft White Winter Wheat Grain Protein & Kernel Hardness, 2012.

	--------Grain Protein %--------					--------Kernel Hardness 0-100--------				
Variety	**Kimberly**	**Rupert**	**Aberdeen**	**Ririe**	**Average**	**Kimberly**	**Rupert**	**Aberdeen**	**Ririe**	**Average**
96-16702	11.1	8.1	8.8	13.7	**10.4**	21	22	22	25	**22.5**
Agripro Legion	11.8	9.1	10.2	---	**10.4**	26	20	26	---	**24.0**
Agripro Salute	12.3	9.0	9.6	---	**10.3**	32	30	33	---	**31.7**
AP Badger	11.8	9.0	10.3	---	**10.4**	34	24	30	---	**29.3**
AP Legacy	11.7	8.5	10.1	---	**10.1**	32	25	29	---	**28.7**
AP700 CL	12.9	8.7	10.4	15.8	**12.0**	33	30	33	38	**33.5**
ARS970230-6C*	11.3	9.3	8.5	15.4	**11.1**	30	28	25	39	**30.5**
Bitterroot	12.3	7.7	8.9	14.3	**10.8**	29	14	19	21	**20.8**
Brundage	11.5	9.0	9.0	14.5	**11.0**	30	22	22	25	**24.8**
Brundage 96	11.7	9.2	8.9	14.3	**11.0**	25	25	20	22	**23.0**
Bruneau	11.5	8.3	8.2	13.9	**10.5**	22	18	17	22	**19.8**
Cara*	12.2	9.7	11.1	---	**11.0**	32	21	29	---	**27.3**
Coda*	13.0	9.3	10.2	15.1	**11.9**	34	31	30	36	**32.8**
IDO663	12.2	9.0	9.6	14.8	**11.4**	33	26	25	34	**29.5**
LWW 04-4009	11.5	9.1	10.1	13.8	**11.1**	29	20	25	22	**24.0**
Madsen	11.9	8.4	12.6	15.3	**12.1**	29	24	32	28	**28.3**
Mary	11.4	9.3	10.2	14.4	**11.3**	30	24	26	27	**26.8**
NSA 94-2153A	10.5	9.2	8.5	12.5	**10.2**	22	18	19	15	**18.5**
OR2071628	11.0	8.7	10.3	13.6	**10.9**	24	18	22	20	**21.0**
Bobtail	12.0	8.3	9.4	13.2	**10.7**	28	16	18	23	**21.3**
ORCF-101	12.5	8.4	10.1	15.4	**11.6**	27	14	22	33	**24.0**
ORCF-102	11.4	10.4	9.0	13.9	**11.2**	31	24	24	31	**27.5**
Skiles	12.2	9.4	9.2	14.1	**11.2**	26	23	23	27	**24.8**
Stephens	11.8	10.2	10.6	16.4	**12.3**	32	26	28	33	**29.8**
SY Ovation	10.5	8.6	10.3	---	**9.8**	32	25	30	---	**29.0**
UICF Brundage	11.8	9.2	10.0	14.1	**11.3**	22	18	20	24	**21.0**
UICF Lambert	12.6	8.4	10.4	14.5	**11.5**	35	30	33	31	**32.3**
WB 456	11.8	9.6	9.5	---	**10.3**	33	31	28	---	**30.7**
WB 528	12.7	9.4	9.5	14.9	**11.6**	25	21	26	24	**24.0**
WB-1066CL	12.7	9.2	9.7	14.5	**11.5**	42	36	39	38	**38.8**
WB-1070CL	11.6	9.2	11.9	14.9	**11.9**	28	27	32	21	**27.0**
WB-Junction	11.1	7.8	9.1	14.3	**10.6**	25	20	22	23	**22.5**
Ladd	11.5	8.8	10.0	14.8	**11.3**	29	26	31	34	**30.0**
BZ6W07-427	12.1	9.4	10.9	---	**10.8**	31	27	31	---	**29.7**
BZ6W07-436	11.6	9.3	9.7	---	**10.2**	29	28	26	---	**27.7**
BZ6W07-458	11.5	9.4	10.5	---	**10.5**	29	19	27	---	**25.0**
Eltan	---	---	---	14.2	**14.2**	---	---	---	24	**24.0**
Location Average	**11.8**	**9.0**	**9.9**	**14.5**	**11.1**	**29.2**	**23.6**	**26.2**	**27.4**	**26.6**

* = Club Wheat

Table 69. Hard Spring Wheat Grain Protein & Kernel Hardness, 2012.

	----------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												
Albany	13.1	12.6	12.6	14.0	---	**13.1**	79	73.0	73	72	---	**74.3**
B04-1418	14.0	13.9	13.9	15.5	---	**14.3**	83	77.0	77	87	---	**81.0**
Buck Pronto	14.8	14.4	14.4	15.3	---	**14.7**	70	73.0	73	71	---	**71.8**
Bullseye	14.0	14	14.0	15.2	---	**14.3**	85	76.0	76	78	---	**78.8**
BZ-401	14.6	14.3	14.3	15.4	---	**14.7**	87	81.0	81	87	---	**84.0**
C-2801	14.7	14.2	14.2	15.9	---	**14.8**	74	66.0	66	77	---	**70.8**
C-2821	13.4	13.3	13.3	14.4	---	**13.6**	84	75.0	75	77	---	**77.8**
C-2836	12.6	13	13.0	14.2	---	**13.2**	78	72.0	72	70	---	**73.0**
Cabernet	13.9	13.5	13.5	14.7	14.8	**14.1**	69	68.0	68	62	71	**67.6**
Choteau	14.4	13.9	13.9	15.4	15.4	**14.6**	86	81.0	81	77	80	**81.0**
Glee	13.6	13.8	13.8	14.8	15.0	**14.2**	71	70.0	70	70	74	**71.0**
IDO862E	13.8	14.1	14.1	15.2	15.1	**14.5**	80	75.0	75	73	74	**75.4**
IDO862T	13.7	13.7	13.7	15.2	---	**14.1**	81	73.0	73	73	---	**75.0**
Jefferson	13.7	13.5	13.5	15.8	14.7	**14.2**	78	72.0	72	70	80	**74.4**
Kelse	13.8	13.8	13.8	15.1	15.0	**14.3**	83	75.0	75	76	73	**76.4**
UI Winchester	14.0	13.8	13.8	14.9	15.0	**14.3**	76	69.0	69	63	74	**70.2**
Volt	13.7	13.9	13.9	15.3	14.2	**14.2**	90	81.0	81	90	77.0	**83.8**
WB-Rockland	14.7	14.8	14.8	15.5	---	**15.0**	80	75.0	75	74	---	**76.0**
WB-Rockland +25%	15.1	15	15.0	15.4	---	**15.1**	79	73.0	73	71	---	**74.0**
Westbred 936	14.1	14.5	14.5	16.0	15.0	**14.8**	75.0	66.0	66.0	71.0	62.0	**68.0**
Hard White Spring												
Blanca Grande (W)	13.7	13.9	13.7	14.2	14.8	**14.1**	64	61.0	60	60	59	**60.8**
IDO694C (W)	13.6	14	13.7	14.6	14.3	**14.0**	61	65.0	61	60	74	**64.2**
Klasic (W)	13.5	13.4	13.7	14.7	14.1	**13.9**	55	61.0	61	50	60	**57.4**
Snow Crest (W)	13.9	14.6	14.1	15.4	14.3	**14.5**	56	57.0	54	54	49	**54.0**
SY Capstone (W)	13.7	14.5	14.0	14.5	14.5	**14.2**	62	65.0	56	59	63	**61.0**
WA8123 (W)	13.8	14.2	13.6	14.8	15.0	**14.3**	78	80.0	70	77	76	**76.2**
WB-Idamax (W)	13.9	14.8	13.9	14.7	---	**14.3**	77	74.0	74	67	---	**73.0**
WB-Paloma (W)	15.1	14.7	14.1	14.4	14.5	**14.6**	76	75.0	73	66	81	**74.2**
WB-Perla (W)	14.7	15.2	14.5	14.4	---	**14.7**	75	76.0	78	78	---	**76.8**
Alzada (D)	15.2	15.9	15.4	15.5	---	**15.5**	---	---	95	---	---	**95.0**
Location Average	**14.0**	**14.1**	**14.0**	**15.0**	**14.7**	**14.3**	**75.6**	**71.9**	**71.8**	**71.0**	**70.4**	**73.2**

(W) = White

(D) = Durum

Table 70. Soft White Spring Wheat Grain Protein & Kernel Hardness, 2012.

	--------Grain Protein %--------						--------Kernel Hardness 0-100--------					
Variety	**Rupert**	**Aberdeen**	**Idaho Falls**	**Ashton**	**Soda Springs**	**Average**	**Rupert**	**Aberdeen**	**Idaho Falls**	**Ashton**	**Soda Springs**	**Average**
Alpowa	11.7	11.7	11.8	11.3	12.4	**11.8**	24	19	23	21	26	**22.6**
Alturas	11.0	12.2	11.1	11.2	11.9	**11.5**	20	17	17	23	21	**19.6**
Babe	10.9	12.1	11.8	10.5	12.2	**11.5**	19	15	18	20	24	**19.2**
Cataldo	11.9	12.1	12.0	11.5	12.3	**12.0**	17	18	19	18	22	**18.8**
UI Stone	10.6	11.8	11.4	10.0	11.6	**11.1**	17	11	15	12	20	**15.0**
IDO 671	10.6	11.4	11.0	10.8	11.4	**11.0**	19	14	16	22	20	**18.2**
IDO 687	10.7	12.6	11.4	11.2	12.3	**11.6**	18	18	20	22	25	**20.6**
JD*	11.3	12.6	11.8	12.0	12.0	**11.9**	32	22	25	33	31	**28.6**
Nick	11.5	12.4	11.7	11.1	13.0	**11.9**	21	19	17	20	29	**21.2**
Penawawa	11.9	12.3	12.2	11.9	12.5	**12.2**	19	19	19	20	29	**21.2**
UI Pettit	10.6	11.9	11.2	10.7	11.7	**11.2**	22	21	20	18	28	**21.8**
Whit	11.6	11.9	11.6	11.9	12.4	**11.9**	20	18	24	26	31	**23.8**
Location Average	**11.2**	**12.1**	**11.6**	**11.2**	**12.1**	**11.6**	**20.7**	**17.6**	**19.4**	**21.3**	**25.5**	**20.9**

*=club wheat

Table 71. Percent flour protein and flour yield for soft white winter wheat at Kimberly, Rupert, Ririe, and Aberdeen, 2012.

	Flour Protein (%)					Flour Yield (%)				
Variety	**Kimberly**	**Rupert**	**Aberdeen**	**Ririe**	**Average**	**Kimberly**	**Rupert**	**Aberdeen**	**Ririe**	**Average**
96-16702	8.9	7.7	5.9	10.9	**8.4**	62.4	63.3	64.1	59.1	**62.2**
Agripro Legion	9.0	7.9	7.2	---	**8.0**	59.6	59.8	60.8	---	**60.1**
Agripro Salute	9.0	7.5	6.6	---	**7.7**	64.7	60.9	62.6	---	**62.7**
AP Badger	8.7	7.7	7.3	---	**7.9**	62.1	60.9	63.3	---	**62.1**
AP Legacy	8.5	6.9	6.9	---	**7.4**	66.5	64.9	66.3	---	**65.9**
AP700 CL	9.2	7.5	6.9	12.9	**9.1**	59.6	60.0	61.0	55.4	**59.0**
ARS970230-6C*	7.8	7.7	5.7	11.5	**8.2**	64.2	62.7	63.1	58.4	**62.1**
Bitterroot	9.1	7.2	6.3	12.6	**8.8**	65.7	62.4	66.1	61.8	**64.0**
Brundage	8.5	7.6	6.5	11.0	**8.4**	64.3	61.2	63.0	59.3	**62.0**
Brundage 96	8.0	8.1	9.3	12.3	**9.4**	62.1	61.2	64.4	54.6	**60.6**
Bruneau	8.5	7.7	6.1	11.6	**8.5**	64.7	63.0	65.4	57.6	**62.7**
Cara*	8.6	8.2	8.5	---	**8.4**	66.0	64.6	66.8	---	**65.8**
Coda*	9.5	7.8	7.0	12.2	**9.1**	65.0	65.6	68.3	62.0	**65.2**
IDO663	8.9	7.9	7.5	12.5	**9.2**	65.6	64.0	62.9	55.9	**62.1**
LWW 04-4009	7.8	8.1	7.4	11.4	**8.7**	65.7	62.4	64.0	57.8	**62.5**
Madsen	8.6	7.6	9.7	13.2	**9.8**	64.7	64.3	64.1	56.7	**62.5**
Mary	8.3	8.3	7.3	12.2	**9.0**	68.0	64.9	66.6	58.9	**64.6**
NSA 94-2153A	7.2	7.9	6.3	10.1	**7.9**	63.6	58.1	62.9	58.6	**60.8**
OR2071628	7.8	7.7	7.3	10.9	**8.4**	62.4	53.3	60.8	56.5	**58.3**
Bobtail	8.9	6.3	6.7	10.9	**8.2**	65.2	64.7	63.2	61.6	**63.7**
ORCF-101	9.3	6.9	7.5	12.9	**9.2**	65.5	64.1	64.4	60.2	**63.6**
ORCF-102	8.2	7.4	6.2	11.6	**8.4**	65.6	62.4	64.2	59.0	**62.8**
Skiles	8.7	8.2	7.0	12.3	**9.1**	60.5	62.4	61.4	56.5	**60.2**
Stephens	8.5	8.2	7.5	14.3	**9.6**	64.7	63.5	64.1	56.4	**62.2**
SY Ovation	7.3	6.8	7.5	---	**7.2**	66.1	64.2	63.6	---	**64.6**
UICF Brundage	7.9	7.0	7.0	12.3	**8.6**	62.1	60.9	59.3	51.6	**58.5**
UICF Lambert	9.9	6.4	7.6	12.7	**9.2**	60.3	64.6	63.2	56.2	**61.1**
WB 456	9.1	7.4	7.4	---	**8.0**	66.7	65.6	65.1	---	**65.8**
WB 528	9.3	7.4	7.0	12.6	**9.1**	58.4	63.4	63.9	53.0	**59.7**
WB-1066CL	9.2	7.3	6.9	12.7	**9.0**	66.0	64.7	63.0	58.2	**63.0**
WB-1070CL	8.5	7.1	9.1	13.6	**9.6**	64.4	60.4	60.8	56.3	**60.5**
WB-Junction	9.2	5.7	6.2	12.1	**8.3**	62.6	57.8	59.7	50.3	**57.6**
Ladd	9.7	7.0	7.3	13.1	**9.3**	66.9	63.6	63.6	56.0	**62.5**
BZ6W07-427	10.0	7.6	7.8	---	**8.5**	65.5	62.8	63.7	---	**64.0**
BZ6W07-436	9.2	7.0	6.9	---	**7.7**	61.6	59.3	58.0	---	**59.6**
BZ6W07-458	9.3	7.3	7.7	---	**8.1**	64.0	62.6	62.5	---	**63.0**
Eltan	---	---	---	13.0	**13.0**	---	---	---	53.5	**53.5**
Location average	**8.6**	**7.6**	**7.1**	**12.0**	**8.6**	**63.9**	**62.5**	**63.8**	**57.6**	**61.9**

* = Club Wheat

Table 72. Percent break flour yield and cookie diameter for soft white winter wheat at Kimberly, Rupert, Ririe, and Aberdeen 2012.

	Break Flour Yield (%)					Cookie Diameter (cm)				
Variety	**Kimberly**	**Rupert**	**Aberdeen**	**Ririe**	**Average**	**Kimberly**	**Rupert**	**Aberdeen**	**Ririe**	**Average**
96-16702	54.8	52.7	59.0	54.4	**55.2**	8.8	8.8	9.2	8.8	**8.9**
Agripro Legion	52.2	48.8	55.2	---	**52.1**	8.8	8.8	9.1	---	**8.9**
Agripro Salute	52.8	44.5	52.6	---	**50.0**	8.7	9.0	9.1	---	**8.9**
AP Badger	49.7	45.4	48.4	---	**47.8**	8.4	8.8	8.7	---	**8.6**
AP Legacy	54.5	48.4	51.8	---	**51.6**	8.9	8.8	8.9	---	**8.9**
AP700 CL	53.1	42.3	46.1	46.0	**46.9**	8.8	8.7	8.7	8.3	**8.6**
ARS970230-6C*	53.1	49.2	54.6	49.7	**51.7**	8.9	8.9	8.8	8.5	**8.8**
Bitterroot	55.4	56.1	57.6	52.8	**55.5**	8.9	9.2	9.1	8.7	**9.0**
Brundage	54.4	51.7	55.8	57.5	**54.9**	8.6	8.8	8.9	8.7	**8.7**
Brundage 96	58.8	51.8	57.0	64.7	**58.1**	9.0	9.2	9.1	8.6	**9.0**
Bruneau	53.8	46.5	54.2	56.2	**52.7**	9.0	9.2	9.1	8.7	**9.0**
Cara*	53.8	49.5	53.9	---	**52.4**	9.0	9.2	9.1	---	**9.1**
Coda*	51.8	46.0	48.6	48.8	**48.8**	8.7	8.6	8.7	8.4	**8.6**
IDO663	51.8	45.4	54.3	55.3	**51.7**	8.8	8.8	9.0	8.5	**8.8**
LWW 04-4009	50.8	46.8	51.7	49.2	**49.6**	8.8	8.8	8.8	8.5	**8.7**
Madsen	51.6	45.7	47.7	51.6	**49.2**	8.7	8.6	8.6	8.5	**8.6**
Mary	52.4	46.4	51.7	54.3	**51.2**	8.7	8.8	8.9	8.6	**8.8**
NSA 94-2153A	50.6	49.5	50.6	53.3	**51.0**	8.7	8.8	8.7	8.6	**8.7**
OR2071628	63.1	60.2	58.0	60.1	**60.4**	9.0	9.0	9.0	8.8	**8.9**
Bobtail	55.0	55.7	60.5	55.1	**56.6**	8.9	9.0	9.1	8.7	**8.9**
ORCF-101	48.0	49.3	48.8	50.1	**49.1**	8.6	8.8	8.7	8.5	**8.6**
ORCF-102	51.9	48.2	50.6	50.0	**50.2**	8.6	8.7	8.7	8.5	**8.6**
Skiles	55.5	48.8	52.9	55.0	**53.1**	9.0	9.1	9.1	8.7	**9.0**
Stephens	47.2	42.9	45.6	45.0	**45.2**	8.7	8.8	8.9	8.5	**8.7**
SY Ovation	51.2	47.8	45.6	---	**48.2**	8.7	8.7	8.7	---	**8.7**
UICF Brundage	59.1	54.8	59.1	56.4	**57.4**	8.9	9.3	9.3	8.6	**9.0**
UICF Lambert	53.6	49.7	52.9	49.7	**51.5**	8.6	8.8	8.9	8.5	**8.7**
WB 456	46.6	42.5	46.7	---	**45.3**	8.5	8.7	8.7	---	**8.6**
WB 528	58.0	46.5	51.8	53.4	**52.4**	8.6	9.1	9.1	8.6	**8.9**
WB-1066CL	42.5	39.4	45.6	45.6	**43.3**	8.6	8.8	8.7	8.6	**8.7**
WB-1070CL	43.9	46.7	45.0	52.9	**47.1**	8.6	8.7	8.7	8.6	**8.6**
WB-Junction	51.9	52.3	57.2	55.3	**54.2**	9.0	9.1	9.1	8.4	**8.9**
Ladd	49.2	45.8	49.2	50.4	**48.7**	8.8	8.7	8.6	8.6	**8.7**
BZ6W07-427	49.5	45.1	50.6	---	**48.4**	8.8	8.7	8.8	---	**8.8**
BZ6W07-436	51.5	48.1	55.8	---	**51.8**	8.8	8.9	9.0	---	**8.9**
BZ6W07-458	50.3	46.9	52.0	---	**49.7**	8.7	8.8	8.8	---	**8.7**
Eltan	---	---	---	54.1	**54.1**	---	---	---	8.6	**8.6**
Location average	**52.3**	**48.3**	**52.2**	**52.8**	**51.3**	**8.8**	**8.9**	**8.9**	**8.6**	**8.8**

* = Club Wheat

Table 73. Percent flour protein and flour yield for soft white spring wheat at Rupert, Aberdeen, Idaho Falls, Ashton, and Soda Springs, 2012.

	Flour Protein (14% mb)						Flour Yield (%)					
Variety	**Rupert**	**Aberdeen**	**Idaho Falls**	**Ashton**	**Soda Springs**	**Average**	**Rupert**	**Aberdeen**	**Idaho Falls**	**Ashton**	**Soda Springs**	**Average**
Alpowa	9.8	10.0	10.1	9.7	9.3	**9.8**	60.2	60.4	61.2	62.3	50.9	**59.0**
Alturas	9.0	10.1	9.9	9.9	9.3	**9.6**	63.4	61.1	65.1	66.2	59.5	**63.1**
Babe	8.7	9.9	10.3	8.9	9.2	**9.4**	62.9	59.4	61.2	64.9	52.2	**60.1**
Cataldo	9.6	9.9	10.1	10.0	9.5	**9.8**	59.9	60.5	63.3	61.1	56.6	**60.3**
UI Stone	8.8	9.5	9.6	8.4	8.8	**9.0**	65.7	62.6	66.3	66.1	59.5	**64.0**
IDO 671	8.8	9.6	9.4	9.5	9.9	**9.4**	65.7	62.9	67.0	66.8	59.8	**64.4**
IDO 687	8.9	10.3	9.4	9.2	9.1	**9.4**	65.5	59.1	66.2	64.7	58.0	**62.7**
JD*	8.8	10.4	9.6	9.8	9.5	**9.6**	68.3	62.8	66.6	66.8	58.5	**64.6**
Nick	9.7	10.5	9.6	9.7	10.0	**9.9**	61.6	59.3	62.1	61.7	55.8	**60.1**
Penawawa	9.6	10.8	10.1	10.5	9.5	**10.1**	58.2	56.8	58.6	58.9	51.4	**56.8**
UI Pettit	8.5	10.4	9.2	9.3	9.2	**9.3**	65.8	64.3	66.2	64.6	61.5	**64.5**
Whit	9.1	9.8	9.4	10.2	9.4	**9.6**	62.7	60.5	61.9	61.3	55.9	**60.5**
Location Average	**9.1**	**10.1**	**9.7**	**9.6**	**9.4**	**9.6**	**63.3**	**60.8**	**63.8**	**63.8**	**56.6**	**61.7**

*=club wheat

mb=moisture basis

Table 74. Percent break flour and cookie diameter for soft white spring wheat at Rupert, Aberdeen, Idaho Falls, Ashton, and Soda Springs, 2012.

	Break Flour (%)						Cookie Diameter (cm)					
Variety	**Rupert**	**Aberdeen**	**Idaho Falls**	**Ashton**	**Soda Springs**	**Average**	**Rupert**	**Aberdeen**	**Idaho Falls**	**Ashton**	**Soda Springs**	**Average**
Alpowa	48.3	47.2	49.5	51.0	51.4	**49.5**	8.7	8.6	8.7	8.7	8.5	**8.6**
Alturas	48.9	49.4	47.9	46.2	48.1	**48.1**	9.0	8.7	8.9	8.9	8.7	**8.8**
Babe	44.9	50.3	46.4	46.7	50.5	**47.8**	8.9	8.8	8.8	9.0	8.6	**8.8**
Cataldo	46.6	51.1	46.0	47.8	48.5	**48.0**	8.9	8.9	8.8	8.8	8.6	**8.8**
UI Stone	52.5	51.2	49.2	53.2	50.3	**51.3**	9.1	9.0	9.0	9.0	8.9	**9.0**
IDO 671	46.6	49.7	44.0	44.7	47.6	**46.5**	9.0	8.9	9.0	8.9	8.8	**8.9**
IDO 687	48.9	55.6	47.5	49.1	51.3	**50.5**	9.4	8.9	9.0	9.0	8.9	**9.0**
JD*	45.8	49.2	44.4	44.4	44.2	**45.6**	9.3	9.1	9.2	8.9	8.9	**9.1**
Nick	47.2	50.3	45.8	48.3	44.6	**47.2**	8.9	8.9	8.8	8.9	8.6	**8.8**
Penawawa	51.9	51.8	47.5	48.6	50.3	**50.0**	8.8	8.7	8.7	8.9	8.5	**8.7**
UI Pettit	48.1	47.6	43.9	49.3	44.9	**46.8**	9.2	9.2	9.3	9.1	8.9	**9.2**
Whit	49.2	52.5	47.0	49.8	49.6	**49.6**	9.2	8.9	9.3	9.1	8.7	**9.0**
Location Average	**48.2**	**50.5**	**46.6**	**48.3**	**48.4**	**48.4**	**9.0**	**8.9**	**9.0**	**8.9**	**8.7**	**8.9**

*=club wheat

Table 75. Percent flour protein and flour yield for hard winter wheat at Aberdeen, Kimberly, Rupert, Ririe and Preston 2012.

	Flour Protein (14% mb)						Flour Yield (%)					
Variety	**Kimberly**	**Rupert**	**Aberdeen**	**Ririe**	**Rockland**	**Average**	**Kimberly**	**Rupert**	**Aberdeen**	**Ririe**	**Rockland**	**Average**
Hard Red Winter Wheat												
AgriPro Paladin	13.2	10.5	12.0	---	---	**11.9**	63.6	62.3	63.1	---	---	**63.0**
Altigo	10.9	9.2	10.6	13.5	10.2	**10.9**	64.7	65.8	65.0	61.3	65.0	**64.4**
AP503 CL2	11.8	11.0	11.3	14.0	10.9	**11.8**	61.2	56.5	59.4	56.3	60.3	**58.7**
Azimut	11.2	10.5	10.2	14.3	10.5	**11.3**	60.9	60.2	60.6	51.8	63.7	**59.4**
Bonneville	14.3	12.0	12.6	15.4	12.2	**13.3**	63.4	62.7	64.9	62.2	64.1	**63.5**
Boundary	10.6	10.2	9.8	---	---	**10.2**	64.7	60.9	67.0	---	---	**64.2**
Deloris	12.9	11.0	10.7	15.8	10.3	**12.1**	66.7	63.1	70.1	61.8	63.9	**65.1**
Eddy	11.9	11.0	9.8	---	---	**10.9**	65.5	63.3	68.1	---	---	**65.6**
Garland	12.1	10.6	10.5	14.9	12.2	**12.1**	56.7	57.0	62.0	55.1	57.6	**57.7**
Greenville	11.8	10.4	9.5	13.5	10.2	**11.1**	54.4	54.1	59.1	49.4	57.3	**54.9**
Judee	12.8	10.8	11.4	16.2	12.5	**12.7**	58.9	58.6	66.3	55.2	63.4	**60.5**
Juniper	13.9	12.3	11.1	14.7	11.4	**12.7**	63.2	57.5	64.9	60.1	64.1	**62.0**
Keldin	12.0	10.8	10.1	15.1	10.9	**11.8**	62.8	61.3	66.2	52.8	63.5	**61.3**
Manning	10.0	11.2	10.4	---	---	**10.5**	64.3	57.2	64.3	---	---	**61.9**
Moreland	11.3	10.7	11.2	---	---	**11.1**	63.1	56.8	64.0	---	---	**61.3**
Norwest 553	11.2	10.0	10.4	12.5	12.2	**11.3**	63.0	59.9	63.8	61.4	63.9	**62.4**
Promontory	10.0	9.7	10.3	15.2	12.7	**11.6**	64.6	62.3	66.1	58.2	62.2	**62.7**
Utah 100	10.7	10.8	9.8	14.9	11.0	**11.4**	63.1	59.5	63.2	56.6	61.3	**60.7**
WB-Arrowhead	9.8	10.2	9.4	14.7	13.0	**11.4**	66.6	62.2	67.8	59.8	63.4	**64.0**
Whetstone	11.7	10.6	12.0	---	---	**11.4**	64.1	58.3	64.4	---	---	**62.3**
Yellowstone	11.1	10.2	11.1	14.0	12.4	**11.8**	65.9	60.9	66.8	59.2	62.9	**63.1**
Bearpaw	---	---	---	14.7	12.4	**13.6**	---	---	---	55.6	63.3	**59.5**
Curlew	---	---	---	15.6	11.7	**13.7**	---	---	---	63.1	62.7	**62.9**
DW	---	---	---	14.4	12.6	**13.5**	---	---	---	60.1	60.5	**60.3**
IDO816	---	---	---	14.8	10.6	**12.7**	---	---	---	62.1	61.0	**61.6**
Lucin-CL	---	---	---	13.3	11.2	**12.3**	---	---	---	64.6	64.0	**64.3**
UI SRG	---	---	---	14.3	12.1	**13.2**	---	---	---	60.7	60.0	**60.4**
Weston	---	---	---	15.3	12.4	**13.9**	---	---	---	61.3	59.5	**60.4**
Location Average	**11.7**	**10.7**	**10.7**	**14.6**	**11.6**	**12.0**	**62.9**	**60.0**	**64.6**	**58.6**	**62.2**	**61.7**
Hard White Winter Wheat												
Golden Spike (W)	13.0	9.8	11.6	14.4	10.6	**11.9**	62.2	62.5	64.8	60.4	61.6	**62.3**
OR2080156H (W)	10.8	10.7	10.0	14.7	11.7	**11.6**	63.7	57.5	65.4	55.0	59.6	**60.2**
OR2080277H (W)	9.6	9.5	10.4	12.9	10.6	**10.6**	57.7	54.2	60.0	57.9	59.2	**57.8**
Gary (W)	---	---	---	13.6	10.5	**12.1**	---	---	---	60.7	61.5	**61.1**
UI Darwin (W)	---	---	---	14.5	11.7	**13.1**	---	---	---	61.0	63.6	**62.3**
UI LHS (W)	---	---	---	15.8	11.7	**13.8**	---	---	---	59.0	59.2	**59.1**
UI Silver (W)	---	---	---	13.9	11.3	**12.6**	---	---	---	61.9	63.2	**62.6**
UICF Grace (W)	---	---	---	14.6	11.1	**12.9**	---	---	---	55.8	56.1	**56.0**
Location Average	**11.1**	**10.0**	**10.7**	**14.3**	**11.2**	**12.3**	**61.2**	**58.1**	**63.4**	**59.0**	**60.5**	**60.2**

mb= moisture basis

Table 76. Bake volume for hard winter wheat at Aberdeen, Kimberly, Rupert, Ririe and Preston 2012.

	Bake Volume (cc)					
Variety	**Aberdeen**	**Kimberly**	**Rupert**	**Ririe**	**Rockland**	**Average**
Hard Red Winter Wheat						
AgriPro Paladin	1000	1025	850	---	---	**958**
Altigo	900	775	725	1025	850	**855**
AP503 CL2	975	1025	925	1225	1000	**1030**
Azimut	925	1000	900	1225	950	**1000**
Bonneville	1025	1200	950	1225	1000	**1080**
Boundary	850	825	750	---	---	**808**
Deloris	1075	1075	975	1400	1025	**1110**
Eddy	1000	1025	925	---	---	**983**
Garland	950	950	825	1075	925	**945**
Greenville	950	950	800	1000	900	**920**
Judee	1100	1050	875	1400	1175	**1120**
Juniper	1100	1025	1000	1200	1025	**1070**
Keldin	975	950	825	1150	1100	**1000**
Manning	1025	850	975	---	---	**950**
Moreland	1125	1000	850	---	---	**992**
Norwest 553	975	975	825	1025	1000	**960**
Promontory	925	700	800	1125	950	**900**
Utah 100	975	950	900	1400	1025	**1050**
WB-Arrowhead	900	900	825	1225	1100	**990**
Whetstone	1100	925	850	---	---	**958**
Yellowstone	1025	900	850	1075	950	**960**
Bearpaw	---	---	---	1000	925	**963**
Curlew	---	---	---	1400	950	**1175**
DW	---	---	---	1200	1075	**1138**
IDO816	---	---	---	1225	900	**1063**
Lucin-CL	---	---	---	1200	1000	**1100**
UI SRG	---	---	---	1175	1000	**1088**
Weston	---	---	---	1400	975	**1188**
Location Average	**994**	**956**	**867**	**1199**	**991**	**1001**
Hard White Winter Wheat						
Golden Spike (W)	1100	1025	850	1125	950	**1010**
OR2080156H (W)	925	950	875	1150	975	**975**
OR2080277H (W)	825	725	750	975	975	**850**
Gary (W)	---	---	---	1125	875	**1000**
UI Darwin (W)	---	---	---	1175	1025	**1100**
UI LHS (W)	---	---	---	1400	1025	**1213**
UI Silver (W)	---	---	---	1225	1075	**1150**
UICF Grace (W)	---	---	---	1175	850	**1013**
Location Average	**950**	**900**	**825**	**1169**	**969**	**963**

Table 77. Percent flour protein and flour yield for hard spring wheat at Rupert, Aberdeen, Idaho Falls, Ashton, and Soda Springs, 2012.

	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												
Albany	11.2	12.5	11.5	12.8	---	**12.0**	65.3	64.8	64.6	63.4	---	**64.5**
B04-1418	12.9	12.7	12.7	13.4	---	**12.9**	65.3	63.5	64.2	61.8	---	**63.7**
Buck Pronto	13.9	14.1	13.5	14.5	---	**14.0**	63.5	63.7	64.6	62.9	---	**63.7**
Bullseye	13.8	13.6	12.5	14.5	---	**13.6**	65.8	63.2	64.4	63.4	---	**64.2**
BZ-401	14.8	13.5	13.1	14.2	---	**13.9**	63.0	61.8	63.6	63.2	---	**62.9**
C-2801	14.4	14.0	13.2	15.5	---	**14.3**	64.4	63.2	62.8	61.8	---	**63.1**
C-2821	11.8	12.2	12.4	13.0	---	**12.4**	63.9	61.9	62.7	60.4	---	**62.2**
C-2836	11.1	11.3	12.3	12.7	---	**11.9**	63.5	64.7	61.6	60.6	---	**62.6**
Cabernet	12.6	12.3	12.8	14.0	13.1	**13.0**	65.7	67.1	63.7	65.1	60.4	**64.4**
Choteau	13.3	12.9	13.2	15.5	14.0	**13.8**	63.6	64.8	61.8	61.2	56.5	**61.6**
Glee	12.5	12.5	12.7	14.4	13.6	**13.1**	65.6	65.6	65.0	61.6	56.2	**62.8**
IDO862E	12.7	12.8	13.3	14.7	13.5	**13.4**	64.4	65.4	63.4	61.6	52.9	**61.5**
IDO862T	12.5	12.8	12.8	14.0	---	**13.0**	63.4	64.8	64.2	61.8	---	**63.6**
Jefferson	12.6	12.0	12.8	14.5	12.4	**12.9**	66.5	67.9	67.2	63.7	53.6	**63.8**
Kelse	12.8	12.9	12.8	14.6	14.3	**13.5**	63.0	64.4	64.2	62.2	58.8	**62.5**
UI Winchester	12.9	12.5	13.1	14.8	13.8	**13.4**	64.5	64.0	62.3	61.0	59.1	**62.2**
Volt	12.0	12.3	12.6	13.3	12.9	**12.6**	60.4	61.4	62.4	61.0	59.3	**60.9**
WB-Rockland	13.9	14.0	13.9	14.1	---	**14.0**	60.7	60.5	62.5	63.8	---	**61.9**
WB-Rockland +25%	14.7	14.5	14.1	16.3	---	**14.9**	59.8	60.5	63.9	63.0	---	**61.8**
Westbred 936	13.0	12.5	13.8	14.5	14.7	**13.7**	64.1	64.0	64.5	63.0	59.6	**63.0**
Location Average	**13.0**	**12.9**	**13.0**	**14.3**	**13.6**	**13.3**	**63.8**	**63.9**	**63.7**	**62.3**	**57.4**	**62.8**
Hard White Spring												
Blanca Grande (W)	12.6	12.3	13.2	13.7	13.9	**13.1**	61.5	60.4	61.9	60.8	57.9	**60.5**
IDO694C (W)	12.4	13.4	13.0	12.8	14.3	**13.2**	62.9	63.3	62.5	62.8	58.5	**62.0**
Klasic (W)	13.0	12.5	13.0	14.0	13.2	**13.1**	63.6	65.1	64.3	59.7	58.5	**62.2**
Snow Crest (W)	13.0	12.9	13.6	14.6	13.9	**13.6**	60.0	59.5	61.6	55.7	57.6	**58.9**
SY Capstone (W)	12.7	13.1	13.3	14.6	14.2	**13.6**	62.8	59.0	60.2	60.2	60.5	**60.5**
WA8123 (W)	12.8	12.7	12.9	13.6	14.5	**13.3**	63.0	63.9	64.6	63.1	59.8	**62.9**
WB-Idamax (W)	12.6	13.5	13.0	13.4	---	**13.1**	63.7	61.8	62.6	61.5	---	**62.4**
WB-Paloma (W)	13.3	14.2	12.8	14.0	13.0	**13.5**	59.6	61.0	62.6	60.0	55.3	**59.7**
WB-Perla (W)	14.1	13.4	13.4	13.3	---	**13.6**	56.9	60.1	62.2	61.1	---	**60.1**
Alzada (D)	12.7	13.3	13.4	13.5	---	**13.2**	47.4	48.3	47.0	44.7	---	**46.9**
Location Average	**12.9**	**13.1**	**13.2**	**13.8**	**13.9**	**13.3**	**60.1**	**60.2**	**61.0**	**59.0**	**58.3**	**59.6**

(W) = White

mb= moisture basis

(D)= Durum

Table 78. Bake volume for hard spring wheat, 2012.

	Bake Volume (cc)					
Variety	**Aberdeen**	**Ashton**	**Idaho Falls**	**Rupert**	**Soda Springs**	**Average**
Hard Red Spring Wheat						
Albany	1175	1400	1000	1100	---	**1169**
B04-1418	1100	1200	1000	1075	---	**1094**
Buck Pronto	1050	1050	1150	1125	---	**1094**
Bullseye	1200	1400	1075	1225	---	**1225**
BZ-401	1075	1175	1100	1150	---	**1125**
C-2801	1050	1150	1100	1125	---	**1106**
C-2821	1050	1150	1100	1050	---	**1088**
C-2836	975	1050	950	900	---	**969**
Cabernet	1400	1400	1225	1400	975	**1280**
Choteau	1150	1400	1150	1225	1100	**1205**
Glee	1400	1400	1200	1400	1125	**1305**
IDO862E	1400	1100	1150	1200	1050	**1180**
IDO862T	1225	1050	1200	1125	---	**1150**
Jefferson	1400	1400	1175	1150	800	**1185**
Kelse	1200	1125	1150	1150	1000	**1125**
UI Winchester	1400	1225	1275	1200	975	**1215**
Volt	1125	1000	1050	1025	975	**1035**
WB-Rockland	1400	1400	1175	1175	---	**1288**
WB-Rockland +25%	1150	1400	1150	1250	---	**1238**
Westbred 936	1225	1400	1200	1225	1175	**1245**
Location Average	**1208**	**1244**	**1129**	**1164**	**1019**	**1166**
Hard White Spring Wheat						
Blanca Grande (W)	1400	1225	1150	1200	1200	**1235**
IDO694C (W)	1400	1200	1125	1175	1075	**1195**
Klasic (W)	1200	1400	1250	1275	1175	**1260**
Snow Crest (W)	1400	1200	1200	1175	1150	**1225**
SY Capstone (W)	1225	1400	1175	1225	1200	**1245**
WA8123 (W)	1400	1400	1050	1150	1075	**1215**
WB-Idamax (W)	1400	1200	1175	1150	---	**1231**
WB-Paloma (W)	1400	1175	1125	1225	975	**1180**
WB-Perla (W)	1400	1400	1200	1300	---	**1325**
Location Average	**1358**	**1289**	**1161**	**1208**	**1121**	**1235**

(W) = White

Table 79. Winter Wheat Quality Data from Soda Springs, 2012.

Variety	Class	Flour Protein	Flour Yield	Break Flour	Bake Volume	Kernel Hardness	Grain Protein	Cookie Diameter
Bearpaw	HRW	12.7	56.3	30.5	1000	77	14.5	---
Curlew	HRW	13.1	62.3	32.6	1050	80	13.9	---
Eltan	SWW	12.4	50.8	50.6	---	29	14.7	8.7
Brundage	SWW	12.6	51.0	54.1	---	27	15.1	8.8
Bonneville	HRW	14.7	62.7	36.4	1100	79	14.7	---
Boundary	HRW	13.3	59.9	31.6	1075	76	14.4	---
Deloris	HRW	13.9	63.8	38.5	1175	75	14.2	---
DW	HRW	14.0	56.7	30.9	1125	80	14.7	---
Garland	HRW	13.7	54.6	34.3	1000	74	16.0	---
Golden Spike	HWW	12.9	59.3	33.5	1100	76	14.2	---
Greenville	HRW	12.4	51.5	34.7	1050	61	14.0	---
Judee	HRW	15.3	58.0	30.8	1150	72	15.3	---
Juniper	HRW	13.8	61.1	30.4	1000	86	14.3	---
Keldin	HRW	13.1	53.4	35.2	1050	67	13.9	---
Gary	HWW	13.4	59.9	34.0	1100	76	14.6	---
Bruneau	SWW	11.6	56.2	50.7	---	25	13.7	8.8
Norwest 553	HRW	13.7	57.7	34.9	1100	74	14.9	---
UI SRG	HRW	13.6	58.3	31.6	1125	82	15.0	---
UICF Grace	HWW	13.8	52.5	37.3	1175	94	15.6	---
Promontory	HRW	13.8	58.4	34.6	1200	76	14.8	---
Madsen	SWW	12.7	57.2	44.1	---	34	15.1	8.5
ORCF-102	SWW	13.4	54.2	43.9	---	38	16.2	8.5
UICF Brundage	SWW	11.6	53.2	54.1	---	25	14.4	8.8
Yellowstone	HRW	12.8	59.2	32.8	1075	83	14.6	---
Weston	HRW	14.3	58.6	39.8	1400	76	15.3	---
UICF Lambert	SWW	12.4	53.6	48.4		39	13.4	8.7
Average		13.3	57.0	38.4	1114	64	14.7	8.7

Web Resources for Southcentral and Southeast Idaho Grain Production