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2015 Small Grains Report

Southcentral and Southeastern Idaho Cereals Research and Extension Program

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University of Idaho
College of Agricultural and Life Sciences

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Grower Cooperators

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

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Disclaimer Statement

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

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

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Additions and Changes:

In fall of 2014 separate trials of soft and hard winter wheats were planted in Soda Springs where in previous years the market classes were combined. The plot combines were updated with new Harvestmaster® systems through funding from the U of I and Idaho Wheat Commission. A new analysis of hard winter wheat combining Rockland and Ririe data was incorporated into this report.

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 2015, as well as milling and baking data from trials harvested in 2014.

Materials & Methods

Locations

Cereal trials were established at six winter and five spring locations throughout SC and SE Idaho during the fall of 2014 and the spring of 2015. 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 (bu/A) were set for each class at each location using historical yield data. These yield goals were used to calculate optimal fertility amounts according to the following methods: Soft white winter, soft white spring, and winter barley; lbs/acre nitrogen needed = 2 times yield goal. Hard winter and hard spring wheat; lbs/acre nitrogen needed = 2.5 times yield goal, plus 40 lbs nitrogen/acre topdressed at flowering. Spring 2 row and 6 row barley: lbs/acre nitrogen needed = 1.7 times the yield goal. Hard wheat nurseries received the remaining balance of nitrogen in urea (46-0-0) topdressed at heading using hand broadcast spreaders. Fertilizers and pesticides applied are listed on pages 6 to 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 2015 was analyzed with a Foss 6500 NIR grain analyzer. Protein data are found in conjunction with the agronomic data noted above in tables 4 to 59. These protein values are best utilized in comparisons between varieties within a nursery.

Due to the time necessary to complete milling and baking evaluations, test results from the Idaho Wheat Quality Laboratory are not available for the 2015 harvest in this report. Data are given for these characteristics from the 2014 harvest and are found in tables 68-81.

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

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

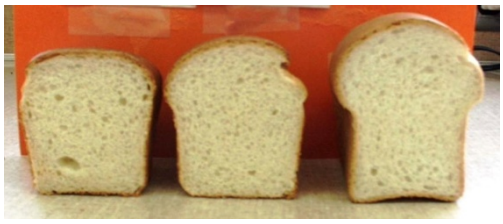
basis. Lower percentages are preferred for soft wheat; higher percentages are preferred for hard wheat.

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

Additional evaluations include the following:

Hard Wheats

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



Soft Wheats

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

Barley

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

Statistical Analyses

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

Statistical Interpretation

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

Varieties Tested

A list of released varieties tested in 2014-2015 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 selected 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 2005-2015.

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’ 09.51” N., 114° 20’ 42.56” W.
Elevation: 3898 ft.
Soil Type: #86 Portneuf silt loam 0-2% slopes
Previous Crop: Dry Beans
Planting Date: October 8, 2014
Harvest Date: July 30, 2015
Chemicals applied: Huskie 15 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")	1.5	7.9	5.0	178	178	13 ppm	150 ppm	36 ppm
Fertilizer applied (#/A)				212	100	100#	50#	
Total	**1.5**	**7.9**	**5.0**	**390**	**278**	**13+ppm**	**150+ppm**	**36 ppm**

Rupert Winter Irrigated:

Cooperator: Jentzsch-Kearl Farms
Located at approximately 250 E. Baseline Rupert, Idaho

Coordinates: 42° 37' 12.85"N., 113° 37' 17.09"W.
Elevation: 4162 ft.
Soil Type: #35 Schodson sandy loam 0-1% slopes
Previous Crop: Potatoes
Planting Date: October 2, 2014
Harvest Dates: August 5-6, 2015
Chemicals applied: Shredder MCPE 12 oz/A, Bison 22 oz/A, Preference 16 oz/A Interlock 3oz/A Topaz 4 oz/A
Fertility:

	Organic Matter	pH	Free Lime %	Hard winter wheat N#/A	Soft white winter wheat & winter barley N #/A	P	K	S
12" soil test results (N & S= 0-24")	1.1	7.2	<1.0	58	58	48 ppm	135 ppm	22 ppm
Fertilizer applied (#/A)				225	185			
Total	**1.1**	**7.2**	**<1.0**	**283**	**243**	**48 ppm**	**135 ppm**	**22 ppm**

Location Descriptions

Aberdeen Winter Irrigated:

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

Coordinates: 42° 57’ 47.37” N., 112° 49’ 05.54” W.
Elevation: 4407 ft.
Soil Type: DcA Declo fine sandy loam, 0-2%slopes
Previous Crop: green manure oats
Planting Date: September 23, 2014
Harvest Dates: July 28-29, 2015
Chemicals applied: Huskie 11 oz/A, AxialStar 16 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")	0.9	8.1	9.7	83	83	17 ppm	186 ppm	63 ppm
Fertilizer applied (#/A)				332	220	120#	20#	100 # S, 20# SO_4
Total	**0.9**	**8.1**	**9.7**	**415**	**303**	**17+ppm**	**186 ppm**	**63+ ppm**

Ririe Winter Dryland:

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

Coordinates: 43° 32’ 54.01”N., 111° 42’ 51.41” W.
Elevation: 5608 ft.
Soil Type: #42 Ririe silt loam, 4-12% slopes
Previous Crop: fallow
Planting Date: September 26, 2014
Harvest Date: August 7-8, 2015
Chemicals applied: 16 oz/A Goldsky, 5.5 oz/A LV6, 2 oz/A Powerflex
Fertility:

	Organic Matter	pH	Free Lime %	Hard winter wheat N#/A	Soft white winter wheat & winter barley N #/A	P	K	S
12" soil test results (N & S= 0-24")	1.1	7.5	1.5	36	36	18 ppm	260 ppm	22 ppm
Fertilizer applied (#/A)				6	6	30 #		
Total	**1.1**	**7.5**	**1.5**	**42**	**42**	**18+ppm**	**260 ppm**	**22 ppm**

Location Descriptions

Rockland Winter Dryland:

Cooperators: Gilbert and Carl Hofmeister
1/2 mile west of Rock Creek Rd on Deeg Rd Rockland, ID

Coordinates: **42°39'42.49"N., 112°56'20.43"W**
Elevation: **4645 ft.**
Soil Type: **#51 Newdale silt loam, 4-12% slopes**
Previous Crop: **fallow**
Planting Date: **September 16, 2014**
Harvest Date: **July 20, 2015**
Fertility:

	Hard winter wheat N#/A	P	K	S
Fertilizer applied (#/A)	48	0	0	18

Soda Springs Winter Dryland:

Cooperators: Mark and Craig Ozburn
2.1 miles west of Govt Dam Rd on Sorensen Rd Soda Springs, ID

Coordinates: **42° 46' 44.13" N., 111° 41' 03.84" W.**
Elevation: **6211 ft.**
Soil Type: **485BB - Foundem-Kackley complex, 1 to 8 percent slopes**
Previous Crop: **wheat**
Planting Date: **September 25, 2014**
Harvest Date: **August 25, 2015**
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")	**2.5**	**6.1**	**<1.0**	133	**34 ppm**	**423 ppm**	**16 ppm**
Fertilizer applied (#/A)				62			15#
Total	**2.5**	**6.1**	**<1.0**	**195**	**34+ppm**	**423+ppm**	**16+ppm**

Location Descriptions

Rupert Spring Irrigated:

Cooperator: Grant 4-D Farms
Approximately 925 E 700 N., Rupert, ID

Coordinates: 42° 43' 14.70"N., 113° 29' 16.21"W.
Elevation: 4256 ft.
Soil Type: #24 Portneuf silt loam 1-4% slopes
Previous Crop: sugar beets
Planting Date: March 20, 2015
Harvest Dates: August 13, 2015
Chemicals applied: 1 pt/A Brox-M, 6 oz/A Starane Ultra, 9 oz/A Achieve Liquid

Fertility:

	Organic Matter	pH	Free Lime %	Hard Spring wheat N#/A	Soft white spring wheat & spring barley N #/A	P	K	S
12" soil test results (N & S= 0-24")	1.2	8.1	6.9	65	65	35 ppm	332 ppm	38 ppm
Fertilizer applied (#/A)				300	190			
Total	**1.2**	**8.1**	**6.9**	**365**	**255**	**35 ppm**	**332 ppm**	**38 ppm**

Aberdeen Spring Irrigated:

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

Coordinates: 42 ° 57’ 48.19” N., 112° 49’ 15.30” W.
Elevation: 4407 ft.
Soil Type: DeA Declo loam, 0-2% slopes
Previous Crop: Green manure oats
Planting Date: March 31, 2015
Harvest Date: August 14 & 17, 2015
Chemicals applied: 1 pt/A Brox-M, 6 oz/A Starane Ultra, 12 oz/A Quilt Xcel

Fertility:

	Organic Matter	pH	Free Lime %	Hard Spring wheat N#/A	Soft white spring wheat & spring barley N #/A	P	K	S
12" soil test results (N & S= 0-24")	1.1	8.1	8.5	216	216	22 ppm	303 ppm	50 ppm
Fertilizer applied (#/A)				150	30	50#	20#	100# S, 20# SO_4
Total	**1.1**	**8.1**	**8.5**	**366**	**246**	**22+ppm**	**303+ ppm**	**50+ppm**

Location Descriptions

Idaho Falls Spring Irrigated:

Cooperator: Marc Thiel
Approximately 2500 S. on 45th West Idaho Falls, ID

Coordinates: 43° 28’ 33.58” N., 112° 07’ 20.76” W.
Elevation: 4681 ft.
Soil Type: #23 Pancheri silt loam, 2-4% slopes
Previous Crop: potatoes
Planting Date: April 2, 2015
Harvest Date: August 12, 2015
Chemicals applied: 1 ½ pt/A Brox-M, 6 oz/A Starane Ultra, 12 oz/A Quilt Xcel

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”)	1.8	7.6	2.1	137	137	46 ppm	216 ppm	20 ppm
Fertilizer applied (#/A)				152	72	31#		
Total	**1.8**	**7.6**	**2.1**	**289**	**209**	**46 ppm**	**216 ppm**	**20 ppm**

Ashton Spring Irrigated:

Cooperator: Alan Baum
¼ mile north of Highway 47 on 3875 E. Rd. Ashton, ID

Coordinates: 44° 04' 28.82" N., 111° 22' 51.26" W.
Elevation: 5450 ft.
Soil Type: #24 Greentimber-Marystown-Robinlee silt loams 1-4% slopes
Previous Crop: spring wheat
Planting Date: April 16, 2015
Harvest Date: August 26-27, 2015
Chemical applied: 1 pt Brox-M, 9oz Achieve Liquid, 6 oz/A Starane Ultra, 10 oz/A Quilt Xcel

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")	2.1	6.0	<1.0	51	51	50 ppm	241 ppm	47 ppm
Fertilizer applied (#/A)				210	110	25#	25#	30#
Total	**2.1**	**6.0**	**<1.0**	**261**	**161**	**50+ppm**	**241+ppm**	**47+ppm**

Location Descriptions

Soda Springs Spring Dryland:

Cooperator: Sid Cellan

3.5 miles N of Hooper Rd on 3 mile Knoll Rd. Soda Springs, ID

Coordinates: 42° 43' 13.17" N., 111° 34' 47.48" W.
Elevation: 6067 ft.
Soil Type: 485BB - Foundem-Kackley complex, 1 to 8 percent slopes
Previous Crop: spring barley
Planting Date: May 1, 2015
Harvest Date: August 25, 2015
Chemicals applied: Axial-Star, Husky
Fertility:

	Organic Matter	pH	Free Lime %	Hard Spring wheat N#/A	Soft white spring wheat N #/A	P	K	S
12" soil test results (N & S= 0-24")	1.9	6.3	<1.0	72	72	28 ppm	402 ppm	12 ppm
Fertilizer applied (#/A)				60	60			
Total	**1.9**	**6.3**	**<1.0**	**132**	**132**	**28 ppm**	**402 ppm**	**12 ppm**

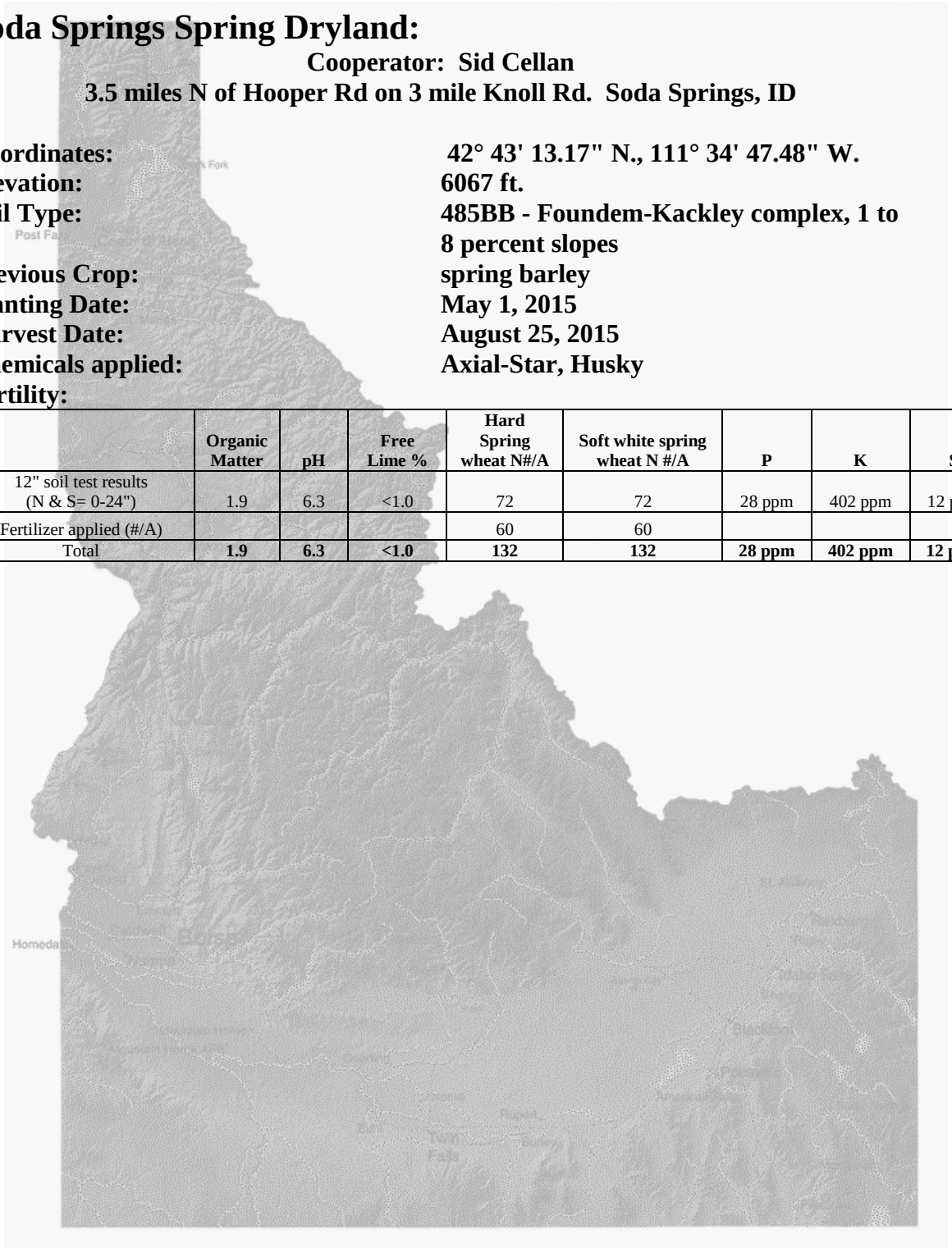


Table 1. Released varieties tested in 2014-2015 with seed size and adjusted seeding rate.

Variety	Exp. No.	1000 Kernel Weight (g)	Seeds per Pound	Adjusted Seeding Rate[1] (lb/A)	Year Released	Developer(s)/Distributor of variety
Soft White Winter Wheat						
Bobtail	OR208047P94	39	11,631	86	2013	Oregon AES, USDA
Brundage	ID86-14502B	45	10,080	99	1996	Idaho AES
Bruneau	ID93-64901A	40	11,340	88	2009	Idaho AES
Eltan	WA7431	38	11,937	84	1990	Washington State University and USDA-ARS
Jasper	WA 8169	41	11,063	90	2015	Washington State University and USDA-ARS
Kaseberg	OR2071628	39	11,631	86	2012	Oregon State University
LCS Artdeco	NSA06-2153A	39	11,631	86	2011	Limagrain Cereal Seeds, LLC
LCS Biancor		39	11,631	86	2013	Limagrain Cereal Seeds, LLC
LCS Drive	LWW12-7105	43	10,549	95	2015	Limagrain Cereal Seeds, LLC
Madsen	WA7163	41	11,063	90	1988	Washington, Idaho & Oregon AES, USDA
Mary	OR2040726	43	10,549	95	2011	Oregon State University
Norwest Duet	LOR-092	41	11,063	90	2015	OSU /Limagrain Cereal Seeds, LLC
Otto	WA008092	33	13,745	73	2011	Washington State University and USDA-ARS
Rosalyn	OR2071071	42	10,800	93	2013	Oregon AES, USDA
Stephens	OR65-116	41	11,063	90	1977	Oregon AES, USDA
SY 107	03PN107#3	44	10,309	97	2013	Syngenta Cereals
SY Ovation	03PN108#21	51	8,894	112	2011	Syngenta Cereals
UI Castle CLP	IDN 09-DH10	31	14,632	68	2015	Idaho AES / Limagrain Cereal Seeds
UI Magic CLP	IDN 09-DH11	36	12,600	79	2015	Idaho AES / Limagrain Cereal Seeds
UI Palouse CLP	IDN 3_5_10	35	12,960	77	2015	Idaho AES / Limagrain Cereal Seeds
UI-WSU Huffman	IDN-03-29902A	41	11063.4	90	2014	UI, WSU / Limagrain Cereal Seeds
UICF Brundage	IDCF02-859	40	11,340	88	2009	Idaho AES
WB 456	BU6W99-456	48	9,450	106	2008	WestBred / Monsanto
WB-528	BZ6W98-528	44	10,309	97	2005	WestBred / Monsanto
WB1376CLP	WB-1030CL	40	11,340	88	2015	WestBred / Monsanto
WB1529	BZ6W07-436	45	10,080	99	2014	WestBred / Monsanto
Hard Red and White (W) Winter Wheat						
Bearpaw	MTS0721	32	14,175	71	2011	Montana AES
Colter	MT08172	35	12,960	77	2013	Montana AES
Curlew	UT9325-55	34	13,341	75	2009	Utah AES, USDA
Deloris	UT2030-32	35	12,960	77	2002	Utah AES, USDA
Earl (W)	WA8184	39	11,631	86	2015	Washington State University and USDA-ARS
Garland	UT1706-1	38	11,937	84	1992	Utah AES, USDA
Golden Spike (W)	UT1944-158	37	12,259	82	1999	Utah AES, USDA
Greenville	UT9743-42	33	13,745	73	2011	Utah AES, USDA
Judee	MTS0713	39	11,631	86	2011	Montana AES
Juniper	IDO 575	41	11,063	90	2005	Idaho AES, USDA
Keldin	ACS55017	49	9,257	108	2011	WestBred / Monsanto
LCS Azimut	NSA97-2365	33	13,745	73	2007	Limagrain Cereal Seeds, LLC
LCS Colonia	NIC 05-4711-B	38	11,937	84	2013	Limagrain Cereal Seeds, LLC
LCS Jet	NSA 7208	44	10,309	97	2015	Limagrain Cereal Seeds, LLC
Lucin-CL	UT10322	41	11,063	90	2011	Utah AES, USDA
Manning	UT89099	35	13,148	76	1979	Utah AES, USDA
Moreland	IDO517	34	13,341	75	2003	Idaho AES, USDA
Northern	MT0978	27	16,800	60	2015	Montana AES
Norwest 553	ORN00B553	38	11,937	84	2007	Oregon State AES, USDA-ARS, Limagrain U.K.
Promontory	UT1567-51	36	12,600	79	1990	Utah AES, USDA
SY Clearstone 2CL	MTCL1077	44	10,309	97	2012	Montana AES/Syngenta Cereals
UI Silver (W)	IDO658B	38	11,937	84	2011	Idaho AES, USDA
UI SRG	IDO656	42	10,800	93	2012	Idaho AES, USDA
UICF-Grace (W)	IDO651	39	11,631	86	2009	Idaho AES, USDA
Utah 100	UT1650-150	38	11,937	84	1997	Utah AES, USDA
Warhorse	MTS0808	35	12,960	77	2013	Montana AES
WB-Arrowhead	ML9W05-2501	44	10,309	97	2011	WestBred / Monsanto
WB3768 (W)	MTW08168	38	11,937	84	2013	Montana AES / WestBred
Weston	ID74-55/20	44	10,309	97	1978	Idaho AES, USDA
Whetstone	W98-344	32	14,175	71	2009	Syngenta Cereals
Yellowstone	MT00159	39	11,631	86	2005	Montana AES

[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 2014-2015 with seed size and adjusted seeding rate.

Variety	Exp. No.	1000 Kernel Weight (g)	Seeds per Pound	Adjusted Seeding Rate[1] (lb/A)	Released	Developer(s)/Distributor of variety
Soft White Spring Wheat						
Alpowa	WA7677	36	12,600	79	1993	Washington, Oregon, & Idaho AES, USDA
Alturas	IDO526	36	12,600	79	2002	Idaho AES, USDA
Babe	WA008039	31	14,632	68	2009	Washington AES, USDA
Diva	WA008090	48	9,450	106	2010	Washington AES, USDA
Seahawk	WA8162	35	12,960	77	2014	Washington AES, USDA
UI Pettit	IDO632	34	13,341	75	2006	Idaho AES, USDA
UI Stone	IDO599	37	12,259	82	2012	Idaho AES / Limagrain Cereal Seeds
WB6430	BZ608-125	34	13,341	75	2014	WestBred / Monsanto
Hard Red Spring						
Bullseye	B02-0081	41	11,063	90	2009	Syngenta Cereals
Cabernet	95WV10616	43	10,549	95	2007	Syngenta Cereals
HRS 3419	LNR10-0119	34	13,341	75	2015	Winfield Solutions, LLC, A Land O'Lakes Company
HRS 3504		40	11,340	88	2015	Winfield Solutions, LLC, A Land O'Lakes Company
HRS 3530		43	10,549	95	2015	Winfield Solutions, LLC, A Land O'Lakes Company
Jefferson	IDO462	36	12,600	79	1998	Idaho AES, USDA
Kelse	WA007954	37	12,259	82	2008	Washington AES, USDA
LCS Iron	11SB0096	40	11,340	88	2015	Limagrain Cereal Seeds, LLC
SY Basalt	04W40240R	36	12,600	79	2014	Syngenta Seeds, Inc
SY Coho	04W40292R	43	10,549	95	2015	Syngenta Seeds, Inc
SY Selway	04PN3001-2	44	10,309	97	2015	Syngenta Seeds, Inc
UI Winchester	IDO578	33	13,745	73	2009	Idaho AES, USDA
WB9229	SJ907-229	40	11,340	88	2013	WestBred / Monsanto
WB9411	BZ908-418	41	11,063	90	2015	WestBred / Monsanto
WB9668	BZ908-552	38	11,937	84	2014	WestBred / Monsanto
Hard White Spring Wheat						
Dayn	WA8123	41	11,063	90	2012	Washington AES, USDA
Klasic	NK77S1817	40	11,340	88	1982	Northrup-King Co., Minneapolis, MN
LCS Atomo	06SB0086	39	11,631	86	2013	Limagrain Cereal Seeds, LLC
LCS Star	08SB0658-B	35	12,960	77	2013	Limagrain Cereal Seeds, LLC
Snow Crest	BZ998-247W	39	11,631	86	2004	WestBred / Monsanto
SY Teton	SY10136				2015	Syngenta Seeds, Inc
UI Platinum	IDO694C	43	10,549	95	2014	Idaho AES, Limagrain Cereal Seeds
WB-Paloma	BZ904-331WP	46	9,861	101	2010	WestBred / Monsanto
WB7328	BZ9S09-0133W	47	9,651	104	2015	WestBred / Monsanto
WB7589	BZ9S09-0735W	54	8,400	119	2015	WestBred / Monsanto
Spring Durum Wheat						
Alzada	YU894-75	41	11,063	90	2004	WestBred / Monsanto
LCS Kiko		43	10,549	95	2015	Limagrain Cereal Seeds, LLC
Winter Barley						
Alba	OR77	47	9,651	83	2010	Oregon AES, USDA
Buck	09-OR-86	27	16,800	48	2014	Oregon AES, USDA
Charles (malt)	94Ab1274	42	10,800	74	2005	USDA-ARS, Aberdeen
Eight-twelve	79Ab812	36	12,600	63	1988	Idaho AES, USDA
Endeavor (malt)	95Ab2299	39	11,631	69	2008	Idaho AES, USDA
Kamiak	WA2084-63	34	13,341	60	1971	Washington AES, USDA
Maja	OR81	36	12,600	63	2009	Oregon AES, USDA
Schuyler	NY5619B-3B	34	13,341	60	1969	Cornell AES, USDA
Sprinter	BU583-50	37	12,259	65	1987	WestBred / Monsanto
Streaker	OR85	41	11,063	72	2011	Oregon AES, USDA
Strider	ORW6	47	9,651	83	1998	Oregon AES, USDA
Sunstar Pride	SDM204-B	33	13,745	58	1995	Sunderman Breeding, Twin Falls, ID
Verdant	OR712	41	11,063	72	2014	Oregon AES, USDA

[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 2014-2015 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**						
f	Baronesse	NS078054	41	11,063	72	1992	Highland Specialty Grain
f	Champion	YU501-385	53	8,558	93	2007	Highland Specialty Grain
f	Claymore	BZ509-216	32	14,175	56	2015	Highland Specialty Grain
f	Clearwater	01ID435H	42	10,800	74	2007	Idaho AES, USDA
f	Harriman	08ID2661	45	10,080	79	2015	Idaho AES, USDA
f	Idagold II	C32	42	10,800	74	2002	Coors Brewing Co. Inc., Burley, ID
f	Lenetah	01Ab11107	45	10,080	79	2008	Idaho AES, USDA
f	Oreana	BZ509-448	58	7,821	102	2015	Highland Specialty Grain
f	RWA 1758	RWA 1758	44	10,309	78	2014	Highland Specialty Grain
f	Sawtooth	08ID1549	40	11,340	71	2015	Idaho AES, USDA
f	Tetonia	98AB11720	43	10,549	76	2007	Idaho AES, USDA
f	LCS Vespa	LN 0920	50	9,072	88	2013	Limagrain Cereal Seeds, LLC
f	Xena	BZ594-19	44	10,309	78	2000	Highland Specialty Grain
food	CDC Fibar	HB373	39	11,631	69	2003	CDC University of Saskatchewan, Saskatoon
food	Julie	03AH6561-94	43	10,549	76	2010	Idaho AES, USDA
food	Kardia	2Ab09-X06F084-51	42	10,800	74	2016	Idaho AES, USDA
food	Transit	03AH3054-51	44	10,309	78	2010	Idaho AES, USDA
m	ABI Balster	B0811	45	10,080	79	2015	Busch Agricultural Resources, LLC, Ft. Collins, CO
m	ABI Growler	2B09-3425	41	11,063	72	2015	Busch Agricultural Resources, LLC, Ft. Collins, CO
m	ABI Voyager	B3719	44	10,309	78	2011	Busch Agricultural Resources, LLC, Ft. Collins, CO
m	AC Metcalfe	TR232	43	10,549	76	1994	Agriculture Canada
m	ACC Synergy		46	9,861	81	2015	Agriculture Canada
m	CDC Copeland	TR150	45	10,080	79	1999	CDC University of Saskatchewan, Saskatoon
m	CDC Meredith	TR05104	40	11,340	71	2008	CDC University of Saskatchewan, Saskatoon
m	Conrad	B5057	42	10,800	74	2004	Busch Agricultural Resources, LLC, Ft. Collins, CO
m	Harrington	S76333	43	10,549	76	1981	University of Saskatchewan
m	Hockett	MT910189	45	10,080	79	2010	Montana AES
m	LCS Genie	NSL07-8424-A	26	17,446	46	2011	Limagrain Cereal Seeds, LLC
m	LCS Odyssey	NSL08-4556-A	56	8,100	99	2015	Limagrain Cereal Seeds, LLC
m	LCS Overture	NSL07-8120-A	52	8,723	92	2015	Limagrain Cereal Seeds, LLC
m	Merem	02Ab17271	46	9,861	81	2014	USDA ARS, Idaho AES
m	Merit 57	2B99-2657	40	11,340	71	2009	Busch Agricultural Resources, LLC, Ft. Collins, CO
m	Moravian 69	C69	55	8,247	97	2005	Coors Brewing Co. Inc., Burley, ID
m	ND Genesis	2ND25276	44	10,309	78	2015	North Dakota State University, NDAES
	Six-Row Spring Barley						
f	Goldeneye	UT95B1216-4087	36	12,600	63	2005	Utah AES, USDA
f	Herald	00ID1550	36	12,600	63	2006	Idaho AES, USDA
f	Millennium	UT004603	40	11,340	71	2000	Utah AES, USDA
feed/malt	Menan	01Ab9663	38	11,937	67	2015	Idaho AES, USDA
m	Celebration	6B01-2218	36	12,600	63	2008	Busch Agricultural Resources, LLC, Ft. Collins, CO
m	Lacey	M98	40	11,340	71	2000	Minnesota AES, USDA
m	Quest	M122	37	12,259	65	2010	Minnesota AES, USDA
m	Tradition	6B95-2482	37	12,259	65	2003	Busch Agricultural Resources, LLC, Ft. Collins, CO

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

Results and Discussion

Planting Conditions

The fall of 2014 provided good conditions for planting winter grain on both irrigated and dryland ground. Pre- or post-planting irrigation was required in irrigated trials for seed to adequately germinate and establish. The dryland planting conditions benefited from heavy August rains that ruined the quality of the majority of the unharvested spring grain from the Magic Valley through eastern Idaho. Subsoil moisture was good going into the winter.

Spring planting conditions were adequate for good stand establishment, and warm, dry conditions in the spring resulted in a very early seeding of all spring crops. In some cases, advanced seeding occurred a month earlier than average. Dry conditions persisted into April.

Weather Conditions

A dry fall was followed by warm temperatures, and the long, warm fall contributed to high aphid populations and the subsequent widespread transmission of barley yellow dwarf virus. Widespread BYD symptoms developed in the spring of 2015 in the winter wheat and barley crops. Winter temperatures, especially mid-January through April, were above average, and resulted in an early break of winter dormancy. In addition, early season crop growth resulted in the depletion of soil moisture, and drought stress complicated disease stress in the winter crop. Irrigation was available only after April.

The very early planting of the spring crop also resulted in crop stress due to limited natural precipitation and the late availability of irrigation. If irrigation was

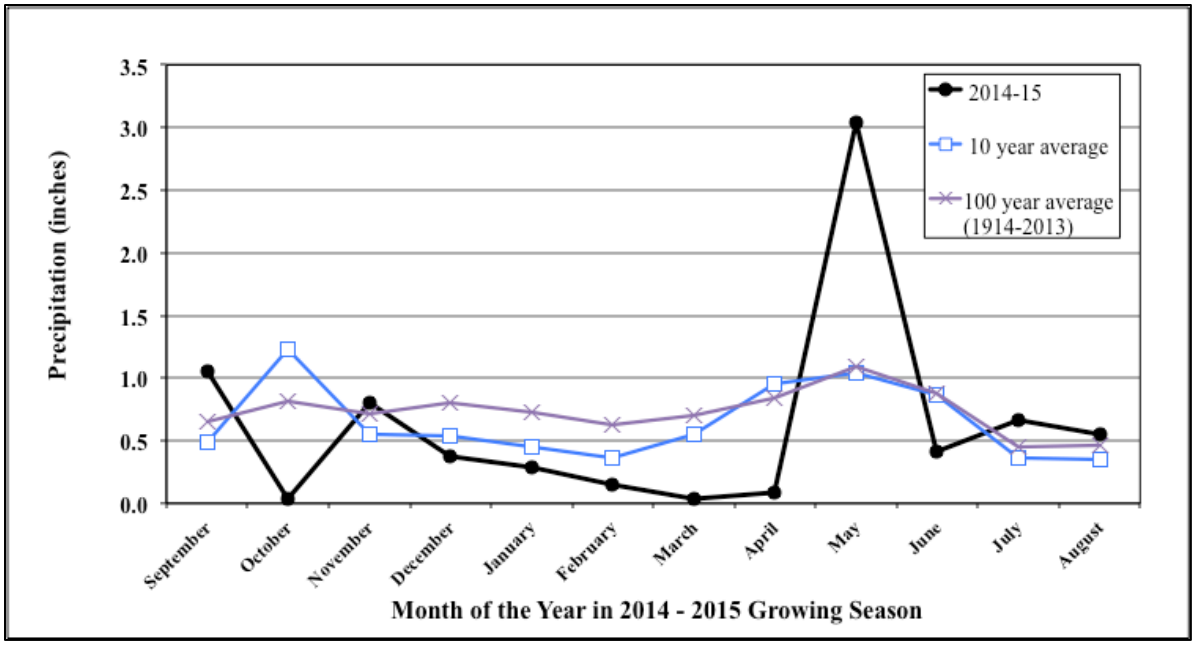


Figure 1. 2014-2015 growing year precipitation recorded at Aberdeen, ID, versus 10-year and 95-year averages. Source: Agrimet data.

limited early in the growing season, then the spring crop suffered a great deal from moisture stress, which accelerated the development into the reproductive stage of growth. There was very little precipitation from early October through April. Snow cover never established for insulating the winter crop.

A very unusual weather pattern established in May, resulting in above average precipitation throughout the region. Some areas in the Magic Valley received over 6 inches of natural precipitation. September and May were the only months in the 2014-2015 growing season where moisture exceeded the 10-year and 95-year averages (see Figure 1 above). This resulted in substanitial mitigation of the BYD impacts on the winter wheat and barley that had not been plowed under.

The cool, wet May was followed by warm temperatures in June and July. A very hot end to June and the beginning of July during grain fill also resulted in crop stress. Temperatures exceeded 95 degrees for a week up to July 3, contributing to poor grain fill conditions.

There was very little winter-kill in irrigated winter wheat or winter barley, and spring stands of winter grains were very good throughout the area. Heading dates for winter and spring crops were earlier than the previous ten-year average (see Table 3). Spring wheat headed eleven days and spring barley fifteen days earlier than the previous ten-year average, which is to be expected given the early planting dates. Plant heights were significantly greater for winter wheat, and about average for spring wheat spring barley. Lodging was low for winter and spring wheat, and average for spring barley. Interestingly, average yields for winter wheat and spring barley were relatively high, and above average for spring wheat, but test weights were below average for all but the spring wheat, which was higher than average.

Volunteer grain contributed to green bridge conditions following the late season August rains. This facilitated disease carryover to the 2015 spring grain, where late planted spring wheat and barley suffered from severe infections of BYD and wheat streak mosaic virus (WSMV).

Disease and Insect Problems

Wireworms were damaging in many areas across the entire region, reducing stand and yield of spring wheat and barley in dryland production, but the severity in 2015 was not as great as in 2014. Winter grain could be used to avoid wireworm damage as wireworms are less active in warmer, drier soils when winter wheat would be planted. However, emergence in dry soils is problematic, and winter kill increases under dry conditions. Insecticides applied as seed treatments reduce but do not control wireworms and the resultant feeding damage.

Stem sawfly was not as damaging in dryland spring grain when compared to 2013 and 2014. However, the discovery of Hessian fly in southern Idaho raises a great deal of concern, as many of our currently grown varieties are not Hessian Fly resistant. The Hessian fly larvae were discovered in late planted spring wheat in the Parma area, and can damage spring barley as well.

Stripe rust (*Puccinia striiformis* f.sp. *tritici*) may have overwintered near the Utah – Idaho border, and was severe in Brundage soft white winter wheat and in susceptible spring wheat varieties, even under dryland conditions. Surprisingly, it did not spread as much as expected, and drought conditions in Washington and northern Idaho stopped stripe rust from becoming a problem in those areas. 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. Susceptible varieties, such as Brundage, may need two fungicide applications to control stripe rust.

Barley scald (*Rhynchosporium secalis*) did not reach the damaging levels of the previous years and was seen at low levels. In most years, low levels of early season scald infection do little to affect the barley crop and yield, and can be ignored. Previous years (2009-2011) were not by any means typical, and scald ran rampant in fields in 2009 where application of fungicides would have prevented significant crop loss. This will be a disease to watch in future years, especially as production of winter barley increases the chances of high levels of disease developing in winter barley which then may affect 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 2015, **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, 2014 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 barley followed corn, as the fungus reproduces extensively on corn residue. Rejectable levels of deoxynivalenol toxin, (abbreviated as DON and also called VOM, short for vomitoxin), which is a by-product of the fungal infection process, contaminated malt barley. It is highly recommended that irrigated spring grain be treated with an appropriate fungicide at flowering to reduce infection, especially when a hard white or hard red spring wheat or barley follows corn production. It is essential that a **triazole** fungicide be utilized, as strobilurin fungicides are ineffective in reducing the accumulation of toxins. (See Addendum 4 for spring wheat reaction to FHB infection, and Addendum 5 for spring barley).

The “Spot Form of Net Blotch” (SFNB) *Pyrenophora teres* f. *maculata* was first diagnosed in a few fields near Blackfoot in 2013. In 2014, SFNB became severe in many areas throughout Idaho and Montana. This disease occurs widely in North Dakota and can reduce yields by up to 50% and grain weight by 20%. SFNB was still problematic in 2015, especially in no-till situations, but was not as severe in 2015. Areas that have reduced tillage and low crop diversity are at increased risk as this disease survives in barley stubble. Some varieties are more susceptible than others. Crop rotation and fungicide

applications significantly reduce the impact of this disease. Fields that had been sprayed with fungicides at herbicide timing were observed to have significantly less disease. Additional testing to develop control recommendations in our environment is required.

Cereal cyst nematode (CCN) damage was extensive in spring wheat and spring barley fields in the northern Snake River Plain, with visible damage in crops from Rexburg, Plano, and St. Anthony through the Ashton area. CCN affects all grassy crop species, and can even infect grassy weeds. Research conducted in St. Anthony with Dr. Dick Smiley identified resistant and tolerant varieties of spring wheat and barley, and was published in 2015. Results of those screening trials are presented in Addendum 6 (wheat) and Addendum 7 (barley). Rotation to broadleaf crops reduce CCN populations in the soil.

Green Bridge, 2014 to 2015.
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, 2012, 2014 and 2015 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 continued the 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. Heavy, unusual rains in August of 2014 resulting in extensive losses due to sprout but also set up green bridge conditions when grain shattered and germinated before harvesting of the 2014 crop could occur. Because of the green bridge, aphids and certain disease causing organisms can jump to the emerging winter crop, causing direct damage and / or transmitting viruses. In 2015, many growers irrigated the volunteer for forage. With an early harvest and a long warm fall of 2015, the volunteer from the spring crop was in grain fill prior to a killing frost in November. The green bridge situation resulted in extensive BYD and stripe rust infection in the fall volunteer.
Once again, in the fall of 2014 and 2015, 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 November or December (depending on location). Severe stunting and yellowing of grain in the spring became apparent, resulting in yield reductions of over 50% in the most severely affected fields.

2015 report: Kimberly Research and Extension Center, Winter Grain
The winter wheat nurseries were planted into dry conditions Oct 8th following dry beans. Soils were well-prepared, with soil temperatures at 61.8 degrees F, and plots were irrigated after planting to improve emergence. The crop suffered no winter damage and was planted late enough to avoid BYDV infection. Stripe rust was not present. Soft white winter wheat yields were about 7 bu/A less than the last year, while hard winter wheat yields were about 12 bu/A less than 2014. Plots were harvested July 30th, two and a half weeks earlier than 2014.

The hard winter wheat group (Table 25) yield ranged from 117 to 161 bu/A. LCS Jet, Keldin, and WB-Arrowhead were the highest yielding varieties, yielding 158, 155 and 152 bu/A, respectively. Site average for yield of the hard winter group was 137 bu/A. Test weight average was 59.6 lbs/bu, and grain protein average for the location was 12.4%. Optimal grain protein for hard red winter wheat should be 12.5% or greater. **Averaged over all locations**, the highest yielding hard winter wheat varieties in 2015 (Table 17) were LCS Jet (143 bu/A), Keldin (136 bu/A), Promontory (135 bu/A), LCS Colonia (135 bu/A), and WB-Arrowhead (134 bu/A). **Three year averages** over all locations (Table 4) put Keldin, Norwest 553, Yellowstone and WB-Arrowhead at the top with 140, 136 135 and 134 bu/A, respectively.

In the soft white winter group (Table 31), yield varied from 114 to 151 bu/A. Mary (151 bu/A), SY Ovation (150 bu/A), Norwest Duet (148 bu/A), Rosalyn (145 bu/A), and Jasper (144 bu/A) were the highest yielding varieties. Test weight averaged 57.8 lbs/bu, and grain protein average for the location was at 10.2%. Rosalyn, Bobtail, and SY Ovation were the top named varieties in the **combined irrigated trials in 2015** at 149, 149, and 146 bu/A, respectively (Table 18). The top yielding soft white winter varieties **over the last three years** over all locations (Table 5) are Bobtail (144 bu/A), Bruneau (137 bu/A), and SY Ovation (134 bu/A).

Rupert, Jentschz-Kearl Farms, Winter Grain
Plots were planted Oct 2nd in sandy loam soil following potatoes into good soil moisture. Soil temperature was 56.8 degrees F. Spring stands were excellent, with no winter kill and no visual symptoms of BYD occurring at this site. Plots were harvested August 5-6th.

Average yield for the winter barley varieties (Table 36) was 142 bu/A, up 64 bu/A from 2014, and varied from 115 (Kamiak) to 183 bu/A. The highest yielding named varieties included Maja (183 bu/A), Strider (164 bu/A), and Sunstar Pride (158 bu/A). Proteins were 11.4%, there were high thins, and an average of 64% lodging. **Combined over the irrigated locations** (Table 19), Strider, Maja, Sprinter and Eight-Twelve were the highest yielding barley lines (175, 164, 163, and 162 bu/A, respectively. **Over three years** (Table 6), the winter feed lines yielded 156 bu/A (Sunstar Pride), 156 (Eight-twelve) and 153 bu/A (Strider).

Average yield for the hard winter wheat trial (Table 26) was 126 bu/A, 34 bushels greater than 2013. Yield ranged from 108 (Juniper) to 151 bu/A. Test weight averaged 57.2 lbs/bu, and protein averaged 12.8%. LCS Jet, Promontory,

LCS Colonia, and Keldin were the highest yielding named lines at 151, 147, and 146 bu/A, respectively. Stripe rust did not significantly impact yield.

The soft white winter group (Table 31) ranged in yield from 114 to 151 bu/A. The highest yielding varieties were Mary (151 bu/A), SY Ovation (150 bu/A), Norwest Duet (147 bu/A), and Rosalyn (145 bu/A). Test weights were below 60 lbs/bu, averaging 57.8 lbs/bu, and grain protein was at 10.2%. There was low lodging in the soft winter wheat nurseries.

Aberdeen R&E Center, Winter Grain
The winter trials in Aberdeen were planted September 23rd and harvested about two weeks earlier than in 2014, July 28-29th. There were low levels of BYD present in the winter grain. The preceding crop was green manure oats. The winter barley at Aberdeen had little to no winter damage this year, and average spring stands were at 98-100%. The plots were irrigated in the fall, reducing the compounding effect of cold temperatures with drought that increases winter-kill. Yields were as high as 186 bu/A with an overall average of 160 bu/A. High yielding varieties included Sprinter (186 bu/A), Strider (186 bu/A), Schuyler (180 bu/A) and Eight-Twelve (179 bu/A). Endeavor and Charles, two winter malt varieties, yielded 159 and 137 bu/A, respectively. Test weight averaged 48 lbs/bu, with no lodging, and grain protein 11.8%.

The winter wheat survival (Table 27) 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 2014 by 49 bu/A. Lodging was unusually low at 0%. Stripe rust did not significantly impact yield. Greenville (130 bu/A), Yellowstone (128 bu/A), LCS Colonia (123 bu/A), Norwest 553 (122 bu/A), and WB-Arrowhead (121 bu/A) were the top yielding hard red varieties. Test weights were 59.2 lbs/bu overall. Grain protein averaged 13.7%.

The overall yield average in the soft white winter trial (Table 33) was 137 bu/A, 10 bu/A less than 2014, ranging from the low of 111 bu/A (SY96-2) to a high of 155 bu/A. The highest yielding named varieties were Rosalyn (155 bu/A), Bobtail (152 bu/A), Kaseberg (151 bu/A) and WB1529 (148 bu/A). The test weights averaged at 56.7 lbs/bu and the overall grain protein was at 12.1%. There was no lodging.

Ririe, LDS Church Farm, Trevor Davey, Winter Wheat
This is a high elevation location (5500 ft) and is our main dryland location for winter grain. Soil moisture was good down to two feet when grain was planted September 26th. Grain was planted into moisture at 1.25 to 1.5 inches deep, and the soil was dry above. We usually plant only one rep of winter barley here to roughly test for winter survival. In 2013 the survival rates for winter barley was poor (45%), and yields were very low, averaging about 5 bu/A. In 2014, the survival rates for winter barley was again poor (31%), and yields were very low, averaging about 8 bu/A. Winter barley was not planted in 2014-2015.

Despite of the late planting date for upper elevation dryland grain, the plots were infected with BYD. Varietal response was rated and is presented in Addendum 3. In addition, symptoms of physiological leaf spot (PLS) began to

appear at flag leaf emergence and increased in severity. Ratings data for PLS is also in Addendum 3. In 2015, the spring stand for winter wheat (Tables 28 and 34) was good, and yields were much improved over the previous several years to an average of 45 bu/A for hard and 49 bu/A for soft winter wheat. The trials were harvested August 7-8th, ten days earlier than in 2014.

The hard winter wheat group (Table 28) had average yields of 45 bu/A, in comparison to 2010 at 28 bu/A, 2011 at 12 bu/A, 2012 at 18 bu/A, 2013 at 15.5 bu/A, and 2014 at 21 bu/A. The 2014 yield range went from a low of 37 bu/A to a high of 55 bu/A. Moreland, UI Silver, Utah 100, LCS Colonia, Deloris and Warhorse were the top yielding hard winter wheat varieties, at 51, 51, 50, 50, 49 and 48 bu/A, respectively. Average grain protein was low at 8.9%, reflecting inadequate nitrogen to meet yield or protein in this season. Test weights averaged 59.3 lbs/bu. Dryland yields **averaged over all locations and 3 years** (Table 7) averaged 38 bu/A, with the top yielding varieties including UI Silver, Curlew, Lucin-CL, Juniper, Yellowstone and Judee (42, 41, 40, 40, 39, 39 and 39 bu/A, respectively).

The soft white winter wheat (Table 34) yields varied from 37 bu/A to 62 bu/A, with the site averaging 49 bu/A, more than double the 2014 yields. Average proteins were low for this soft group at 9.0%, and test weights averaged 56.1 lbs/bu. The top-yielding varieties were Bobtail, UI-WSU Huffman, Norwest Duet, the Madsen/Eltan blend, and Otto (61, 61, 58, 58, and 55 bu/A, respectively). Over the **past three years**, the top yielding soft white winter varieties at this location (Table 8) were Bobtail, Kaseberg, Bruneau and UICF Brundage, yielding 51, 48, 48, and 48 bu/A, respectively. The three-year average for grain protein was at 12.3%. Test weights were 55.2 lbs/bu, and average plant height was 24 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 16th and harvested July 20th. Snow mold diseases were not a significant problem (as they were in 2011), and spring stands were good (Table 28). Dwarf bunt was not a problem this year, but all winter varieties were included in dwarf bunt testing in Logan, UT, by Dr. David Hole, Utah State University professor and wheat breeder. Results of the dwarf bunt variety trial screening are in Addendum 1. 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 47 bu/A, higher than the 2010 yield average of 39 bu/A, 2011 (27 bu/A0, 2012 (30 bu/A), 2013 (18 bu/A), and 2014 (37 bu/A). The yield ranged from 35 to 60 bu/A. The top yielding varieties this year were Golden Spike (58 bu/A), Deloris (54 bu/A), Colter (54 bu/A), and Northern (54 bu/A). The soft white winter variety Otto was included as a check and yielded 60 bu/A. Grain protein average was 11.8%, test weight average was 60.6 lbs/bu, and there was no lodging. No other soft white winter wheat (other than Otto) was planted at this trial location.

Soda Springs, Mark and Craig Ozburn, Dryland Winter Wheat

Two small dryland winter wheat trials of both hard and soft winter wheat were repeated at Soda Springs again this year at the request of area growers. The trial was planted September 25th and harvested August 25th. Twenty-six varieties of hard red, hard white, and 15 soft white winter wheat varieties were included.

Fall germination was good resulting in an average 95% spring stand. Natural precipitation was timely and enough to promote excellent yields. Exceptional yields occurred in both the hard red/white and soft white winter wheat nurseries. Average yield for the hard red nursery was 98 bu/A (Table 30). Protein average was 12.4%, and test weight was 59.7 lbs/bu. There were some varieties that lodged at these high yielding conditions. Highest yielding hard varieties included UI Silver (115 bu/A), Colter 114 bu/A), the 50/50 blend of WB-Arrowhead and Keldin (114 bu/A), Judee (113 bu/A) and WB3768 (111 bu/A).

Average yield for the soft white winter wheat was 114 bu/A, with 58.5 lbs/bu test weight and 11.5% protein. There was no lodging. High yielding soft whites included Jasper (133 bu/A), SY Ovation (132 bu/A) and Bobtail (125 bu/A).

If risking planting winter wheat in this area, it is highly recommended that varieties with snow mold tolerance and dwarf bunt resistance be grown. Varieties susceptible to dwarf bunt should only be grown following appropriate seed treatments for dwarf bunt control.

Rupert, Duane Grant 4-D Farms and Mike Larsen, Spring Grain

The variety trials in Rupert were planted March 20th and harvested August 13th. The preceding crop was sugar beets. There were no major weather-related problems.

There was about 4% lodging for the hard spring wheat nursery (Table 38). Average yield was 105 bu/A, compared to 111 bu/A in 2010, 92 bu/A in 2011, 108 bu/A in 2012, 90 bu/A in 2013, and 132 bu/A in 2014. Test weight average was 59.1 lbs/bu, and average protein was at 14.3%. The top yielding named varieties were LCS Star (126 bu/A and 13.3% protein), Dayn (122 bu/A and 13.9% protein), WB9411 (117 bu/A and 14.6% protein), SY Basalt (114 bu/A and 13.1% protein), and HRS3530 (114 bu/A and 15.4% protein).

Over **three years over all locations**, the highest yielding varieties under irrigation (Table 9) were Dayn (hard white spring wheat at 121 bu/A), SY Coho (hard red at 109 bu/A), UI Platinum (hard white at 105 bu/A), WB9229 (hard red at 105 bu/A). The average 3-year test weight was 60.0 lbs/bu, and the average grain protein was 14.7%. High protein lines were Kelse (15.2%), WB9229 (15.1%) and Snow Crest (15.1%). The irrigated average yield for 2015 (Table 20) was 102 bu/A with the highest yielding varieties including Dayn, HRS3504, LCS Iron, and LCS Star.

The soft white spring wheat yield (Table 43) average was 105 bu/A. In 2010 it was 116 bu/A, in 2011 it was 101 bu/A, and in 2012 it was 114 bu/A, 2013 it was 112 bu/A, and 2014 the average yield at the Rupert location was 130 bu/A. In

2015, UI Stone yielded 121 bu/A, Seahawk yielded 117 and Alturas 113 bu/A. Grain protein average was at 10.7%. **Three year averages over all locations** (Table 10) put UI Stone at the high yield (121 bu/A), followed by WB6430 (116 bu/A), and Seahawk (115 bu/A). The 2015 combined irrigated average was 110 bu/A. UI Stone averaged 123 bu/A, Alturas 115, and WB6430 115 bu/A.

The six-row spring barley trial at Rupert (Table 48) had average yields of 111 bu/A, about 40 bu/A less than 2014, with a range from 98 to 136 bu/A. Lodging was greater in the malt lines than the feed lines, averaging 19% overall. Lacey six-rowed was the top yielding malt barley (109 bu/A), and Goldeneye was the highest yielding feed (136 bu/A). Test weights averaged 48.1 lbs/bu, proteins were 11.2%, and percent plumps were 95%. **Over three years**, Goldeneye and Millennium were the highest yielding feed varieties (Table 11) at 134 and 140 bu/A, respectively, and Menan was the highest yielding malt variety at 127 bu/A. In 2015 irrigated trials (Table 22), the top yielding varieties were Goldeneye (137 bu/A), Millennium (132 bu/A), Menan (124 bu/A), and Herald (124 bu/A).

Two-rowed malt barley yields (Table 52) at the Rupert location averaged 119 bu/A, compared to the 2010 average of 122 bu/A, the 2011 average of 108 bu/A, the 2012 average of 135 bu/A, 2013 at 120 bu/A and the 2014 average of 140 bu/A. Yields varied from 101 (Harrington) to 151 bu/A. The new variety ACC Synergy had the highest yield followed by Conrad (132 bu/A), ABI Voyager (129 bu/A), ABI Balster (128) and ABI Growler (123 bu/A).

Three year averages for the malt varieties (Table 12) puts ABI Balster, ABI Voyager, Genie, and Copeland and Conrad at the top (134, 130, 126, 125, and 123 bu/A, respectively). Taking a look at irrigated averages for 2015 (Table 23), ACC Synergy yielded 146 bu/A, ABI Balster yielded 135 bu/A, LCS Odyssey yielded 133 bu/A, ABI Voyager yielded 133 bu/A.

The high yielding two-rowed feed varieties (Table 56) were Vespa (160 bu/A), Claymore (150 bu/A), Harriman (129 bu/A) and Lenetah (124 bu/A). Average test weight for this trial was very high (51.2 lbs/bu) but it included the hulless feed and food barleys. The hulless, high beta-glucan food barleys Julie, CDC Fibar, and Transit yielded 96, 79, and 74 bu/A but also had high test weights (54.8, 55.3 and 53 lbs/bu, respectively). Sawtooth and Clearwater are hulless feed barleys with low-phytate endodperm, and yields were 97 and 81 bu/A respectively. The feed varieties Vespa, Champion, Lenetah and Xena were the top yielding feed lines **over three years** and all irrigated locations (Table 13) at 146, 144, 138 and 137 bu/A, respectively. In 2015, the highest yielding varieties under irrigation (Table 24) included Claymore (150 bu/A), Vespa (146 bu/A), Lenetah (138 bu/A), and Xena (136 bu/A).

Aberdeen R&E Center, Spring Grain
Spring variety trials were planted March 31st, eight days earlier than 2014. Plots were harvested August 14th and 17th. The preceding crop was green manure oats. Stripe rust of wheat was present late in the season and there were some yield impacts in the susceptible varieties. The top three varieties for yield in the hard red and white trial (Table 39) were the

hard white spring Dayn (141 bu/A), HRS3504 (138 bu/A), and SY Basalt (134 bu/A). Test weights for the hard spring wheat's averaged 59.7 lbs/bu, not as good as in the previous year at 61.8 lbs/bu. There was no lodging and grain protein average 15.1%. (All hard spring wheat trials are topdressed at flowering with 40-50 units of N to promote higher protein hard spring wheat.) The high protein wheat's included WB7328 (17.0%), WB9668 (16.8%), Klasic (16.2%) and Alzada (durum 15.2%).

The soft white spring wheat yields at Aberdeen (Table 44) averaged 122 bu/A with a range from 106 (Diva) to 140 bu/A. Highest yields of named varieties were obtained from Seahawk (140 bu/A), UI Stone (131 bu/A) and WB6430 (130 bu/A). Test weights averaged 60.1 lbs/bu and grain protein averages were 11.2%.

Six-row barley in Aberdeen (Table 49) averaged 127 bu/A, considerably less than 2014 (145 bu/A) and 2013 (147 bu/A). Yields ranged from 99 bushels (Quest) to 146 bu/A. Goldeneye and Millennium were the two top yielding feed barley varieties, at 146 and 142 bu/A. For the six-row malt lines, Menan, Tradition, Lacey, Celebration and Quest yielded 136, 124, 120, 108 and 99 bu/A, respectively. Grain protein for the malt lines was variable, ranging from 11.3% to 12.1%. Test weight was 48.4 lbs/bu.

Two-rowed malt barley lines averaged 134 bu/A (Table 53), a little lower than 2014, and ranged from 93 (CDC Meredith) to 165 bu/A. The top yielding lines were LCS Odyssey (165 bu/A), ACC Synergy (161 bu/A), LCS Genie (157 bu/A), LCS Overture (154 bu/A) and ABI Voyager (144 bu/A). Grain protein averaged 12.0%. For the feed varieties (Table 57), Claymore, Oreana, Vespa and Xena yielded 164, 155, 154 and 150 bu/A, respectively. Test weight averaged 52.6 lbs/bu which is inflated by the number of hulless lines included in the trial. Hulless lines Julie, Transit, Sawtooth, Clearwater, and CDC Fibar yields were 121, 104, 100, 97, and 96 bu/A, respectively. Lodging averaged 29% and grain protein 13.0%. These trials were not treated with growth regulators.

Idaho Falls, Marc Thiel, Spring Grain

The Idaho Falls location followed potatoes, was planted April 2nd and harvested August 12th. The surrounding field was in barley. During the growing season, the field looked fantastic, and yields did not meet visual expectations. Two-rowed malt barley yields (Table 54) averaged 116 bu/A, about 20 bu/A less than in 2014. LCS Overture yielded 66 bu/A while the highest yielding variety hit 144 bu/A. Top yielding named varieties included ACC Synergy (144 bu/A), ABI Balster (140 bu/A), ABI Voyager (129 bu/A), and CDC Meredith (126 bu/A). Test weight average was 48.8, protein 11.2% and lodging was 21%. Two-rowed feed trial (Table 58) averaged 125 bu/A, with the top yielding lines averaging 154 bu/A (Champion), 152 (Tetonia), 148 (Lenetah), and 147 bu/A (Xena). The test weight and protein averages were high (52.1 lbs/bu and 12.0%, respectively), due to the presence of hulless food barleys in the same trial.

The six-rowed barley (Table 50) averaged 136 bu/A, similar to 2014 but about 20 bu/A less than 2013. High yielding varieties include the malt lines Lacey at 145 bu/A, Celebration at 138

bu/A,and Quest at 133.4 bu/A, out-yielding the feed lines Goldeneye (132.6 bu/A) and Millennium at 131 bu/A. Test weight averaged 48.1 lbs/bu and proteins were averaging 11.3%.

Average grain yield for the hard spring wheat (Table 40) was 91 bu/A, which was 12 bushels lower than the average in 2014 of 103 bu/A. Late infection from stripe rust reduced yield of susceptible varieties, with IDO1202S (W) only yielding 31.3 bu/A. Hard spring wheat ranged in yield from 31 to 116 bu/A (Dayn). Average grain protein was at 14.7%, and test weight was at 60.6 lbs/bu. The four highest yielding named varieties were Dayn hard white (116 bu/A and 14.2% protein), Snow Crest (107 bu/A and 15.5% protein), UI Platinum (106 bu/A and 14.1% protein) and WB7328 hard white (106 bu/A and 15.7% protein). Lodging was low (2%) and grain protein averaged 14.7% overall.

UI Stone, Babe, and Alturas topped the yield chart (Table 45) for the soft white spring wheat varieties at Idaho Falls at 125, 117, and 114 bu/A, respectively. Yields ranged from 73 bu/A (Diva) to 125 bu/A. Test weights were good at 61.5 lbs/bu, and grain proteins were at 10.8%.

Ashton, Alan Baum, Spring Grain

The Ashton location was planted early (April 16th) due to warm, dry conditions at the upper elevation areas (and throughout the entire region). The preceding crop was spring wheat, and the surrounding field was spring wheat. Stripe rust was also present in most areas of the upper valley. Plots were harvested August 26th - 27th.

Two factors were important in plant health and reducing yield potential (above stripe rust impacting crop). Soil pH at this location was a little low (ph 6.0) which contributed to high micronutrient accumulations (magnesium, manganese, iron and boron). Other fields in the area demonstrated similar or greater symptoms of leaf necrosis (browning) as the pH varied from 5.3 to 6.0. In addition, high levels of nematode damage were found throughout the region, from Ashton through St. Anthony, to Rexburg and Plano. Both factors contributed to general unthriftiness, stunting, reduced tillering and yellowing of wheat and barley. Soil amendments such as lime should help reduce the toxic accumulation of micronutrients, but crop rotation to broadleaves is the only way the reduce the impact of cereal cyst nematodes (CCN). There are different levels of resistance and tolerance in our spring wheat and barley varieties. The results from screening trials conducted in St. Anthony are provided in Addendum 6 and Addendum 7.

The average yield for the hard spring wheat (Table 41) was 93.5 bu/A, compared to 2014 at 100 bu/A, and 2012 at 73 bu/A. The range in yield varied from 71 bu/A (Alzada durum) to 118 bu/A (advanced hard white Syngenta line SY10136). Test weights were high at 62.9 lbs/A, and protein averaged 16.0%. The high yielding varieties were HRS3504 (113 bu/A), followed by LCS Iron (110 bu/A), LCS Star (104 bu/A) and HRS3419 (101 bu/A). The highest proteins were seen in WB9668 (18.4%), Snow Crest (17.6%), Klasic (17.1%) and Cabernet (17.1%), with the location

average of 16.0%. There was no lodging in the hard spring wheat at this location.

In the soft spring wheat trial (Table 46), UI Stone yielded 116 bu/A, followed by WB6430 (115 bu/A), Diva (112 bu/A) and Alum (112 bu/A). The average yield for the soft white spring trial was 107 bu/A, higher than in 2014, and ranged from a low of 92 bu/A (Alpowa) to a high of 118 bu/A. The test weight average was a 63.9 lbs/A, with a little lodging (especially Babe and Alpowa). Grain protein averaged 10.6%.

In the six-rowed barleys at Ashton (Table 51), the yield average was 121 bu/A, 28 bu/A greater than the previous year (2014) at 92 bu/A. In the feed barley, Goldeneye out-yielded the others at 133 bu/A, 48.9 lb test weight and 98% plumps. Millennium was the closest next variety at 132 bu/A, 49.3 lb test weight and 95% plumps. The malt line Menan yielded 131 bu/A, with 53.8 lb test weight and 98% plumps, out-yielding the next malt variety by 15 bu/A.

Two-rowed malt barley yields (Table 55) ranged from 114 (Harrington) to 162 bu/A. The average was 134 bu/A, over 56 bu more than in 2014 with the highest named lines being LCS Overture (162 bu/A), LCS Odyssey (144 bu/A), Merit 57 (142 bu/A), ABI Growler (140 bu/A) and Merem (138 bu/A). Claymore (145 bu/A), Tetonia (143 bu/A), Vespa (142 bu/A) and Xena (140 bu/A) were the top yielding feed varieties (Table 59). Test weights were very high this year at this location, averaging 55.3 lbs/bu (biased upward due to the inclusion of hulless food barleys) and proteins averaged 12.5%.

Soda Springs, Sid Cellan, Spring

The only spring dryland extension trials were spring wheat trials in Soda Springs. The nursery was planted May 1st and harvested August 25th. The previous crop was spring barley. This location was heavily affected by stripe rust, significantly reducing yields of susceptible varieties.

Yield averages for the hard red and hard white spring nursery (Table 42) were 58 bu/A, better than the previous year (2014 was 45 bu/A), but not 2013 (59 bu/A). The range in yield went from 36 (Klasic) to 84 bu/A (Dayn). The four highest yielding named varieties were the hard white Dayn (84 bu/A), hard red WB9411 (66 bu/A), hard red LCS Iron (64 bu/A), and hard red WB9668 (63 bu/A). Test weights averaged 62.0 lbs/bu, and proteins were averaging 13.8%, with the highest proteins in WB9668 (16.3%), WB9411 (15.0%), and Kelse (14.7%).

For the soft white spring wheat (Table 47), the nursery averaged 63 bu/A, 18 bu/A better than 2014. The yield ranged from 43 to 84 bu/A. Diva, Seahawk, and UI Stone were the three top yielding varieties at 84, 81, and 70 bu/A, respectively. Test weight average was 61.5 lbs/bu, and proteins were at 10.4%.

Table 2. Variety Descriptions
SPRING BARLEY

ABI Balster (B0811) – One of two 2015 releases from Busch Agricultural Resources, ABI Balster is a high yielding two-rowed spring malt barley comparable to ABI Voyager but about 3 inches shorter. ABI Balster is average in many agronomic characteristics and lower than Voyager for test weight.

ABI Growler (2B09-3425) – the second of two 2015 releases from Busch Agricultural Resources, ABI Growler also exhibits very high irrigated yield potential, and hits the average for test weight, heading date, proteins and plumps. In two years of testing, ABI Growler has consistently yielded in the top group of two-rowed malt lines with Voyager and Balster.

ABI Voyager (B3719) – a 2011 release from Busch Agricultural Resources, Voyager was tested in 2011 as B3719, out yielding other two-rowed malt varieties. Three-year average yields were equivalent to ABI Balster and better than Genie, Copeland and Conrad. In 2015, Voyager was among the top-yielding (named) varieties under irrigation. Voyager had higher test weight than Conrad in test weight, similar in heading date, plumps, and protein, but taller (2-4 inches).

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. AC Metcalfe yields are lower than average and similar to Hockett. It is widely adapted to western US and Canadian conditions, but is tall and may lodge under higher production conditions. Malting quality and extract are excellent.

ACC Synergy – released in 2015 by Agriculture Canada, ACC Synergy is a two-rowed malt barley in the first year of testing in these trials. Yields were excellent at all locations except Ashton, with very high test weight and lodging resistance. In Fusarium head blight (FHB) screening trials, ACC Synergy had one of the lowest indices for infection; however, there is no high level of resistance for FHB in most barley cultivars.

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

CDC Copeland (TR150) – a two-rowed malt variety developed by the Crop Development Centre, University of Saskatchewan and released in 1999, Copeland has been in the trials since 2009 in southern Idaho. Copeland yielded similar to Conrad and Moravian 69, and much higher than Harrington. Copeland was 3-4 in taller than average, and was average for grain protein and test weight, and less than average for lodging. In Fusarium head blight (FHB) screening trials, CDC Copeland had the lowest indices for infection; however, there is no high level of resistance for FHB in most barley cultivars.

CDC Fibar (HB373) – a high beta-glucan (waxy), hulless two-rowed food barley released by Crop Development Centre, University of Saskatchewan, Saskatoon in 2003. Of the hulless food barleys, CDC Fibar is lowest in yield but with an average beta-glucan (soluble fiber) levels per 100g

Spring Barley (cont.)

of 8-10g, or 8-10%. The ratio of starch type is 100% amylopectin, 0% amylose. CDC Fibar tends to be tall and will lodge, has good shattering resistance, and fair to good drought tolerance.

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

Celebration – a six-rowed malt barley released in 2008 by Busch Agricultural Resources, LLC. Released for the Midwest, Celebration has some resistance to Fusarium head blight and consistently lower toxin (DON) content in the grain. Yields are less than Tradition and better than Quest, with average test weight, while protein and lodging were higher than average.

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

Claymore (BZ509-216) – two-rowed feed originally developed through WestBred, Claymore is carried by Highland Specialty Seed. In its first year of testing in these trials, Claymore out-yielded all other feed lines, including Vespa and Champion, and had lower lodging than all other feed lines (Table 24). Test weight, thins and proteins were below trial average.

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

Conrad (B5057) – two-rowed spring malt barley released by Busch Agricultural Resources in 2005. Conrad has average yields and test weight. Conrad is 1-2 inches shorter, is average for lodging, and has lower protein than average. Conrad has yielded well in the Upper Valley area, especially around Ashton.

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

Harriman (08IS1549) – hulled, low phytate, two-rowed feed barley. Compared to the previously released hulled, low-phytate variety 'Herald' (six-rowed), Harriman has higher grain yield, higher test weight, higher inorganic P, and lower phytate P. This variety can contribute to

animal production and sustainable agriculture by reducing or eliminating the need for phosphorus or phytase supplementation and by reducing the amount of phosphorus released into the environment from animal production facilities.

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

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

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

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

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 McGwire. Julie is the highest yielding waxy barley. Lodging of Julie is less than average, and heading date 5 days later than Baronesse.

Kardia (2Ab09-X06F084-51) – Kardia is a hulled food barley line being released in 2016 by the USDA-ARS in Aberdeen. Yield of Kardia was higher than the hulless lines Julie and Transit and in the first two years of testing was similar in yield to Baronesse.

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

LCS Genie – a European malt barley being released in the U.S. through Limagrain, Genie is a short-statured two-rowed malt variety. In 2014 trials, LCS Genie yielded very well and it responded well to high input environments. In 2015, irrigated yield was above average and comparable to ABI Voyager and CDC Copeland. Protein and plumps of Genie were average, and it is about 3 inches shorter than average with higher lodging.

Spring Barley (cont.)

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

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

Menan (01Ab9663) – a six-rowed malt barley released by the USDA-ARS in 2015. Menan yields are higher than other six-rowed malt lines and comparable to some of the six-rowed feed barley lines. Protein and lodging are lower than average.

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

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

Moravian 69 (C69) - two-rowed spring malt barley released by Coors Brewing Co. in 2005. Moravian 69 has very high yield potential, especially in the Magic Valley area where it is widely grown. Height is very short (4 inches below average), and lodging is less than Harrington. Protein is at or slightly below average in these trials.

Oreana (BZ509-448) – a two-rowed feed barley originally developed through WestBred, Oreana is carried by Highland Specialty Seed. In its first year of testing in these trials, Oreana had average yields, low test weight, and was 4-5 inches shorter than average. Under some highly productive environments, Oreana yields were comparable to Claymore and Vespa (Table 57).

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 yields less than Tradition and Celebration. In Idaho, Quest yields were below average for 6-rowed malt lines, with good test weight, and average plumps, maturity and lodging.

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

Sawtooth (08ID2661) – a two-rowed, hulless spring barley released in 2015 by the USDA-ARS in cooperation with the IAES.

Spring Barley (cont.)

Sawtooth is a low-phytate feed line that, like Harriman, should prove useful in animal feed to reduce phosphorus in the waste stream. Sawtooth yields were less than Baronesse in the 3-year averages, but due to its hulless characteristic, has very high test weights and protein.

Tetonia (98AB11720) – two-rowed spring feed barley released in 2007 by the USDA-ARS in Aberdeen and the Idaho Ag Experiment Station. Tetonia has high yield potential over many locations, and is well adapted to Idaho and Montana production areas. Tetonia yielded more than Baronesse in the irrigated nurseries (2010-2015) and similar to Lenetah. Other agronomic characteristics are very similar to Baronesse with similar lodging under irrigation.

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

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

Vespa - a two-rowed feed barley being released by Limagrain Cereal Seeds, LLC and imported from Europe. In the first three years in irrigated trials, Vespa yields were just above Champion, with lower test weights, 2-3 days later in heading date, 3-4 inches shorter, and slightly higher lodging.

Xena (BZ594-19) – a two-rowed spring feed barley released by Western Plant Breeders that is now handled by Highland Specialty Grain. Xena has had very high yields over the locations tested from 2010-2015, similar to Champion. Its yield has been greater than Baronesse, and is about two inches taller but with similar straw strength. Test weight tends to be slightly higher than Baronesse, but less than Champion.

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 Kamiak and Sprinter feed barleys. Winter hardiness is above average and better than Endeavor and Charles (both are two-rowed winter malt varieties). Lodging, protein, and heading date are average, and test weight is lower than average.

Buck (09-OR-86) – Oregon State University hulless winter food barley with intermediate levels of beta-glucan content in the seed, developed for human consumption and the heart-healthy food campaign. Buck yields are comparable to hulled malt variety Endeavor, with a high test weight (53.4 lbs/bu) due to the hulless seed (Table 19). At Aberdeen, Buck yields (167 bu/A with no lodging) were comparable to Sunstar Pride with a test weight of 56.5 lbs/bu.

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

Winter Barley (cont.)

severe winter conditions reduce stand. Both Charles and Endeavor can suffer significant stand losses under cold winter conditions.

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

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

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

Maja (OR81) – a six-rowed winter barley released in 2009 by Oregon AES as a winter malt variety. Yields over the past three years of testing in southern Idaho were greater than Charles and Endeavor and comparable to Sprinter. Maja has had very high test weight and plumps, average protein and very low lodging, less than Charles and Endeavor. 2015 results overall had low test weight and plumps for winter barley.

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

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

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

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

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

Verdant (OR712) – an Oregon State University release in 2014, in the first year of testing in these trials. Verdant is a winter feed barley. Yield, test weight and plumps were low in 2015.

SPRING WHEAT

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

Alturas (IDO526) – a soft white spring wheat released by Idaho AES and USDA-ARS in 2002, and has a partial waxy endosperm. Alturas is adapted to both irrigated and dryland conditions, but performs best under irrigation. It is average in yield, test weight, height and heading. Alturas has adult plant resistance to stripe rust but is moderately susceptible to the current races. Alturas is susceptible to Fusarium head blight (FHB).

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

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

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

Cabernet (95WV10616) – a 2007 hard red spring wheat from Resource Seeds, now Syngenta Cereals, Cabernet yields are similar to Jefferson and Bullseye. Cabernet is a little shorter than average, (2 inches shorter than Bullseye), has average test weight, with slightly lower protein. Cabernet was resistant to the local 2014 race of stripe rust, and moderately susceptible to FHB.

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

Diva (WA008090) – a 2010 release from the Washington AES, Diva is a soft white spring wheat having Hessian Fly resistance, high-temperature adult plant resistance to stripe rust and good end-use quality. Diva yielded less than UI Pettit in 2015, and is susceptible to FHB.

HRS3419 – one of three hard red spring wheats from Winfield Solutions, LLC, a Land O'Lakes Company, tested for two

years in these trials. (2014 HRS3419 was listed as LL3419 in the 2014 SGR.) Yield in 2014 and 2015 was below average. Test weight and grain protein of HRS3419 was below average and it headed about three days later than Jefferson. HRS3419 is moderately susceptible to stripe rust and was the least susceptible hard red spring wheat in 2015 FHB testing.

HRS3504 – one of three hard red spring wheats from Winfield Solutions, LLC, a Land O'Lakes Company, tested in 2015 in these trials. HRS3504 was the highest yielding hard red spring wheat in the 2015 irrigated trials (Table 20). HRS3504 had better grain protein than HRS3419, but was till lower than irrigated average. HRS3514 is among the least susceptible hard red spring wheat in 2015 FHB testing, similar to HRS3419, LCS Iron and Cabernet.

HRS3530 – one of three hard red spring wheats from Winfield Solutions, LLC, a Land O'Lakes Company, tested in 2015 in these trials. HRS3530 had lower than average yields under irrigation, but good test weight. All the HRS lines were taller than average in height. HRS3530 also had higher levels of grain protein (which could be the result of lower yielding wheat having extra available soil nitrogen contributing to grain protein instead of yield).

Jefferson (IDO462) – hard red spring wheat released by Idaho AES and USDA-ARS in 1998. Jefferson is primarily intended as a dryland variety due to it being taller than average and susceptible to lodging under irrigation. Irrigated and dryland yields have been at test average. Jefferson has good quality when there is adequate soil nitrogen and sulfur, and when there's a minimum of 13 percent grain protein. Jefferson is susceptible to the current races of stripe rust and to FHB.

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

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

LCS Atomo (06SB086-B) – a newly released hard white spring line imported from Europe by Limagrain Cereal Seeds. LCS Atomo was tested for the first time in these trials in 2014, and had average yield and lodging (see Table 20). LCS Atomo is short with earlier maturity (comparable to Klasic), but with lower test weight and grain protein than average. LCS Atomo is susceptible to current races of stripe rust, and susceptible to FHB.

LCS Star – a hard white spring wheat imported from Europe by Limagrain Cereal Seeds. LCS Star had above average yield, average grain protein, plant height and lodging, and lower test weight. Grain quality is acceptable. LCS Star is resistant to current local races of stripe rust, and, like all

Spring Wheat (cont.)

currently available hard white spring wheat, is susceptible to FHB.

LCS Iron (11SB0096) – a 2015 release from Limagrain Cereal Seeds, LCS Iron is a hard red spring wheat that has been in these trials for two years. Yields were similar to Jefferson and SY Basalt, with lower test weight, about 3 days later in heading, and 1% lower in grain protein than Jefferson. In 2014 trials, LCS Iron was resistant to stripe rust. LCS Iron was among the least susceptible hard red spring wheat to FHB.

Seahawk (WA8162) – a newly released soft white spring wheat from Washington State University's spring wheat breeding program adapted to dryland and irrigated production areas. Seahawk has resistance to Hessian fly, is resistant to stripe rust, and one of the least susceptible soft white spring wheats to FHB. Seahawk has tolerance to high aluminum, low pH soils. Yield and test weight has been the highest of all currently available soft white springs, and greater than Alturas, Pettit and Babe. Plant height is average and heading date 1 day later than average.

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

SY Basalt (04W40240R) – a hard red spring wheat released in 2014 by Syngenta Seeds, SY Basalt has high yield potential under high input environments (Table 39), comparable to HRS3504. In the second year of extension testing, SY Basalt had above average yields, but lower test weight and protein. Maturity is about 3-5 days later than average. SY Basalt is resistant to current races of stripe rust and susceptible to FHB.

SY Coho (SY40292R) – released in 2015 by Syngenta Cereals, SY Coho has been tested in these trials for three years (see Table 9). SY Coho is a hard red spring wheat with above average yields, but having lower than average test weight and protein. SY Coho is moderately susceptible to SR and susceptible to FHB.

SY Selway (SY3001-2) – 2015 release from Syngenta Cereals, SY Selway is a hard red dryland spring wheat that in the first year of extension testing yielded above average with average test weight and protein. SY Selway was 3 inches taller than average in the Soda Springs trial, and was susceptible to FHB (under the irrigated, inoculated FHB screening trial at Aberdeen).

UI Platinum (IDO694C) – a newly IAES released hard white spring wheat, UI Platinum is a high yielding hard white spring wheat with average test weight and lodging. Over the last three years, yield has been comparable to red wheats Jefferson and Bullseye, but less than Dayn (W). Under 2015 conditions, yields, plant height and lodging were similar to WB-Paloma, but lower in grain protein and test weight. In some environments, UI Platinum will show chaff discoloration similar to black chaff infection, which is not a disease but a genetic trait. UI Platinum is moderately resistant to current races of stripe rust and susceptible to FHB.

UI Pettit (IDO632) – is a soft white spring wheat released in 2006 through the Idaho AES. Yields and test weight are similar to Alturas, but UI Pettit is shorter and heads 3-5 days earlier than Alturas. UI Pettit is very

Spring Wheat (cont.)

susceptible to current races of stripe rust and to FHB.

UI Stone (IDO599) - a soft white spring wheat released by Idaho AES in 2012, UI Stone has high yield potential, consistently greater than UI Pettit and Alturas. UI Stone was selected for reduced FHB susceptibility, carries the FHB1 resistance gene and is the one of the soft white spring wheats in the PNW that should be grown following corn (if wheat is the only choice available to follow corn). UI Stone also has tolerance to Cereal Cyst Nematode, but is susceptible to the current races of stripe rust. Grain protein, height and lodging are average.

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

WB6430 (BZ608-125) – a soft white spring wheat released by WestBred (a unit of Monsanto) in 2014. WB6430 is a UI Pettit-type of soft white spring wheat with improved yield, test weight, resistance to stripe rust. Maturity is slightly earlier than average, but 3 days later than UI Pettit. WB6430 is also 3 inches shorter than average. WB6430 is moderately resistant to stripe rust and susceptible to FHB.

WB7328 – most similar to Snow Crest, WB7328 is a hard white spring wheat with similar agronomic characteristics as Snow Crest, but is about one inch shorter. Released in 2015 by WestBred (a unit of Monsanto) as a Snow Crest replacement, WB7328 has better resistance to stripe rust and higher yield potential. Like all hard white spring wheat, WB7328 is susceptible to FHB.

WB7589 – a short-statured, hard white spring wheat most similar to Klasic in agronomic and end-use quality. WB7589 was released in 2015 by WestBred (a unit of Monsanto) as a replacement for Klasic, having better resistance to stripe rust and higher yield potential. Like all hard white spring wheat, WB7589 is susceptible to FHB.

WB9229 (SJorDA906-229) – hard red spring wheat released by WestBred (a unit of Monsanto) in 2013 intended for irrigated production areas. WB9229 yield and lodging were greater than average in the first three years of testing and was similar to Kelse for yield and grain protein under irrigation. Heading date for WB9229 was 4 days later than average (Table 9). WB9229 has resistance to stripe rust and intermediate in susceptibility to FHB, similar to WB9229.

WB9411 (BZ908-418) – hard red spring wheat released by WestBred (a unit of Monsanto) in 2014 intended for irrigated production areas and tested for the first time in these trials in 2014. WB9411 was the similar in yield to Bullseye with significantly higher grain protein (Table 20). Test weight, heading date and plant height were less than average. WB9411 is resistant to current races of stripe rust, and one of the least susceptible of the hard red springs to FHB.

WB9668 (BZ908-552) – a hard red spring wheat intended as a replacement for

Spring Wheat (cont.)

WestBred 936, WB9668 was tested in the trials for the first time in 2014. Yield potential was average in 2015, and in 2014 yields were similar to Kelse, with higher grain protein. WB9668 is 2 inches shorter than average with high test weight, lower lodging and average heading date. WB9668 is resistant to the current races of stripe rust and intermediate in susceptibility to FHB.

WB-Paloma (BZ904-331WP) – a hard white spring wheat released in 2009 by WestBred (a unit of Monsanto) as a possible replacement for Snow Crest. Over three years of testing, WB-Paloma had yielded comparable to UI Platinum under irrigation, yielding 107% of Snow Crest and 111% of Klasic. WB-Paloma has high protein and is average for height and test weight. WB-Paloma is susceptible to the current races of stripe rust and is susceptible to FHB.

WINTER WHEAT

Bobtail (OR208047P4) - a 2012 release from Oregon State University and the USDA-ARS, Bobtail is a soft white winter wheat with excellent yield potential, Good lodging tolerance, and disease resistance. Test weight of Bobtail was low, however, and heading date, protein and height were average over three years in the (Table 5) irrigated trials. Bobtail is susceptible to dwarf bunt (DB).

Brundage (ID86-14502B) – a soft white winter wheat released in 1996 by the Idaho AES. Irrigated yield potential of Brundage is excellent, as is the end use quality. Yields in the last three years have been 89% of average as Brundage is very susceptible to several diseases, including stripe rust, dwarf bunt and Cephalosporium stripe.

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

Colter (MT) – a hard red winter variety produced by Montana State University for dry land production. Colter was released in 2014, and in the first year of trial in dry land production, Colter yielded very well in Soda Springs, with higher test weight and grain protein than the average for this location. Colter also yielded well in Rockland, comparable to Deloris. Colter wasn't tested for dwarf bunt susceptibility, but showed very little to no symptoms of physiological leaf spot (see Addendum 2).

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 UI Silver, Lucin-CL, and Yellowstone under dryland conditions and is agronomically similar to Utah 100 with slightly better test weight. Curlew is resistant to dwarf bunt, and is susceptible to stripe rust.

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

Earl (WA8184) – hard white winter wheat, Washington State University released in

Winter Wheat (cont.)

2015, Earl's yield and test weight were below average, while protein was about average, lodging was high and heading date earlier than average. Earl is susceptible to dwarf bunt.

Eltan (WA7163) – soft white winter wheat released in 1990 by the Washington AES. Eltan has wide adaptability in the dryland production areas with good snow mold tolerance and resistance to dwarf bunt. Eltan will lodge under irrigation and is one of the latest varieties for heading date, but is still a good choice for dryland production areas.

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

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

Greenville (UT9743-42) – Utah AES released Greenville hard red winter wheat in 2010. Greenville has good yield potential under irrigation, and was average under dryland conditions. Three-year averages for 2013-2015, irrigated yields of Greenville were below average. Test weight and height were below average. Heading date, lodging and grain protein were average. Greenville currently has fairly robust stripe rust resistance and dwarf bunt resistance.

Jasper (WA 8169) – the soft white winter wheat WA8169 is now named Jasper and officially released by the Washington State AES and the USDA-ARS in 2015. It is a mid-maturity line with good cold tolerance, stripe rust resistance, eyespot foot rot resistance, and very good end-use quality. It is broadly adapted with yields comparable to WB 528. Jasper seems to adapt very well to high rainfall and irrigation and does very well when water becomes limited later in the season.

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. Lodging under irrigation is high, comparable to Juniper, so Judee is recommended for dry land production. Dry land yields are comparable to Utah 100 and Deloris. Judee is short, with average heading date, with above average grain protein and test weight. Judee is very susceptible to dwarf bunt.

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

Kaseberg (OR2071628) – a soft white winter 2012 release from Oregon State University and the USDA-ARS, Kaseberg has been above average for irrigated yield (comparable to WB 528 and better than Stephens) and below average for test weight. Proteins are lower than average, and heading date and height were average. Kaseberg is very susceptible to dwarf bunt.

Winter Wheat (cont.)

Keldin (ACS55017) – a hard red winter wheat distributed by WestBred, Keldin had the highest average yield of the hard red winter wheat tested in these trials from 2012-2015. Comparable to Yellowstone and Norwest 553, yields are excellent under irrigated and dryland conditions. Keldin is 2 inches shorter than average, has high test weight (see Table 4) and is a little below average for grain protein. Keldin is susceptible to dwarf bunt.

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 third year in the trials, LCS Artdeco yields were similar to WB 528. While yields were above average, the test weight was below average, and height was 2 inches shorter than average. LCS Artdeco is very susceptible to dwarf bunt.

LCS Azimut (NSA97-2365) - a hard red winter wheat sold and marketed by Limagrain Cereal Seeds, LLC. Azimut is very short under irrigation, comparable to Garland. Yield and test weight were below average, less than Moreland, and had a heading date two days earlier than nursery average. Dry land yields and end-use quality were poor to average. LCS Azimut is very susceptible to dwarf bunt.

LCS Biancor – soft white winter carried by Limagrain Cereal Seeds, and in the second year of testing yielded similar to WB 528 under irrigation (Table 18). LCS Biancor's test weight and proteins were below average, and it was 4-5 inches shorter than average. Biancor is susceptible to dwarf bunt.

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

LCS Drive (LWW12-7105) – a 2015 release from Limagrain Cereal Seeds, LCS Drive is a soft white winter wheat in its second year of testing. Yields were about at average, and LCS Drive has low test weight and runs 5-6 inches shorter than average. Proteins were below average. LCS Drive is susceptible to dwarf bunt.

LCS Jet (NSA 7208) – a hard red winter with released in 2015 by Limagrain Cereal Seed, LCS Jet has excellent yield potential (Table 17) and has been the top yielding hard red winter for the previous two years of irrigated testing. It was above average for 2015 dry land yield. Test weight, grain protein and lodging has been below average, and LCS Jet has been 3-5 inches shorter than average. LCS Jet is susceptible to dwarf bunt.

Lucin-CL (UT89099) – Utah AES released this hard red winter Clearfield line in 2010. Clearfield wheats have resistance to imazamox herbicides such as to Beyond® herbicide for hard-to-control grassy weeds. Lucin-CL is adapted to dryland production conditions, and is agronomically similar to Deloris. It is susceptible to dwarf bunt and will show severe symptoms of physiological leaf spot under dryland conditions. Dryland yields so far have been similar to Deloris and Yellowstone.

Madsen (WA7163) – a soft white winter wheat originally released in 1988 jointly by

Winter Wheat (cont.)

Washington, Idaho and Oregon AES, Madsen has wide adaptability in the PNW with overall good disease resistance. Madsen yields and test weight are below average under irrigation and it is 5 days later in heading date than average, and 3 inches taller. Yields are average under dryland conditions. Madsen is moderately susceptible to dwarf bunt.

Mary (OR2040726) – a soft white winter wheat released by Oregon State AES in 2011. Mary has moderate resistance to stripe rust, and is intermediate for winter hardiness. Irrigated yields of Mary were comparable to WB 528 and Brundage (Table 5) and dryland yields were low. Heading date, test weight, and protein were average and height was a little shorter than average. Mary is moderately susceptible to dwarf bunt.

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

Northern (MT0978) - MSU 2015 release, Northern is a hard red winter wheat in the first year of these trials. Northern yields were at average and similar to Whetstone, but with lower test weight. Heading date was four days later than trial average, it was two inches taller than average and had slightly higher protein. Dry land yield was at average. Northern is very susceptible to dwarf bunt.

Norwest Duet (LOR-092) - Norwest Duet was released in 2015 by Limagrain Cereal Seeds. It is a very tall soft white winter wheat that in 2015 performed at trial average for yield and below for test weight. Heading date was five days later than average for the trial. Grain protein was slightly above average. Norwest Duet is moderately resistant to dwarf bunt.

Norwest 553 (ORN00B553) – a hard red winter wheat developed by Oregon State and Nickerson U.K. in cooperation with the USDA-ARS. Norwest 553 is resistant to stripe rust and tolerant to Fusarium crown rot, and has yielded very well (Table 4) under irrigation, comparable to Yellowstone and WB-Arrowhead. Norwest 553 is 5 inches shorter than average with excellent lodging resistance. Grain protein and test weight were average. Winter hardiness is a problem in some years especially when entering the winter under dry conditions, and Norwest 553 is susceptible to dwarf bunt.

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

Promontory (UT1567-51) – a hard red winter wheat released by Utah AES in 1990. Promontory is an irrigated and dryland variety with good test weight. Yield under irrigation has been above average, but it will lodge. Promontory has short coleoptiles and may have trouble emerging when planted deep in dry soils. Promontory is resistant to dwarf bunt.

Rosalyn (OR2071071) – a soft white winter, 2012 release from Oregon State University and the USDA-ARS, Rosalyn yields in 2014 have been similar to SY

Winter Wheat (cont.)

Ovation and Kaseberg. Test weight, grain protein and height of Rosalyn were less than average. Rosalyn is moderately resistant to dwarf bunt.

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

SY107 (03PN108#21) – a soft white winter wheat developed and released by Syngenta Cereals, SY 107 has been tested for two years in these trials, with slightly above average yields in 2015, and excellent yields in 2014. Test weight has been at average, with 1 day later heading date than SY Ovation and similar plant height. SY 107 was resistant to dwarf bunt.

SY Clearstone CL2 (MT CL1077) – a hard red winter 2014 release by Syngenta, SY Clearstone CL2 is a two-gene Clearfield line. Clearfield wheats have resistance to imazamox herbicides such as to Beyond® herbicide for hard-to-control grassy weeds. It was tested under limited dryland conditions in 2014 (Ririe and Rockland) and yields were similar to Deloris and Yellowstone. In Soda Springs in 2015, yields were very good, similar to Curlew and Yellowstone. Under irrigation, SY Clearstone CL2 yields were less than average in 2015. Clearstone CL2 is moderately susceptible to dwarf bunt.

SY Ovation (03PN108#21) – a soft white winter wheat released by Syngenta Cereals in 2011. SY Ovation has had excellent yields over the past four years, similar to Bruneau and Bobtail. Heading date, height, lodging and protein were average, with slightly higher than average test weight (see Table 17). SY Ovation is susceptible to current races of stripe rust and susceptible to dwarf bunt.

UI Silver (IDO658B) – a hard white winter wheat released in 2011 by the University of Idaho AES. UI Silver yields very well under dry land conditions with excellent test weight. UI Silver has good end use quality for both bread and Asian noodles. UI Silver has resistance to stripe rust, dwarf bunt, and carries the SrTmp gene for resistance to stem rust. It is susceptible to black chaff and lodging, which can be a problem under irrigation. UI Silver is a partial waxy winter wheat.

UI SRG (IDO656B) – a hard red winter wheat released in 2012 by the Idaho AES for the dryland conditions of southern Idaho and Northern Utah. SRG will lodge under irrigation without the use of growth regulators. Yields in the past three (very stressful) years have been above dryland average, comparable to Utah 100. UI SRG is very resistant to dwarf bunt.

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

UICF Grace (IDO 651) – a hard white winter Clearfield wheat released in 2009 for the rainfed production areas. UICF Grace has resistance to imazamox herbicides (one-

gene imi) such as Beyond®, and will be useful in areas where jointed goatgrass and cheatgrass are problems. Yields are comparable to Golden Spike but with much higher protein. UICF Grace is tall and susceptible to black chaff, making it suited to dryland production. UICF Grace is resistant to dwarf bunt.

UI-WSU Huffman (IDN-03-29902A) – a soft white winter released by the Idaho AES northern breeding program jointly with WSU in honor of Brad Huffman. Yields in southern Idaho under irrigation have been comparable to WB 528 and better than Brundage (Table 5), with good test weight, later heading, and taller with greater lodging than average. UI-WSU Huffman is susceptible to dwarf bunt.

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

Warhorse (MT) – Warhorse is a 2014 release from Montana AES. Warhorse is a hard red winter wheat adapted to dry land conditions, having below average yields in 2015 but with excellent protein. Test weight was average. War horse is susceptible to dwarf bunt.

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

WB1529 (BZ6W07-436) – soft white winter released in 2014 by WestBred (a unit of Monsanto), yields of WB1529 under irrigation are similar to WB 528 in 2015 (Table 5), with higher test weight and lodging. Grain protein was at nursery averages. WB1529 is moderately susceptible to current races of stripe rust and resistant to dwarf bunt.

WB3768 (MTW08168) – hard white winter wheat released in 2015 with excellent yield potential, yielding 106% of Golden Spike under irrigation with higher grain protein and significantly less lodging, even though plant height was 6 inches greater than average and 3 inches greater than Golden Spike. WB3768 is moderately susceptible to dwarf bunt.

WB-Arrowhead (ML9W05-2501) – a hard red winter wheat released by WestBred (a unit of Monsanto) in 2011. Irrigated yields of WB-Arrowhead averaged over the last three years have been excellent, similar to Yellowstone and Norwest 553 (see Table 4). WB-Arrowhead, like Norwest 553, showed excellent resistance to stripe rust in the 2011 epidemic. Under irrigation, height was 3 inches less than trial average, test weight was above average and lodging was average. Protein was below average. WB-Arrowhead is moderately resistant to dwarf bunt.

WestBred 456 (BU6W99-456) – a soft white winter wheat from WestBred, (a unit of Monsanto), WB 456 was released as an improvement over WB 470 and as a replacement for WB 528. WB 456 yielded less than WB 528 in the past three years and had higher test weight. WB 456 is three inches shorter than WB 470 with improved lodging resistance. WB 456 has an early heading date, 3-5 days earlier than average, and had excellent resistance to stripe rust in

the 2011 epidemic. Three-year average yields were below average. WB 456 is susceptible to dwarf bunt.

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

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

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

Yellowstone (MT00159) – a hard red winter wheat with excellent yield potential in both irrigated and dryland conditions of southeast Idaho. Yellowstone was released by Montana State University and the AES in 2005 and has above average test weight and height, and lower grain protein. End use quality is average, with above average loaf volume. Under very high production inputs, Yellowstone will lodge under irrigation and is very susceptible to stripe rust and dwarf bunt.

Table 3. Ten year averages of selected agronomic characteristics, 2005-2014 compared to 2015.

NOTE: "Average" values are for years 2005 to 2014

Winter Wheat (all market classes and locations)

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.	%
2005	4	104	2008	5	60.9	2005	4	38	2011	5	6/19	171	2014	5	25
2015	6	103	2006	4	60.8	2015	6	35	2010	5	6/18	171	2010	5	21
2009	5	102	2007	4	60.3	2009	5	35	2008	5	6/14	166	2009	5	17
2012	5	102	2010	5	60.3	2010	5	34	2009	5	6/9	162	**Avg.**	---	**11**
2014	4	101	2011	5	60.2	2011	5	32	**Avg.**	---	**6/8**	**160**	2011	5	9
2006	4	98	2009	5	60.0	**Avg.**	---	**32**	2005	4	6/7	159	2007	4	9
2007	4	96	2012	5	59.7	2006	4	32	2013	5	6/5	158	2013	5	8
2010	5	95	**Avg.**	---	**60**	2014	5	32	2014	5	6/4	157	2006	4	8
Avg.	---	**94**	2013	5	59.4	2013	5	31	2012	5	6/3	156	2012	5	5
2011	5	86	2005	4	59.3	2012	5	30	2006	4	6/1	153	2015	6	4
2008	5	80	2015	6	58.1	2007	4	30	2015	6	5/31	152	2008	5	4
2013	5	79	2014	4	56.1	2008	4	30	2007	4	5/30	151	2005	4	4

Spring Wheat (all market classes and locations)

YIELD			TEST WEIGHT			PLANT HEIGHT			HEADING DATE				LODGING		
	# of			# of			# of			# of		Days		# of	
Year	Loc.	bu/A	Year	Loc.	lb/bu	Year	Loc.	in.	Year	Loc.	date	fr. Jan.1	Year	Loc.	%
2014	5	107	2006	5	62.1	2014	4	34	2008	5	7/9	192	2014	4	16
2009	5	107	2009	5	61.8	2009	5	34	2010	5	7/9	192	2006	5	6
2008	5	102	2013	5	61.4	2010	5	33	2011	5	7/9	192	2007	5	5
2015	5	97	2012	5	61.4	2005	5	32	2005	5	7/3	186	2010	5	5
2011	5	96	2015	5	61.0	2011	5	32	2009	5	7/3	185	**Avg.**	---	**4**
Avg.	---	**92**	2008	5	60.7	**Avg.**	---	**31**	**Avg.**	---	**6/29**	**182**	2011	5	3
2010	5	91	2010	5	60.6	2007	5	30	2006	5	6/27	179	2005	5	2
2012	5	90	**Avg.**	---	**60**	2008	5	30	2012	5	6/24	177	2015	5	2
2005	5	87	2005	5	60.2	2015	5	30	2013	5	6/22	175	2013	5	2
2013	5	86	2011	5	59.2	2012	5	30	2007	5	6/21	173	2008	5	0.5
2007	5	81	2007	5	58.6	2006	5	29	2015	5	6/18	170	2012	5	0.4
2006	5	72	2014	5	56.5	2013	5	28	2014	5	6/18	170	2009	5	0

Spring Barley (all market classes and locations)

YIELD			TEST WEIGHT			PLANT HEIGHT			HEADING DATE				LODGING		
	# of			# of			# of			# of		Days		# of	
Year	Loc.	bu/A	Year	Loc.	lb/bu	Year	Loc.	in.	Year	Loc.	date	fr. Jan.1	Year	Loc.	%
2012	4	129	2009	4	52.5	2010	4	37	2008	5	7/11	193	2014	4	56
2014	4	127	2005	5	52.0	2014	4	36	2011	5	7/9	191	2007	5	35
2015	4	124	2010	4	51.7	2009	4	34	2010	4	7/4	187	2013	4	33
2013	4	122	2013	4	51.6	2011	5	33	2005	5	7/4	186	2011	5	26
2009	4	118	2011	5	51.6	2013	4	33	2009	4	6/30	183	**Avg.**	---	**24**
2008	5	114	2006	5	51.5	2015	4	33	**Avg.**	---	**6/30**	**182**	2015	4	24
2011	5	112	2012	4	51.4	2005	5	32	2006	5	6/28	180	2010	4	24
Avg.	---	**111**	**Avg.**	---	**51**	**Avg.**	---	**32**	2012	4	6/24	177	2005	5	21
2010	4	106	2008	5	50.7	2008	5	31	2014	4	6/23	176	2006	5	21
2005	5	103	2015	4	50.6	2012	4	30	2007	5	6/23	175	2008	5	15
2007	5	99	2007	5	49.2	2007	5	27	2013	4	6/20	173	2009	4	13
2006	5	82	2014	4	48.8	2006	5	26	2015	4	6/15	168	2012	4	0.4

Table 4. Hard Winter Wheat Irrigated Nurseries, 3-Year Averages (2013-2015; 9 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Keldin	140.1	60.7	98	5/27	36	29	12.9
IDO1101 (W)	139.2	60.3	98	5/28	35	33	13.6
Norwest 553	135.9	59.4	98	5/29	33	1	13.0
Yellowstone	135.2	59.7	97	5/28	40	22	13.0
WB-Arrowhead	134.1	60.4	98	5/28	39	25	12.9
Promontory	132.7	59.8	98	5/28	39	34	12.8
Whetstone	129.4	60.3	98	5/23	37	22	13.6
Utah 100	127.9	58.4	97	6/1	43	21	13.3
Moreland	127.8	57.8	97	5/26	35	16	14.0
Greenville	126.9	57.4	98	5/28	32	23	13.5
LCS Azimut	126.0	54.6	97	5/26	31	9	12.6
DAS001	124.0	59.4	96	5/25	38	26	13.2
Judee	120.1	60.5	99	5/28	37	29	14.0
Manning	118.4	58.6	97	5/29	39	55	13.2
IDO1103	118.3	59.2	99	5/30	38	47	13.8
Golden Spike (W)	117.6	57.9	98	5/31	40	54	13.2
Juniper	112.5	60.4	98	5/31	50	35	14.5
Average	127.4	59.1	98	5/28	38	28	13.4
LSD (α =.05)	6.9	0.6	2.0	0.7	1.0	9.8	0.6
CV%	10.9	2.2	4.3	1.0	5.6	74.6	4.8
Pr > F	<.0001	<.0001	0.4481	<.0001	<.0001	<.0001	<.0001

(W) = white

Table 5. Soft White Winter Wheat Irrigated Nurseries, 3-Year Averages (2013-2015; 9 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Bobtail	143.7	55.4	97	5/30	36	8	11.2
Bruneau	137.3	57.4	97	6/1	38	14	10.7
SY Ovation	137.0	57.8	98	5/29	37	6	11.1
Rosalyn	136.3	56.2	98	5/31	36	8	10.5
Kaseberg	135.6	55.8	98	5/30	36	10	10.8
IDO1108	135.0	56.0	98	6/2	40	14	11.1
UI-WSU Huffman	134.9	57.4	99	6/1	38	12	11.9
LCS Artdeco	134.3	55.0	98	5/27	34	7	10.2
WB 528	133.6	58.0	96	5/28	37	17	11.2
Mary	133.5	57.3	98	5/28	34	8	11.8
WB1529	131.2	58.7	98	5/27	35	14	11.5
Brundage	129.5	58.3	98	5/26	36	7	11.2
Stephens	129.3	56.0	98	5/28	36	12	11.2
Madsen	129.0	57.3	96	6/2	38	8	12.0
Eltan	121.2	56.1	99	6/3	40	32	12.0
WB 456	120.4	58.9	97	5/24	35	5	11.7
Average	132.6	57.0	98	5/29	36	11	11.3
LSD (α =.05)	6.8	0.7	2.1	0.7	0.9	6.3	0.7
CV%	10.3	2.4	4.7	1.0	5.4	119.7	6.4
Pr > F	<.0001	<.0001	0.4498	<.0001	<.0001	<.0001	<.0001

Table 6. Winter Barley Irrigated Nurseries, 3-Year Averages (2013-2015; 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
02Ab671	156.9	47.7	91	5/20	37	39	11.5	83.2	9.8	7.4
Sunstar Pride	156.3	47.0	91	5/25	38	31	10.5	38.8	19.2	42.4
02Ab431	155.8	48.1	91	5/21	37	39	11.4	87.9	6.2	6.1
Eight-Twelve	155.5	47.3	91	5/18	38	36	10.8	59.7	19.7	20.7
Strider	153.3	47.2	91	5/19	38	42	11.1	72.4	15.9	12.1
Charles	147.9	47.2	90	5/18	34	38	11.6	82.8	9.7	7.6
02Ab669	145.0	47.7	88	5/22	38	33	11.5	81.3	11.1	7.6
Streaker*	143.8	49.9	87	5/20	37	47	12.5	34.6	26.9	38.9
Schuyler	139.7	47.0	97	5/21	39	40	11.0	52.0	21.7	26.6
Sprinter	138.3	44.7	95	5/19	37	33	11.1	64.9	16.7	18.4
Kamiak	138.1	46.6	95	5/17	38	44	11.0	68.9	17.0	12.2
Alba	138.1	46.7	94	5/19	37	45	11.0	76.1	14.2	9.9
Endeavor	133.9	48.0	88	5/20	39	33	11.3	68.8	15.3	16.0
Average	146.4	47.3	91	5/20	37	38	11.3	67.0	15.6	17.4
LSD (a =.05)	13.2	1.8	6.6	2.1	1.7	14.4	0.5	12.4	6.6	10.3
CV%	14.4	6.0	12.7	2.6	8.1	65.7	3.7	14.5	32.9	46.5
Pr > F	0.0002	0.0002	0.1122	<.0001	0.0001	0.4460	<.0001	<.0001	<.0001	<.0001

* indicates hulless variety

Table 7. Hard Winter Wheat Dryland Nurseries 3-Year Averages (2013-2015; 7 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
UI Silver (W)	42.1	61.1	94	6/7	27	0	11.6
Curlew	41.0	60.1	95	6/6	28	2	12.3
Lucin-CL	40.0	59.9	95	6/9	28	0	12.2
Juniper	39.7	60.8	96	6/7	30	2	12.7
Yellowstone	39.4	60.0	94	6/5	26	0	11.7
Deloris	39.2	59.9	93	6/9	29	0	11.9
Judee	38.6	61.2	93	6/7	24	0	12.5
Utah 100	38.5	59.2	93	6/6	28	0	12.1
UI SRG	38.5	59.5	94	6/5	29	5	12.3
Promontory	37.9	60.0	94	6/5	27	0	11.9
Manning	37.7	59.6	94	6/5	24	2	12.2
Golden Spike (W)	37.6	59.1	95	6/8	26	0	10.0
WB-Arrowhead	37.2	60.0	94	6/5	27	0	12.0
UICF Grace (W)	37.0	59.5	93	6/6	30	2	12.2
Weston	35.9	61.1	94	6/5	30	5	12.6
Greenville	35.8	58.6	93	6/5	22	0	11.6
Bearpaw	35.0	59.8	94	6/5	25	0	12.3
Norwest 553	29.4	58.6	91	6/6	21	0	12.5
Average	37.8	59.9	94	6/6	27	1	12.0
LSD (α =.05)	3.0	0.5	2.5	0.8	1.2	3.2	1.3
CV%	14.6	1.5	4.9	1.0	8.4	595.8	9.8
Pr > F	<.0001	<.0001	0.3990	<.0001	<.0001	<.0001	0.0392

(W) = white

Table 8. Soft White Winter Wheat Dryland Nurseries,3-Year Averages (2013-2015; 4 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Bobtail	50.9	53.3	96	6/17	23	0	11.4
IDO1108	50.6	55.5	99	6/18	26	0	12.0
Kaseberg	48.0	54.7	97	6/15	24	0	12.0
Bruneau	47.7	56.2	97	6/18	25	0	12.2
UICF Brundage	47.6	54.4	99	6/16	24	0	12.5
Eltan	44.6	55.9	99	6/20	25	0	12.8
Madsen	44.1	56.0	97	6/18	24	0	12.9
Rosalyn	43.0	54.2	96	6/18	25	0	11.4
Stephens	42.4	55.4	98	6/14	24	0	12.7
WB 456	41.7	57.0	98	6/11	23	0	12.4
Mary	27.2	54.7	98	6/12	20	0	12.8
Average	44.4	55.2	97	6/16	24	0	12.3
LSD (α =.05)	4.2	0.7	1.9	1.0	1.2	0.0	1.0
CV%	12.8	1.8	2.6	0.8	6.7	.	5.4
Pr > F	<.0001	<.0001	0.0017	<.0001	<.0001	.	0.0260

Table 9. Hard Spring Wheat Irrigated Nurseries, 3-Year Averages (2013-2015; 12 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Dayn (W)	120.8	60.0	99	6/18	32	1	14.0
SY40240R	106.8	57.9	99	6/22	29	1	13.6
UI Platinum (W)	105.4	59.7	99	6/16	28	5	14.1
WB9229	105.4	59.8	98	6/22	28	10	15.1
Kelse	105.4	60.9	99	6/19	33	1	15.2
WB-Paloma (W)	105.3	59.9	99	6/17	29	4	15.0
IDO862E	104.4	61.6	97	6/16	31	0	15.1
Cabernet	103.3	59.6	99	6/18	27	2	14.5
Jefferson	103.1	60.3	99	6/19	32	10	14.8
Bullseye	102.2	60.5	100	6/19	29	11	14.7
IDO 1202S	101.1	60.8	99	6/21	33	6	14.4
Snow Crest (W)	98.1	59.7	99	6/16	27	3	15.1
Alzada (D)	98.0	59.8	98	6/17	29	12	14.7
Klasic (W)	95.2	59.3	99	6/16	24	3	14.7
UI Winchester	93.7	59.6	99	6/19	30	20	14.7
Average	103.2	60.0	99	6/18	30	6	14.7
LSD (α =.05)	4.1	0.3	2.0	0.3	1.1	5.3	0.4
CV%	9.8	1.4	5.1	0.5	9.6	219.8	3.7
Pr>F	<.0001	<.0001	0.4880	<.0001	<.0001	<.0001	<.0001

(W) = white

(D) = durum

Table 10. Soft White Spring Wheat Irrigated Nurseries, 3-Year Averages (2013-2015; 12 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
UI Stone	122.1	59.9	100	6/18	33	5	11.0
IDO 851	120.4	59.7	98	6/20	33	5	10.7
WB6430	116.2	59.9	99	6/19	30	4	11.1
Seahawk	114.5	60.1	98	6/22	34	12	11.4
Alturas	111.0	59.4	99	6/21	33	10	11.0
Alpowa	109.6	60.0	99	6/22	34	13	11.3
UI Pettit	106.6	59.4	99	6/16	31	3	10.9
Babe	105.4	59.1	99	6/21	34	10	11.3
Average	113.2	59.7	99	6/20	33	8	11.1
LSD (α =.05)	4.0	0.3	1.0	0.4	0.8	6.8	0.4
CV %	8.8	1.4	2.5	0.6	6.1	220.1	4.8
Pr > F	<.0001	<.0001	0.0686	<.0001	<.0001	0.0132	0.0467

Table 11. 6-Row Spring Barley Irrigated Nurseries, 3-Year Averages (2013-2015; 12 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)	Plump (> 6/64)	Plump (>5.5/64)	% Thin
Feed										
Millennium	140.1	47.3	100	6/15	35	12	11.4	80.1	13.4	7.0
Goldeneye	134.3	48.4	99	6/16	35	16	11.5	85.2	9.8	5.5
Herald	128.8	47.4	99	6/17	35	24	11.3	87.7	8.5	4.4
Malt										
Menan	127.1	49.3	99	6/18	38	24	10.8	91.8	5.8	3.2
Tradition	122.3	49.8	99	6/18	36	28	11.5	95.2	3.7	1.5
Celebration	116.9	49.1	99	6/17	36	36	11.8	94.2	4.4	2.0
Quest	114.8	49.3	99	6/17	37	37	11.5	90.2	7.1	3.2
Average	126.3	48.7	99	6/17	36	25	11.4	89.2	7.5	3.8
LSD (α =.05)	5.5	0.3	0.6	0.4	1.0	7.8	0.2	3.8	2.2	1.6
CV%	10.9	1.7	1.5	0.6	7.1	77.1	2.0	5.2	36.2	52.5
Pr > F	<.0001	<.0001	0.0364	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001

Table 12. 2-Row Spring Malt Barley Irrigated Nurseries, 3-Year Averages (2013-2015; 12 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)	(> 6/64)	Plump (5.5/64)	% Thin
2Ab07-X031098-31	134.7	50.6	96	6/21	33	34	11.9	90.9	5.9	3.8
ABI Balster	133.6	49.8	99	6/21	31	36	11.6	92.7	4.5	3.3
ABI Voyager	130.3	50.5	96	6/21	34	33	11.4	96.1	2.7	1.8
2Ab08-X05M010-82	126.7	49.7	99	6/22	32	49	11.3	88.2	7.2	5.1
LCS Genie	126.0	49.6	99	6/23	28	48	11.5	88.9	6.9	4.6
CDC Copeland	124.7	50.8	99	6/23	36	36	11.4	93.5	4.5	2.7
Conrad	123.4	50.1	99	6/21	31	44	11.3	91.6	5.4	3.8
2Ab04-X001084-27	123.2	49.0	99	6/21	30	46	11.3	89.4	6.4	4.6
Moravian 69	122.4	47.9	99	6/24	28	46	11.4	82.3	11.4	6.9
Merit 57	121.6	49.0	99	6/22	33	39	11.7	87.4	7.8	5.3
Merem	118.6	49.3	99	6/25	34	38	11.6	86.8	7.9	5.8
Hockett	118.5	51.0	99	6/20	32	50	11.7	92.5	4.5	3.5
CDC Meredith	118.1	49.1	98	6/24	33	54	11.5	91.4	5.6	3.5
AC Metcalfe	116.4	50.6	99	6/21	34	37	11.6	92.6	4.6	3.3
Harrington	107.4	49.8	98	6/23	33	56	11.7	83.8	10.0	6.8
Average	123.0	49.8	99	6/22	32	43	11.5	89.9	6.4	4.3
LSD (α =.05)	5.6	0.5	1.9	0.5	1.0	9.8	0.2	3.2	1.8	1.5
CV%	11.2	2.7	4.7	0.6	7.8	55.8	2.1	4.4	35.2	42.2
Pr > F	<.0001	<.0001	0.0249	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001

Table 13. 2-Row Spring Feed Barley Irrigated Nurseries, 3-Year Averages (2013-2015; 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
Vespa	145.6	50.5	99	6/22	29	43	11.4	91.8	5.7	3.0
Champion	143.9	52.1	99	6/20	33	36	11.8	93.4	4.6	2.6
Lenetah	137.6	51.1	100	6/21	33	40	11.5	93.0	4.5	3.4
Xena	137.3	50.9	99	6/20	33	42	11.2	91.2	5.2	4.1
Tetonia	135.5	51.1	99	6/22	32	42	11.0	87.5	7.4	5.5
Harriman	132.5	50.2	99	6/24	33	29	11.0	89.5	7.4	3.4
RWA 1758	132.1	50.4	99	6/21	30	55	11.0	88.9	6.6	4.9
Idagold II	127.7	50.0	99	6/23	30	31	11.4	85.6	9.5	5.4
Kardia	124.3	49.2	100	6/24	34	43	11.7	85.4	8.8	6.3
Baronesse	123.1	50.4	99	6/21	31	54	10.9	88.8	6.7	5.0
Julie	114.5	56.2	98	6/25	34	29	15.1	85.9	9.8	4.8
Sawtooth*	112.4	56.7	94	6/23	34	33	14.8	75.4	16.9	8.0
Clearwater*	98.1	55.5	98	6/22	33	55	15.9	72.4	17.4	10.8
Transit*	97.6	56.2	99	6/23	34	29	15.5	78.6	15.3	6.5
2Ab09-X06F058HL-31*	95.4	56.5	97	6/22	32	53	15.5	85.6	9.1	5.9
CDC Fibar*	89.0	55.9	98	6/22	35	62	16.4	79.9	13.4	7.1
Average	121.7	52.7	99	6/22	32	42	12.9	85.8	9.3	5.4
LSD (α =.05)	5.6	0.5	1.1	0.4	1.1	7.9	0.4	4.7	2.7	2.3
CV%	11.5	2.5	2.8	0.6	8.1	46.5	4.2	6.8	36.4	52.6
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 (2013-2015; 3 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Dayn (W)	63.4	59.8	87	6/30	28	0	13.8
IDO1202S (W)	57.9	60.6	88	7/3	27	0	13.5
UI Platinum (W)	55.7	60.4	89	6/28	21	0	13.9
Kelse	54.3	60.6	89	6/29	26	0	15.3
Jefferson	53.7	61.3	88	7/1	24	0	14.4
IDO862E	50.8	61.1	87	6/28	25	0	15.1
UI Winchester	49.6	60.6	88	6/30	23	0	14.6
Klasic (W)	43.1	59.7	88	6/28	18	0	13.8
Average	53.5	60.5	88	6/30	24	0	14.3
LSD (α =.05)	6.6	0.9	3.6	0.9	2.1	0.0	1.2
CV%	15.2	1.8	5.0	0.6	8.6	.	4.9
Pr>F	<.0001	0.0061	0.9445	<.0001	<.0001	.	0.0679

(W) = white

Table 15. Soft White Spring Wheat Dryland Nurseries, 3-Year Averages (2013-2015; 3 site-years)

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Seahawk	63.1	60.1	90	7/3	24	0	12.8
Alturas	59.2	60.5	92	7/3	25	0	11.3
Alpowa	57.1	58.9	89	7/3	26	0	12.7
UI Pettit	57.0	59.8	89	6/29	25	0	11.5
IDO 851	54.7	58.9	92	7/2	25	0	11.3
UI Stone	54.0	59.5	90	6/30	24	0	11.9
Babe	53.6	59.4	88	7/2	25	0	12.0
Average	57.0	59.6	90	7/2	25	0	11.9
LSD (α =.05)	8.9	1.0	3.7	0.8	2.6	0.0	1.1
CV%	19.0	2.0	5.1	0.5	10.4	.	5.3
Pr > F	0.3740	0.1089	0.3599	<.0001	0.7981	.	0.0579

Table 16. Dryland Hard Winter Wheat Data Combined from Rockland and Ririe, 2015.

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in)	Lodging (%)	Protein (%)
Deloris	51.4	60.9	93	5/30	32	0	10.3
IDO1209DH (W)	50.9	62.0	93	5/31	28	0	10.5
Utah 100	50.5	60.7	93	5/31	33	0	10.8
LCS Colonia	50.5	55.9	89	6/4	30	0	9.3
Juniper / Deloris	50.0	61.2	94	5/31	35	0	11.3
Golden Spike (W)	49.7	60.1	95	5/31	30	0	8.8
Colter	49.7	60.6	94	5/29	30	0	10.7
UI Silver (W)	49.2	61.5	95	5/31	28	0	10.2
Northern	49.1	59.7	91	6/1	29	0	10.5
Juniper / Promontory	48.4	61.2	93	5/31	38	0	10.6
Yellowstone	48.4	59.9	95	5/27	32	0	11.1
Greenville	48.2	59.5	94	5/26	24	0	10.2
IDO1101 (W)	48.2	61.4	93	5/28	26	0	10.9
UI SRG	48.1	61.0	94	5/31	32	0	10.6
Lucin-CL	47.9	60.5	94	5/29	29	0	10.8
LCS Jet	47.8	56.8	91	5/27	25	0	9.2
Moreland	47.7	59.7	92	5/25	25	0	10.4
Garland	47.1	59.1	95	6/2	28	0	10.3
WB3768 (W)	47.0	60.4	94	6/1	32	0	10.2
Weston	45.8	62.1	93	5/28	31	0	10.6
Juniper	45.4	60.7	94	5/31	33	0	11.5
Warhorse	45.1	60.6	91	5/30	29	0	12.0
Curlew	45.1	60.1	94	5/27	32	0	10.1
SY Clearstone 2CL	44.6	59.4	95	5/25	30	0	10.9
LCS Azimut	43.8	56.5	91	5/27	26	0	9.3
Judee	43.7	61.6	94	5/30	28	0	11.6
Promontory	43.5	60.7	94	5/28	30	0	9.9
Bearpaw	43.1	59.7	90	5/26	27	0	10.5
Manning	43.0	60.2	94	5/28	28	0	10.7
Whetstone	42.6	61.7	90	5/24	28	0	10.7
WB-Arrowhead / Keldin	42.5	59.7	93	5/26	31	0	10.9
WB-Arrowhead	42.3	59.9	94	5/26	29	0	10.1
DAS001	42.2	58.5	93	5/24	26	0	9.9
Earl (W)	41.8	59.7	88	5/29	29	0	9.6
OR2110019H	41.3	59.0	87	5/31	30	0	9.8
Norwest 553	40.5	59.4	74	6/2	28	0	10.5
UICF Grace (W)	39.5	59.5	91	5/27	30	0	10.4
IDO1103	38.3	60.0	93	5/28	27	0	10.7
OR2100081H	37.6	59.3	73	5/30	30	0	10.2
Average	45.7	60.0	92	5/29	29	0	10.4
LSD (α = .05)	5.7	0.6	3.8	1.5	3.3	0.0	1.4
CV%	12.7	1.1	4.2	1.0	11.6	.	6.6
Pr >F	<.0001	<.0001	<.0001	<.0001	<.0001	.	0.0362

(W) = white

Table 17. Irrigated Hard Winter Wheat Data Combined from Kimberly, Rupert, and Aberdeen, 2015.

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in)	Lodging (%)	Protein (%)
LCS Jet	142.9	57.0	99	5/20	33	7	12.4
WB-Arrowhead / Keldin	139.7	59.9	98	5/20	38	17	12.8
IDO1101 (W)	136.7	60.1	99	5/22	34	16	12.7
Keldin	136.3	61.0	99	5/19	36	3	12.2
Promontory	134.8	60.1	99	5/21	39	13	12.4
LCS Colonia	134.7	55.2	99	5/26	35	0	12.3
WB-Arrowhead	134.2	60.3	98	5/21	39	1	12.4
Yellowstone	133.7	59.3	98	5/22	41	16	12.8
WB3768 (W)	132.4	59.6	99	5/25	44	8	13.2
Greenville	131.5	57.6	100	5/20	32	0	12.7
Colter	130.2	60.1	98	5/23	41	0	13.8
Norwest 553	128.1	59.1	98	5/23	33	1	12.6
Moreland	127.1	57.3	98	5/18	36	3	13.5
Northern	126.4	57.6	97	5/26	40	9	13.3
LCS Azimut	126.4	54.3	99	5/19	32	0	12.0
Whetstone	125.6	60.5	99	5/15	37	6	12.9
Golden Spike (W)	125.2	57.9	98	5/24	41	42	12.3
OR2100081H	124.9	59.0	94	5/20	36	0	12.7
Earl (W)	123.3	57.0	99	5/20	38	25	13.3
DAS001	122.7	59.0	99	5/18	37	28	12.8
IDO1209DH (W)	121.1	61.1	98	5/24	36	2	13.3
SY Clearstone 2CL	120.7	59.1	98	5/22	42	23	13.0
Judee	120.6	60.1	99	5/22	37	5	13.9
Garland	119.1	56.7	98	5/26	29	2	13.4
Manning	117.7	58.6	99	5/22	40	49	12.4
Juniper / Promontory	117.2	59.2	99	5/24	50	13	14.3
OR2110019H	115.8	57.4	99	5/24	39	2	12.6
Utah 100	115.5	57.6	99	5/26	44	5	13.1
IDO1103	111.1	58.2	99	5/24	38	42	13.2
Juniper	104.8	59.6	98	5/25	50	21	14.6
Average	126.0	58.7	98	5/22	38	12	13.0
LSD (α = .05)	10.4	1.1	2.5	1.4	1.8	14.2	0.8
CV%	10.3	2.3	3.1	1.2	5.8	147.3	4.0
Pr >F	<.0001	<.0001	0.1440	<.0001	<.0001	<.0001	<.0001

(W) = white

Table 18. Irrigated Soft White Winter Wheat Data Combined from Kimberly, Rupert, and Aberdeen, 2015.

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in)	Lodging (%)	Protein (%)
Rosalyn	149.4	57.2	98	5/24	38	0	10.1
Bobtail	149.1	55.1	99	5/25	37	0	10.7
SY Ovation	145.5	57.9	99	5/22	39	0	10.6
Mary	145.0	57.3	98	5/23	36	0	11.0
OR2080641	142.8	56.8	99	5/25	38	1	10.3
Kaseberg	142.0	55.0	99	5/25	38	0	10.5
06-03303B	141.6	56.1	99	5/25	38	0	11.0
IDO1108	141.1	55.9	99	5/29	41	3	10.5
IDN-01-10704A	140.2	55.9	99	5/24	42	0	10.4
LCS Biancor	139.3	56.2	99	5/24	33	0	10.5
WB1529	139.0	58.7	99	5/22	37	0	11.0
LCS Artdeco	138.9	54.5	99	5/19	35	1	9.9
WB 528	138.8	58.4	99	5/20	39	2	10.9
Jasper	138.6	56.2	98	5/26	39	0	11.3
IDN-02-29001A	138.5	57.5	99	5/23	38	0	11.1
IDO1005	138.3	57.7	99	5/26	40	0	10.7
IDO1004	138.0	57.7	99	5/21	38	0	10.2
Brundage	137.9	57.9	99	5/19	37	0	11.2
SY 107	136.6	56.4	99	5/25	38	1	10.7
Bruneau	136.3	56.8	97	5/27	37	4	10.1
LCS Drive	134.8	53.9	99	5/20	33	0	10.0
UI-WSU Huffman	134.4	56.4	100	5/27	39	0	10.8
LOR-334	134.3	56.0	98	5/22	34	0	10.7
DAS003	133.5	56.4	99	5/27	39	0	11.5
Norwest Duet	132.7	54.6	100	5/28	43	0	11.4
OR2090473	131.6	55.0	99	5/23	36	0	10.3
UI Magic CLP	131.6	57.7	95	5/22	36	4	10.8
WB 456	131.2	59.3	99	5/16	36	0	10.7
Stephens	130.9	56.3	100	5/22	36	0	10.7
OR2100940	130.2	54.6	99	5/22	35	0	10.2
LOR-833	129.4	55.9	99	5/16	33	0	11.3
Madsen	129.2	56.7	94	5/27	40	0	11.2
OR2080637	128.4	54.6	99	5/27	37	1	11.3
UI Palouse CLP	126.2	56.1	99	5/25	38	0	11.7
LOR-913	126.0	55.7	97	5/21	37	0	11.1
DAS004	125.6	55.3	99	5/27	39	2	11.4
LOR-978	124.9	56.6	99	5/23	36	0	11.6
WB1376CLP	124.8	59.5	98	5/22	37	0	12.6
Madsen / Eltan	124.4	56.5	99	5/27	41	5	10.5
SY 96-2	123.5	57.4	99	5/14	34	2	11.1
Eltan	122.1	55.0	99	5/28	41	29	11.4
UI Castle CLP	121.3	55.7	99	5/25	39	7	11.4
Average	134.5	56.4	99	5/23	37	2	10.9
LSD (α = .05)	10.0	1.1	2.8	1.3	1.7	5.8	0.9
CV %	9.3	2.4	3.5	1.1	5.7	475.3	5.4
Pr > F	<.0001	<.0001	0.2812	<.0001	<.0001	<.0001	<.0001

Table 19. Irrigated Winter Barley Data Combined from Rupert and Aberdeen 2015.

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand	Heading Date	Height (in)	Lodging (%)	Protein (%)	Plump (>6/64)	Plump (>5.5/64)	% Thin
Strider	175.0	44.4	100	5/9	34	32	11.1	65.2	20.8	14.8
Maja	164.2	46.9	100	5/6	36	32	11.1	65.4	21.9	13.6
93Ab669	163.1	49.0	98	5/9	38	33	11.5	85.9	9.2	5.7
Sprinter	162.5	44.6	100	5/10	35	22	11.1	66.7	19.8	14.1
Eight-Twelve	162.4	43.5	99	5/11	37	32	10.9	51.7	22.5	26.3
Sunstar Pride	161.5	42.0	100	5/25	38	3	10.5	27.4	21.2	52.0
UTWB10201-15	157.7	43.3	99	5/9	33	43	11.5	43.2	30.8	26.9
05ARS561-208	156.8	45.4	99	5/18	34	40	11.2	72.7	17.1	10.8
02Ab671	156.4	48.3	99	5/11	38	34	11.6	86.6	7.9	6.2
02Ab431	153.1	48.8	99	5/7	37	38	11.5	88.3	7.4	5.0
Schuyler	150.9	45.1	100	5/17	41	49	11.0	46.9	27.2	26.8
TCFW6-140	150.2	46.5	98	5/7	38	12	11.1	65.8	24.4	10.4
Buck*	148.8	53.4	99	5/14	38	39	13.8	27.4	24.8	48.8
Endeavor	148.8	48.6	98	5/8	40	47	11.3	67.7	18.2	14.8
04ARS635-4	146.7	46.8	93	5/11	38	34	11.3	74.6	14.5	11.4
Alba	141.4	46.3	100	5/11	38	28	11.0	75.4	16.8	8.6
Streaker*	140.8	45.2	99	5/9	38	46	11.5	30.3	27.2	43.4
Charles	139.4	45.9	99	5/5	34	33	11.7	83.8	9.2	7.7
05ARS748-270*	135.9	56.0	96	5/18	38	23	15.9	74.1	18.4	8.3
Kamiak	130.4	46.8	99	5/5	41	32	11.0	72.2	17.7	10.8
Verdant	123.3	40.6	98	5/20	45	13	11.1	61.6	21.9	16.9
Average	150.7	46.4	99	5/11	38	32	11.5	63.4	19.2	18.1
LSD ($\alpha = .05$)	17.1	1.3	2.6	2.1	2.6	22.3	0.6	17.3	10.5	16.8
CV %	11.5	2.9	2.7	1.6	6.9	70.8	2.6	13.2	26.4	45.0
Pr > F	<.0001	<.0001	0.0013	<.0001	<.0001	0.0087	<.0001	<.0001	0.0058	<.0001

*indicates hulless variety

Table 20. Irrigated Hard Spring Wheat Data Combined from Rupert, Idaho Falls, Ashton, and Aberdeen, 2015.

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in)	Lodging (%)	Protein (%)
SY Teton (W)	118.8	58.9	100	6/12	27	0	14.1
Dayn (W)	117.9	61.3	99	6/13	31	1	14.6
HR S3504	111.2	59.7	99	6/17	30	3	14.3
IDO1203 (W)	110.2	61.9	99	6/11	28	0	15.4
LCS Iron	109.1	59.3	98	6/16	30	0	14.2
LCS Star (W)	107.1	59.9	99	6/15	29	1	13.8
SY Basalt	106.6	59.6	99	6/17	27	1	13.9
Jefferson	105.9	61.9	100	6/15	31	2	15.1
WB7589 (W)	104.7	60.0	99	6/12	24	5	15.4
LCS Atomo (W)	104.1	59.7	98	6/12	24	1	14.4
WB-Paloma (W)	103.4	61.1	100	6/12	27	2	15.1
WB9411	102.5	60.2	99	6/12	27	0	16.2
WB9229	102.3	61.2	100	6/16	26	1	15.7
UI Platinum (W)	101.9	60.4	98	6/12	27	0	14.5
Bullseye	101.5	62.0	99	6/15	28	4	14.9
WB9668	101.4	61.4	99	6/13	26	1	16.7
IDO862E	101.2	62.6	100	6/12	29	0	15.7
HRS 3419	100.3	59.6	99	6/18	30	1	13.2
WB7328 (W)	99.8	60.8	99	6/11	25	0	16.1
HRS 3530	98.9	61.2	99	6/17	33	2	15.8
SY Coho	98.7	58.8	100	6/17	27	0	14.1
Cabernet	97.8	60.3	99	6/14	26	2	15.2
Snow Crest (W)	96.2	60.8	98	6/11	25	0	15.8
IDO1202S (W)	96.0	62.4	99	6/17	33	1	14.8
Klasic (W)	95.7	59.9	100	6/11	21	0	15.3
10SB0087-B	95.1	60.7	99	6/17	27	5	14.5
Kelse	94.7	61.5	98	6/16	33	0	16.0
UI Winchester	92.8	61.0	99	6/14	28	14	14.9
LCS Kiko (D)	91.9	58.9	98	6/13	27	1	14.9
Alzada (D)	87.6	60.4	97	6/13	27	1	15.3
Average	101.8	60.6	99	6/14	28	2	15.0
LSD (α = .05)	7.8	0.4	1.7	0.6	1.7	5.1	0.9
CV%	11.0	1.1	2.4	0.5	8.7	474.6	4.2
Pr > F	<.0001	<.0001	0.0494	<.0001	<.0001	0.0007	<.0001

(W) = white

(D) = durum

Table 21. Irrigated Soft White Spring Wheat Data Combined from Rupert, Idaho Falls, Ashton, and Aberdeen 2015.

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in)	Lodging (%)	Protein (%)
UI Stone	123.1	60.8	99	6/13	34	1	10.6
IDO 851	116.8	61.0	97	6/15	33	1	10.5
M12001	115.7	60.4	98	6/16	32	1	11.1
Alturas	114.7	60.8	99	6/16	33	1	10.7
WB6430	114.7	61.1	99	6/15	30	0	10.8
Seahawk	112.7	62.4	97	6/17	34	1	10.5
Babe	108.5	61.3	99	6/15	34	4	10.7
WA 8189	107.4	62.6	98	6/18	35	1	10.3
WA 8214	103.3	59.9	99	6/13	33	2	11.7
Alpowa	102.8	62.1	98	6/17	35	7	10.6
UI Pettit	101.4	60.2	98	6/12	32	1	10.6
Diva	94.8	60.9	99	6/17	36	28	11.1
Average	109.7	61.1	98	6/15	33	4	10.8
LSD (α = .05)	5.9	0.4	2.6	0.5	1.5	7.6	0.6
CV%	6.9	0.8	3.4	0.4	5.6	253.2	3.7
Pr > F	<.0001	<.0001	0.6567	<.0001	<.0001	<.0001	<.0001

Table 22. Irrigated 6-Row Spring Barley Data Combined from Rupert, Idaho Falls, Ashton, and Aberdeen, 2015.

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										
Goldeneye	136.6	46.9	100	6/11	36	10	11.3	81.4	12.4	7.0
Millennium	131.5	46.8	100	6/11	34	3	11.6	83.2	11.7	5.9
UT2183-85	131.0	50.0	98	6/13	36	12	11.7	95.3	4.1	1.6
UT10901-66	127.3	48.5	99	6/12	36	6	11.5	91.3	6.8	3.2
Herald	123.5	47.3	99	6/13	34	7	11.3	89.9	7.3	3.7
Malt										
Menan	124.1	50.0	99	6/14	38	2	11.0	95.0	4.1	2.0
Lacey	121.0	50.4	98	6/12	37	12	11.6	95.4	4.3	1.4
Tradition	115.9	50.2	99	6/14	36	12	11.5	97.3	2.8	1.0
Celebration	113.2	49.4	98	6/13	36	11	11.7	96.8	3.1	1.2
Quest	111.6	49.3	99	6/13	36	12	11.5	90.7	7.3	3.1
Average	123.6	48.9	99	6/13	36	9	11.5	91.6	6.4	3.0
LSD (α = .05)	7.2	0.6	1.7	0.7	1.9	14.5	0.3	5.5	3.2	2.5
CV%	8.3	1.6	2.5	0.6	7.5	238.7	2.0	4.2	34.8	57.5
Pr > F	<.0001	<.0001	0.7081	<.0001	0.0233	0.8216	0.0060	<.0001	<.0001	0.0002

Table 23. Irrigated 2-Row Spring Malt Barley Data Combined from Rupert, Idaho Falls, Ashton, and Aberdeen, 2015.

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in)	Lodging (%)	Protein (%)	Plumps (>6/64)	Plumps (>5.5/64)	% Thin
ACC Synergy	146.1	51.8	99	6/16	32	8	11.3	98.6	1.5	0.9
2Ab07-X031098-31	140.5	51.3	97	6/16	32	16	11.7	93.8	4.5	2.6
ABI Balster	134.9	50.3	99	6/16	30	19	11.8	95.4	3.5	2.2
LCS Odyssey	133.4	47.4	99	6/18	26	43	11.5	91.2	6.4	3.2
ABI Voyager	132.6	51.7	95	6/16	34	38	11.3	98.3	1.7	1.1
ABI Growler	131.8	50.4	98	6/17	29	22	11.6	91.8	5.9	3.6
2Ab04-X01084-27	128.9	49.4	98	6/17	29	32	11.3	91.1	6.0	3.8
Conrad	127.9	51.0	99	6/16	30	35	11.1	94.9	3.9	2.3
LCS Overture	125.4	46.9	99	6/18	27	42	11.7	89.0	7.6	4.3
Merem	125.3	50.1	99	6/19	32	23	11.5	90.4	6.1	4.7
Merit 57	123.9	49.4	99	6/17	32	32	11.6	89.6	7.1	4.5
CDC Copeland	123.7	51.2	99	6/17	34	36	11.4	95.8	3.2	2.0
2Ab08-X05M010-82	123.4	49.9	98	6/17	31	43	11.2	89.0	7.1	5.0
ND Genesis	123.0	51.6	99	6/15	34	12	11.8	98.3	1.8	0.9
LCS Genie	120.9	49.5	98	6/18	26	22	11.4	91.3	5.6	4.1
Hockett	116.8	52.2	98	6/15	30	32	11.8	94.8	3.7	2.4
AC Metcalfe	116.4	51.7	98	6/16	33	22	11.6	96.5	2.8	1.8
CDC Meredith	114.6	49.3	97	6/18	31	48	11.5	93.7	4.9	2.5
Moravian 69	114.5	46.7	98	6/16	24	47	11.5	81.7	12.1	7.4
Harrington	108.0	51.2	99	6/17	32	32	11.6	91.6	5.9	3.5
Average	125.6	50.2	98	6/17	30	30	11.5	92.8	5.0	3.1
LSD (α = .05)	10.7	0.7	2.5	0.8	1.9	19.1	0.3	6.6	4.0	2.8
CV%	11.3	1.9	3.4	0.6	8.0	83.5	1.8	4.7	53.4	60.0
Pr > F	<.0001	<.0001	0.1256	<.0001	<.0001	<.0001	<.0001	0.0025	0.0018	0.0070

Table 24. Irrigated 2-Row Spring Feed Barley Data Combined from Rupert, Idaho Falls, Ashton, and Aberdeen, 2015.

Variety	Yield (bu/A)	Test Wt (lb/bu)	Spring Stand %	Heading Date	Height (in)	Lodging (%)	Protein (%)	Plumps (>6/64)	Plumps (>5.5/64)	% Thin
Claymore	149.7	50.8	99	6/17	32	19	10.9	93.0	4.9	2.9
Vespa	145.9	51.0	99	6/17	28	33	11.3	94.0	4.8	2.1
Lenetah	137.9	51.7	100	6/16	31	27	11.5	95.7	3.0	2.2
Xena	136.3	51.4	99	6/16	32	37	11.1	93.2	4.7	3.3
08ARS206-17	135.7	52.6	100	6/15	30	24	11.4	96.7	2.5	1.7
Champion	134.8	51.9	100	6/15	31	30	11.7	93.6	4.8	2.6
03ARS391-34	134.6	51.6	96	6/16	31	32	10.8	92.1	5.8	2.9
Tetonia	130.5	51.4	99	6/17	31	34	11.1	91.7	5.4	3.6
Harriman	130.0	50.9	99	6/18	31	20	10.9	94.1	4.5	2.2
Oreana	122.3	49.6	99	6/17	27	42	11.8	84.2	9.9	6.7
Kardia	121.7	50.3	100	6/18	32	38	11.8	90.3	6.9	3.8
Baronesse	120.2	51.4	99	6/16	30	47	10.8	92.6	4.9	3.5
RWA 1758	119.9	50.7	98	6/16	29	60	10.9	89.5	6.8	4.6
Idagold II	117.0	50.0	99	6/17	29	29	11.2	87.5	7.9	5.5
Sawtooth*	110.2	57.2	91	6/18	33	22	14.6	75.5	18.0	7.3
Julie*	108.3	56.8	97	6/19	32	21	14.7	89.4	8.4	3.2
CDC Fibar*	95.2	56.5	97	6/16	33	46	16.1	85.0	11.7	4.1
Transit*	94.2	56.5	99	6/18	33	32	15.3	77.7	16.8	6.1
2Ab09-X06F058HL-31*	94.1	57.4	98	6/17	31	50	15.5	88.3	8.2	4.6
Clearwater*	93.2	56.4	97	6/17	32	47	15.8	76.9	15.8	8.3
Average	121.6	52.8	98	6/17	31	34	12.5	89.0	7.8	4.1
LSD (α = .05)	10.5	0.7	2.4	0.6	1.6	14.2	0.6	7.6	4.9	3.1
CV%	12.4	1.9	3.5	0.5	7.3	59.1	3.5	6.0	44.7	54.4
Pr > F	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	0.0012

* indicates hulless variety

Table 25. Agronomic data for winter wheat at Kimberly, irrigated, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand%**	**Date**	**(in.)**	**(%)**	**(%)**
Hard Winter Wheat									
WB-Arrowhead / Keldin	---	162.6	160.6	61.5	95	5/20	39	8	12.0
LCS Jet	---	171.7	158.1	59.5	98	5/18	35	0	11.7
Keldin	125.2	158.5	154.8	61.9	97	5/22	38	0	11.8
IDO1101 (W)	103.8	173.7	153.9	61.6	98	5/22	36	25	12.3
WB-Arrowhead	119.4	155.7	151.5	61.5	97	5/19	39	0	11.7
Yellowstone	116.5	148.2	147.6	60.3	95	5/24	44	26	11.7
WB3768 (W)	---	143.1	145.5	59.9	97	5/26	46	25	12.6
Colter	---	---	144.8	61.2	96	5/23	43	0	12.9
Whetstone	96.9	160.9	144.8	61.5	96	5/16	39	1	12.4
Promontory	129.2	159.2	142.3	60.0	98	5/21	39	38	12.5
Moreland	107.8	159.9	141.4	59.4	93	5/17	37	8	12.8
Greenville	95.1	153.5	136.9	58.7	99	5/17	33	0	11.9
Juniper / Promontory	---	127.1	135.5	59.5	98	5/22	50	40	13.9
Earl (W)	---	162.6	135.4	57.5	99	5/18	40	55	12.9
LCS Colonia	---	137.5	135.3	56.3	97	5/27	35	0	12.0
IDO1209DH (W)	---	---	134.5	63.1	96	5/25	38	5	12.2
DAS001	110.0	124.8	134.2	60.6	97	5/16	37	20	11.8
Northern	---	---	131.6	58.7	93	5/26	43	25	12.8
SY Clearstone 2CL	---	---	131.4	59.7	96	5/24	44	43	12.1
Judee	99.5	131.0	130.9	61.1	96	5/24	38	15	13.5
Garland	---	151.0	128.9	58.1	95	5/26	27	6	13.1
LCS Azimut	106.7	146.5	128.9	54.6	97	5/18	32	0	12.0
Norwest 553	136.1	159.9	128.9	59.7	94	5/25	34	3	12.8
IDO1103	92.9	151.7	127.5	60.1	97	5/24	40	80	11.7
Golden Spike (W)	96.2	135.0	126.0	58.5	94	5/26	42	80	12.2
OR2100081H	---	160.8	125.4	58.9	83	5/21	37	0	12.8
Utah 100	116.2	155.0	124.4	58.3	97	5/26	44	16	11.7
OR2110019H	---	---	119.2	58.0	97	5/24	41	5	12.7
Manning	90.0	135.8	117.6	59.3	96	5/21	40	86	11.3
Juniper	103.5	139.0	116.6	60.6	95	5/25	49	63	13.5
Average	109.1	148.9	136.5	59.6	96	5/22	39	22	12.4
LSD (α=.05)	24.3	15.4	14.2	1.4	7.1	2.4	3.5	28.6	
CV %	15.8	7.2	7.4	1.6	5.3	1.2	6.3	91.2	
Pr > F	0.0144	<.0001	<.0001	<.0001	0.1706	<.0001	<.0001	<.0001	

(W) = White

Table 26. Agronomic data for winter wheat at Rupert, irrigated, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2012**	**2013**	**2015**	**(lb/bu)**	**Stand%**	**Date**	**(in.)**	**(%)**	**(%)**
Hard Winter Wheat									
LCS Jet	---	---	150.7	55.0	100	5/22	35	20	12.8
Promontory	110.7	78.4	147.1	59.0	100	5/22	39	1	12.2
LCS Colonia	---	---	145.6	55.8	100	5/25	37	0	12.2
Keldin	129.2	113.6	145.0	60.4	100	5/16	36	10	11.5
IDO1101 (W)	---	116.5	142.1	58.7	100	5/23	36	24	12.6
WB-Arrowhead / Keldin	---	---	139.9	58.6	100	5/20	39	43	12.1
LCS Azimut	109.6	74.1	136.2	52.5	100	5/19	32	1	11.2
Norwest 553	117.6	88.6	133.9	57.8	100	5/22	32	0	12.6
WB3768 (W)	---	---	132.9	59.5	100	5/23	44	0	12.4
Golden Spike (W)	124.1	82.0	131.5	55.2	100	5/24	39	43	12.4
WB-Arrowhead	123.8	91.8	130.6	58.9	100	5/21	40	4	11.9
Colter	---	---	128.5	59.1	100	5/23	42	0	13.9
Northern	---	---	127.3	55.9	100	5/26	38	3	13.0
Greenville	118.3	77.0	126.4	55.8	100	5/21	31	0	12.5
OR2100081H	---	---	126.0	58.2	99	5/19	36	1	12.4
DAS001	---	97.7	125.5	58.1	100	5/17	38	65	13.0
Yellowstone	121.2	92.6	125.5	58.0	100	5/21	40	21	12.7
Moreland	124.5	66.1	124.6	54.6	100	5/17	38	1	13.3
Earl (W)	---	---	123.7	55.8	100	5/22	39	19	12.8
Whetstone	119.1	112.2	120.0	58.7	100	5/13	37	19	12.3
Garland	---	---	119.1	54.0	100	5/27	29	0	12.9
Manning	107.4	78.8	117.7	57.4	100	5/22	40	58	12.5
Utah 100	128.5	104.9	116.5	54.6	100	5/27	46	0	13.4
OR2110019H	---	---	115.9	56.5	100	5/24	40	1	12.5
IDO1209DH (W)	---	---	114.9	59.2	100	5/24	35	1	13.2
SY Clearstone 2CL	---	---	114.5	57.3	99	5/21	40	25	12.8
Juniper / Promontory	---	---	112.1	57.8	100	5/26	54	0	14.7
Judee	127.1	93.3	111.9	58.7	100	5/21	37	0	13.7
Juniper	108.5	87.9	107.7	59.3	100	5/26	54	0	14.3
IDO1103	---	89.3	93.0	54.7	100	5/24	37	46	13.6
Average	117.0	92.0	126.2	57.2	100	5/22	39	14	12.8
LSD (α=.05)	19.4	24.3	21.1	2.6	0.8	2.0	3.1	32.1	
CV %	11.8	18.7	11.8	3.2	0.5	1.0	5.6	169.1	
Pr > F	0.0979	0.0005	<.0001	<.0001	0.5332	<.0001	<.0001	0.0001	

(W) = White

Table 27. Agronomic data for winter wheat at Aberdeen, irrigated, 2015.

Variety	Yield (bu/A) 2013	2014	2015	Test Wt. (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Hard Winter Wheat									
Greenville	135.1	161.1	129.8	58.2	100	5/22	32	0	13.9
Yellowstone	157.3	165.5	128.1	59.8	99	5/23	40	0	13.9
OR2100081H	---	172.1	123.4	60.1	99	5/21	35	0	12.8
LCS Colonia	---	175.9	123.3	53.6	99	5/26	35	0	12.7
Norwest 553	149.1	169.2	121.5	59.7	100	5/22	33	0	12.3
WB-Arrowhead	145.6	162.8	120.6	60.3	98	5/24	38	0	13.7
Northern	---	---	120.4	58.2	99	5/27	38	0	14.3
LCS Jet	---	183.3	120.1	56.6	99	5/20	31	0	12.8
Judee	122.6	155.7	119.0	60.6	100	5/21	36	0	14.6
WB3768 (W)	---	171.7	118.8	59.3	100	5/25	42	0	14.5
WB-Arrowhead / Keldin	---	168.2	118.5	59.6	100	5/21	36	0	14.2
Golden Spike (W)	105.8	146.2	118.1	59.9	100	5/23	41	3	12.3
Manning	123.7	165.5	117.8	59.2	100	5/23	42	3	13.4
Colter	---	---	117.3	60.0	99	5/24	39	0	14.6
SY Clearstone 2CL	---	---	116.1	60.3	99	5/22	41	0	14.3
Moreland	142.1	165.1	115.4	58.1	100	5/19	33	0	14.5
Promontory	123.0	167.3	115.1	61.2	99	5/22	39	0	12.5
IDO1101 (W)	137.4	172.4	114.1	60.1	99	5/21	32	0	13.2
LCS Azimut	139.4	162.4	114.1	55.9	99	5/21	32	0	12.8
IDO1209DH (W)	---	---	113.9	61.0	98	5/24	36	0	14.6
IDO1103	113.2	165.8	112.7	59.9	100	5/24	36	0	14.2
OR2110019H	---	---	112.2	57.9	99	5/23	36	0	12.6
Whetstone	126.5	161.7	111.9	61.2	100	5/16	36	0	13.8
Earl (W)	---	161.6	110.7	57.9	98	5/20	35	0	14.2
Garland	---	159.6	109.3	58.0	99	5/24	30	0	14.0
Keldin	143.3	170.9	109.3	60.8	99	5/20	34	0	13.4
DAS001	139.0	152.1	108.5	58.2	100	5/20	35	0	13.5
Utah 100	139.4	161.4	105.6	60.1	100	5/24	42	0	14.1
Juniper / Promontory	---	145.5	104.0	60.4	98	5/23	46	0	14.5
Juniper	111.2	144.1	90.2	59.0	100	5/24	48	0	15.9
Average	132.4	164.3	115.3	59.2	99	5/22	37	0	13.7
LSD (α=.05)	21.2	11.8	18.7	1.7	2.2	2.7	2.7	1.8	
CV %	11.3	5.1	11.5	2.0	1.5	1.3	5.3	761.1	
Pr > F	<.0001	<.0001	0.1628	<.0001	0.8205	<.0001	<.0001	0.4798	

(W) = White

Table 28. Agronomic data for winter wheat at Ririe, dryland, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**
Hard Winter Wheat									
IDO1101 (W)	---	21.4	54.7	61.1	92	6/6	29	0	9.9
Moreland	13.8	21.7	51.1	58.9	91	6/2	27	0	9.2
UI Silver (W)	13.4	25.3	50.5	60.8	96	6/6	26	0	9.5
Utah 100	18.2	21.3	50.3	60.6	92	6/7	30	0	8.9
LCS Colonia	---	25.0	49.9	55.3	90	6/10	31	0	7.1
Deloris	15.6	23.5	48.5	60.3	92	6/7	31	0	8.5
Warhorse	---	---	48.1	60.6	89	6/6	30	0	8.5
Greenville	10.9	19.9	47.8	58.2	93	6/2	25	0	9.3
Juniper / Deloris	---	---	47.6	60.8	93	6/7	33	0	9.3
Manning	16.7	19.6	47.3	59.1	93	6/6	29	0	8.6
Curlew	18.2	21.9	46.8	59.1	94	6/4	31	0	8.8
Garland	---	19.7	46.7	58.3	95	6/8	31	0	9.6
LCS Jet	---	---	46.7	56.1	94	6/4	27	0	9.3
IDO1209DH (W)	---	---	46.6	61.3	93	6/6	27	0	8.7
Lucin-CL	13.4	21.9	45.9	59.5	92	6/6	27	0	10.7
Yellowstone	17.4	23.7	45.7	59.7	94	6/3	32	0	9.2
Colter	---	---	45.5	59.8	93	6/6	29	0	9.0
UI SRG	17.8	20.2	45.3	60.8	95	6/6	31	0	8.7
WB-Arrowhead	20.0	19.7	44.9	59.6	94	6/3	29	0	8.6
Weston	18.9	18.6	44.8	61.4	90	6/5	28	0	9.3
Northern	---	---	44.5	59.2	89	6/7	30	0	8.4
WB3768 (W)	---	21.3	44.3	60.5	93	6/7	30	0	9.4
Juniper / Promontory	---	19.5	44.0	60.4	93	6/6	36	0	9.2
Promontory	14.2	21.3	43.7	59.6	93	6/5	32	0	8.4
Judee	14.9	16.8	43.4	60.8	92	6/6	28	0	8.8
Juniper	16.3	25.8	42.9	60.7	94	6/7	29	0	10.2
DAS001	---	---	42.8	57.9	91	5/31	28	0	8.7
Bearpaw	16.7	18.0	42.8	59.1	85	6/3	29	0	9.0
WB-Arrowhead / Keldin	---	22.3	42.4	59.3	93	6/3	34	0	8.6
Norwest 553	14.5	19.2	42.3	58.6	81	6/6	28	0	8.3
IDO1103	16.0	20.2	41.9	59.0	93	6/7	30	0	8.7
LCS Azimut	---	21.4	41.8	55.2	92	6/4	28	0	10.0
Golden Spike (W)	14.2	18.3	41.8	58.0	94	6/7	29	0	8.0
UICF Grace (W)	23.2	21.5	41.0	59.2	91	6/3	27	0	9.4
Earl (W)	---	21.6	40.7	58.7	89	6/6	30	0	9.5
OR2110019H	---	---	40.4	58.1	86	6/8	30	0	8.1
SY Clearstone 2CL	---	23.5	39.1	58.8	94	6/1	30	0	8.3
Whetstone	---	19.7	38.8	61.4	89	5/30	29	0	8.4
OR2100081H	---	16.3	37.0	59.1	88	6/6	31	0	8.1
Average	15.5	21.0	44.9	59.3	92	6/5	29	0	8.9
LSD (α=.05)	6.1	4.1	8.6	1.0	4.6	1.4	6.1	0.0	
CV %	27.9	13.8	13.7	14.9	3.6	0.6	14.9	.	
Pr > F	0.0602	0.0005	0.0627	0.4066	<.0001	<.0001	0.4066	.	

(W) = White

Table 29. Agronomic data for winter wheat at Rockland, dryland, 2015.

Variety	Yield (bu/A) 2013	2014	2015	Test Wt. (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Hard Winter Wheat									
Otto (SWW)	---	41.7	60.0	58.4	94	6/1	29	0	9.5
Golden Spike (W)	20.6	39.1	57.7	62.2	95	5/25	31	0	9.5
IDO1209DH (W)	---	---	55.2	62.7	94	5/25	30	0	12.4
Deloris	23.7	38.1	54.3	61.5	95	5/23	33	0	11.2
Colter	---	---	53.8	61.4	95	5/22	32	0	12.4
Northern	---	---	53.7	60.3	93	5/27	29	0	12.6
Juniper / Promontory	---	39.0	52.9	62.0	93	5/25	40	0	12.0
Juniper / Deloris	---	45.5	52.4	61.5	95	5/25	38	0	12.0
LCS Colonia	---	35.1	51.2	56.6	89	5/30	29	0	10.0
Yellowstone	15.7	42.5	51.2	60.1	95	5/20	31	0	13.3
UI SRG	25.5	43.7	51.0	61.3	94	5/25	33	0	11.7
Utah 100	23.6	40.1	50.7	60.8	95	5/25	35	0	12.1
Eltan (SWW)	---	36.7	50.1	58.5	89	5/31	30	0	10.6
SY Clearstone 2CL	---	42.2	50.1	60.0	95	5/19	31	0	12.9
Lucin-CL	22.4	36.8	49.8	61.5	95	5/21	31	0	12.0
WB3768 (W)	---	40.1	49.7	60.4	95	5/26	35	0	12.0
LCS Jet	---	---	48.8	57.5	89	5/19	23	0	10.4
Greenville	18.9	37.4	48.7	60.8	95	5/18	24	0	11.2
Juniper	19.5	37.2	47.9	60.8	94	5/25	37	0	12.7
UI Silver (W)	21.7	41.6	47.9	62.1	94	5/25	31	0	11.6
Garland	---	32.4	47.5	59.9	95	5/27	25	0	11.1
Weston	18.2	36.7	46.9	62.8	95	5/20	35	0	11.9
Whetstone	---	43.1	46.4	62.0	91	5/18	28	0	12.2
LCS Azimut	---	40.3	45.7	57.9	90	5/20	24	0	11.4
Moreland	16.1	36.3	44.2	60.6	94	5/17	23	0	12.4
Judee	19.3	37.0	44.1	62.5	95	5/23	28	0	14.4
Promontory	20.4	36.4	43.3	61.8	95	5/20	29	0	11.5
Bearpaw	14.4	34.2	43.3	60.4	95	5/19	25	0	12.1
Curlew	10.7	42.7	43.3	61.2	95	5/19	33	0	11.7
Earl (W)	---	35.2	42.9	60.8	88	5/21	29	0	10.7
WB-Arrowhead / Keldin	---	38.5	42.5	60.2	94	5/19	28	0	12.5
Warhorse	---	---	42.1	60.7	94	5/24	28	0	14.0
OR2110019H	---	---	42.1	60.0	89	5/22	31	0	11.1
IDO1101 (W)	---	42.8	41.7	61.7	95	5/19	23	0	12.0
DAS001	---	---	41.6	59.0	95	5/17	24	0	11.0
WB-Arrowhead	16.3	38.4	39.7	60.3	95	5/18	28	0	11.6
Manning	16.0	27.2	38.7	61.3	95	5/18	27	0	12.2
Norwest 553	18.4	29.1	38.7	60.3	68	5/28	28	0	11.6
OR2100081H	---	30.7	38.1	59.5	59	5/24	29	0	12.3
UICF Grace (W)	21.2	32.1	37.9	59.9	90	5/20	33	0	12.2
IDO1103	20.2	33.4	34.7	61.0	94	5/19	24	0	12.7
Average	17.8	37.4	46.9	60.6	92	5/22	29	0	11.8
LSD (a=.05)	5.3	8.5	7.7	0.9	6.5	2.5	2.8	0.0	
CV %	21.0	16.3	11.7	1.0	5.1	1.3	6.7	.	
Pr >F	<.0001	0.0013	<.0001	<.0001	<.0001	<.0001	<.0001	.	

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

Table 30. Agronomic data for winter wheat at Soda Springs, dryland, 2015.

Variety	Yield (bu/A) 2013	2014	2015	Test Wt. (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Hard Winter Wheat									
UI Silver (W)	---	---	115.0	61.1	98	6/20	40	0	11.4
Colter	---	---	114.3	60.3	100	6/20	38	0	13.1
WB-Arrowhead / Keldin	---	---	113.7	60.8	94	6/20	39	0	11.9
Judee	---	---	113.1	62.1	95	6/20	35	0	12.6
WB3768 (W)	---	---	110.5	60.8	96	6/23	41	0	12.2
SY Clearstone 2CL	---	---	108.4	60.5	99	6/19	40	0	11.9
Curlew	---	---	107.6	59.2	95	6/21	44	13	12.5
Yellowstone	40.0	83.5	107.4	60.4	98	6/20	39	0	12.3
Manning	---	58.2	105.9	59.2	98	6/21	41	13	12.6
Juniper / Promontory	---	75.6	105.6	61.8	97	6/21	48	3	12.2
Juniper	10.1	71.4	104.5	62.1	98	6/21	49	12	12.0
LCS Colonia	---	---	102.9	56.7	94	6/23	32	0	12.5
IDO1101 (W)	---	---	102.7	62.2	95	6/20	32	0	13.2
Promontory	25.0	75.9	99.3	60.0	97	6/19	38	0	12.7
UI SRG	27.9	62.0	98.4	59.0	99	6/21	43	37	12.8
Utah 100	---	86.2	97.6	58.1	98	6/22	39	0	12.5
Northern	---	---	96.2	60.4	98	6/20	36	0	13.2
WB-Arrowhead	---	---	95.7	60.4	95	6/20	40	0	12.5
Warhorse	---	---	90.4	60.1	97	6/21	36	0	14.8
Juniper / Deloris	---	---	89.6	61.3	95	6/21	47	3	11.7
Deloris	32.7	63.8	88.1	61.1	98	6/23	44	0	12.9
Lucin-CL	24.8	63.5	86.7	61.6	97	6/21	45	0	12.0
Bearpaw	33.4	53.6	83.9	59.4	96	6/19	39	0	13.1
Golden Spike (W)	18.3	72.3	83.0	57.8	94	6/23	38	0	2.4
UICF Grace (W)	37.4	65.3	82.0	59.3	94	6/22	49	13	14.7
Greenville	---	---	78.0	53.1	96	6/20	31	0	12.8
Weston	23.1	67.5	77.5	60.3	95	6/22	48	38	14.9
Garland	---	---	74.6	52.8	98	6/22	25	0	13.5
Average	23.0	68.4	97.6	59.7	97	6/21	40	4.7	12.4
LSD (α=.05)	24.8	14.9	16.0	1.4	4.2	1.7	2.4	21.4	
CV %	65.6	13.2	10.0	1.5	2.7	0.6	3.7	274.8	
Pr > F	0.4718	0.0003	<.0001	<.0001	0.1026	<.0001	<.0001	0.0265	

All varieties are Hard Red Winter unless annotated.

(W) = Hard White Winter

Table 31. Agronomic data for winter wheat at Kimberly, irrigated, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand%**	**Date**	**(in.)**	**(%)**	**(%)**
Soft White Winter Wheat									
Mary	86.0	144.3	151.4	58.9	94	5/24	38	1	10.7
SY Ovation	93.3	155.2	150.4	59.1	98	5/23	41	0	10.4
IDO1004	---	---	147.5	59.2	98	5/21	39	0	9.7
Norwest Duet	---	---	147.1	56.2	99	5/27	44	1	10.7
Rosalyn	112.3	130.1	144.7	57.9	97	5/25	40	0	9.8
Jasper	---	---	143.9	58.1	95	5/26	39	0	10.8
IDN-02-29001A	---	140.4	143.6	58.2	97	5/23	39	1	9.8
UI-WSU Huffman	117.3	134.7	141.0	58.0	99	5/28	41	0	9.9
Kaseberg	114.7	144.3	140.6	56.4	97	5/24	37	0	9.8
Bobtail	126.0	144.8	139.4	56.3	97	5/26	38	0	10.4
LCS Drive	---	136.9	139.2	56.1	99	5/16	34	0	9.0
OR2100940	---	---	139.1	56.2	98	5/22	38	0	10.5
Brundage	95.8	140.8	138.7	59.7	98	5/18	38	0	10.6
LOR-334	---	---	138.3	57.5	95	5/21	35	0	10.4
WB 456	87.9	139.7	138.2	61.0	97	5/17	38	0	8.6
WB1529	102.0	141.9	137.4	60.3	98	5/22	39	1	10.5
Stephens	133.2	141.8	135.7	58.2	100	5/23	39	0	10.2
LCS Artdeco	126.3	132.8	135.2	57.0	97	5/18	38	3	9.6
DAS003	---	---	135.1	58.1	97	5/26	39	0	10.5
LOR-833	---	---	134.5	56.9	97	5/16	34	0	10.9
06-03303B	---	---	133.9	56.9	98	5/25	39	0	10.7
OR2080641	---	148.6	133.2	57.4	97	5/26	39	4	9.8
SY 96-2	---	---	133.0	58.3	98	5/14	36	5	10.1
UI Magic CLP	---	---	131.8	59.4	86	5/22	37	0	10.1
IDN-01-10704A	---	135.2	131.5	57.1	97	5/24	43	0	9.5
Bruneau	117.6	144.9	131.0	57.9	94	5/28	39	13	9.7
SY 107	---	156.9	130.8	58.6	98	5/26	39	4	9.6
IDO1005	---	---	130.2	58.7	97	5/26	41	0	10.2
DAS004	---	---	129.9	56.4	97	5/26	40	1	10.5
OR2090473	---	133.1	129.8	56.9	97	5/23	39	0	9.5
LCS Biancor	---	138.7	128.8	57.3	98	5/24	33	0	9.9
LOR-913	---	---	127.2	57.5	92	5/21	38	0	10.4
WB 528	109.6	144.9	127.1	59.3	97	5/19	40	3	10.4
IDO1108	99.5	154.9	126.9	56.0	97	5/28	44	8	9.2
OR2080637	---	143.7	124.8	56.5	99	5/27	38	3	10.0
WB1376 CLP	---	---	123.2	61.5	95	5/23	38	0	11.0
Madsen	102.0	139.9	121.5	57.3	82	5/28	40	0	11.2
LOR-978	---	---	121.4	57.5	98	5/22	37	0	11.1
UI Castle CLP	---	---	121.4	58.7	96	5/25	41	1	10.0
UI Palouse CLP	---	---	120.3	57.5	96	5/26	39	0	11.0
Madsen / Eltan	---	125.2	118.9	56.7	99	5/29	43	15	10.0
Eltan	106.0	135.0	113.7	56.0	98	5/28	43	50	10.7
Average	106.6	140.7	133.6	57.8	96	5/23	39	3	10.2
LSD (α=.05)	27.4	15.3	15.9	1.4	8.3	2.4	3.2	11.5	
CV %	18.1	7.7	8.5	1.7	6.1	1.2	5.9	305.6	
Pr > F	0.0282	0.0251	<.0001	<.0001	0.2579	<.0001	<.0001	<.0001	

Table 32. Agronomic data for winter wheat at Rupert, irrigated, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2012**	**2013**	**2015**	**(lb/bu)**	**Stand%**	**Date**	**(in.)**	**(%)**	**(%)**
Soft White Winter Wheat									
Bobtail	136.9	73.0	156.4	54.0	100	5/25	37	1	10.0
LCS Artdeco	---	78.8	150.8	52.7	100	5/18	33	0	9.7
LCS Biancor	---	---	150.0	55.5	100	5/23	35	0	9.9
Mary	148.8	70.1	148.6	55.8	100	5/22	36	0	10.5
Rosalyn	---	64.6	148.3	56.3	100	5/23	37	0	9.6
SY Ovation	134.3	81.0	147.4	56.9	100	5/22	39	0	9.2
WB 528	136.5	74.4	146.4	57.0	100	5/19	39	3	9.9
IDO1108	---	74.4	144.9	55.4	100	5/28	41	0	10.0
OR2080641	---	---	142.5	56.2	99	5/24	37	0	9.6
06-03303B	---	---	142.2	55.3	100	5/25	38	0	10.9
Brundage	142.7	83.1	140.8	55.6	100	5/19	36	0	11.2
IDN-01-10704A	---	---	140.2	54.5	100	5/23	41	0	9.9
WB 456	118.0	73.0	136.9	58.0	100	5/15	35	0	10.0
LCS Drive	---	---	136.4	50.7	99	5/21	32	0	9.2
SY 107	---	---	135.4	53.5	100	5/24	39	0	10.6
Kaseberg	138.3	65.7	134.5	52.8	100	5/24	39	0	10.1
IDO1004	---	---	134.1	55.9	100	5/20	37	0	9.8
Bruneau	151.4	91.1	133.0	55.6	100	5/26	37	0	8.9
LOR-913	---	---	132.1	53.8	100	5/20	37	0	10.4
WB1529	139.8	75.5	131.4	57.6	100	5/20	36	0	9.8
IDO1005	---	---	131.1	57.2	100	5/27	40	0	9.8
LOR-833	---	---	131.0	53.8	100	5/15	33	0	10.7
Jasper	---	---	130.8	54.4	100	5/26	39	0	10.7
LOR-334	---	---	130.1	54.6	100	5/23	35	0	10.0
Stephens	136.9	63.5	129.9	53.9	100	5/20	34	0	10.8
UI Palouse CLP	---	---	127.8	54.2	100	5/25	37	0	11.6
WB1376CLP	---	---	127.4	57.4	99	5/22	37	0	12.2
IDN-02-29001A	---	---	127.3	56.5	100	5/25	39	0	10.6
OR2090473	---	---	127.2	52.6	100	5/22	35	0	10.6
UI-WSU Huffman	---	80.2	126.8	54.5	100	5/27	39	1	10.6
Madsen	118.0	87.9	126.7	55.6	100	5/27	41	0	10.2
SY 96-2	---	---	126.4	55.8	100	5/12	32	0	10.1
OR2100940	---	---	125.5	53.0	100	5/21	35	0	9.6
UI Magic CLP	---	---	123.4	54.9	100	5/22	36	13	9.9
LOR-978	---	---	122.7	55.9	100	5/24	36	0	11.0
Eltan	---	69.0	121.0	52.9	100	5/27	41	25	10.7
DAS003	---	---	120.1	53.7	100	5/27	39	0	11.5
Norwest Duet	---	---	118.8	51.9	100	5/27	43	0	11.7
OR2080637	---	---	118.7	51.6	99	5/26	36	1	11.9
Madsen / Eltan	---	---	117.3	55.5	99	5/28	41	0	9.1
UI Castle CLP	---	---	117.1	52.7	100	5/25	40	20	11.0
DAS004	---	---	114.8	53.7	100	5/26	38	0	10.7
Average	132.5	73.8	132.7	54.7	100	5/23	37	1	10.3
LSD (α=.05)	16.4	23.2	17.6	2.7	0.8	1.9	2.6	12.5	
CV %	8.8	22.5	9.4	3.6	0.6	1.0	5.0	601.8	
Pr > F	0.0008	0.4641	<.0001	<.0001	0.6052	<.0001	<.0001	0.1094	

Table 33. Agronomic data for winter wheat at Aberdeen, irrigated, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**
Soft White Winter Wheat									
Rosalyn	156.5	173.0	155.3	57.4	98	5/24	38	0	10.9
IDO1005	---	---	153.6	57.4	100	5/27	41	1	12.2
OR2080641	---	177.8	152.7	56.8	100	5/25	37	0	11.6
Bobtail	175.3	183.0	151.6	55.1	99	5/25	37	0	11.6
IDO1108	147.5	180.4	151.6	56.3	100	5/31	39	0	12.2
Kaseberg	153.8	180.3	151.0	55.8	100	5/26	38	0	11.7
IDN-01-10704A	---	174.7	149.0	56.0	100	5/24	41	0	11.9
06-03303B	---	---	148.8	56.2	99	5/25	37	0	11.4
WB1529	147.9	165.6	148.2	58.3	100	5/24	37	0	12.6
DAS003	---	---	145.2	57.3	100	5/27	38	0	12.6
IDN-02-29001A	---	181.3	144.6	58.0	100	5/23	37	0	12.9
Bruneau	153.8	182.2	144.0	56.9	98	5/27	36	0	11.6
SY 107	---	180.5	143.6	57.0	100	5/25	37	0	11.8
WB 528	153.4	170.1	143.0	58.9	100	5/22	39	0	12.3
OR2080637	---	166.5	141.8	55.6	100	5/28	36	0	12.1
Jasper	---	---	141.3	56.0	100	5/25	39	0	12.3
UI Magic CLP	---	---	139.5	58.6	100	5/22	35	0	12.2
Madsen	142.5	172.4	139.3	57.0	100	5/27	38	0	12.1
LCS Biancor	---	183.3	139.1	55.8	100	5/24	32	0	11.7
SY Ovation	153.8	176.2	138.6	57.8	100	5/22	38	0	12.1
OR2090473	---	178.1	137.8	55.5	100	5/23	34	0	10.8
Madsen / Eltan	---	171.6	137.0	57.3	99	5/26	39	0	12.5
UI-WSU Huffman	156.5	187.2	135.5	56.7	100	5/25	37	0	11.8
Mary	158.1	174.7	134.9	57.2	100	5/23	36	0	11.8
LOR-334	---	---	134.3	55.8	100	5/23	32	0	11.8
Brundage	138.6	164.1	134.1	58.4	100	5/20	36	0	11.7
IDO1004	---	---	132.5	58.0	100	5/23	37	0	10.9
DAS004	---	---	132.2	55.8	100	5/30	40	4	13.1
Norwest Duet	---	---	132.1	55.8	100	5/30	43	0	11.9
Eltan	133.1	160.4	131.5	56.2	100	5/29	38	13	12.9
LCS Artdeco	140.5	178.8	130.8	53.8	99	5/21	34	0	10.4
UI Palouse CLP	---	---	130.5	56.8	100	5/24	38	0	12.6
LOR-978	---	---	130.4	56.5	100	5/24	34	0	12.8
LCS Drive	---	170.5	128.8	55.1	100	5/23	32	0	11.8
Stephens	132.7	170.5	127.2	56.6	100	5/22	36	0	11.2
OR2100940	---	---	126.2	54.7	100	5/23	32	0	10.5
UI Castle CLP	---	---	125.5	55.6	100	5/26	36	0	13.2
WB1376CLP	---	---	123.7	59.7	100	5/22	37	0	14.5
LOR-833	---	---	122.8	57.0	100	5/17	33	0	12.2
LOR-913	---	---	118.8	55.8	100	5/22	35	0	12.6
WB 456	128.8	140.2	118.5	58.8	100	5/16	34	0	13.6
SY 96-2	---	---	111.0	58.2	100	5/16	33	0	13.1
Average	147.4	171.8	137.1	56.7	100	5/24	37	0	12.1
LSD (α=.05)	17.2	14.6	18.9	1.2	1.3	2.4	3.1	4.4	
CV %	8.3	6.1	9.9	1.5	0.9	1.2	6.1	792.1	
Pr > F	0.0004	<.0001	<.0001	<.0001	0.2313	<.0001	<.0001	0.0255	

Table 34. Agronomic data for winter wheat at Ririe, dryland, 2015.

Variety	Yield (bu/A) 2013	2014	2015	Test Wt. (lb/bu)	Spring Stand %	Heading Date	Height (in.)	Lodging (%)	Protein (%)
Soft White Winter Wheat									
IDN-01-10704A	---	23.8	61.5	56.0	99	6/7	30	0	9.5
Bobtail	11.6	24.6	61.0	53.9	98	6/9	26	0	8.4
UI-WSU Huffman	---	23.0	60.8	56.1	96	6/10	29	0	7.5
Norwest Duet	---	---	58.0	57.0	100	6/9	30	0	9.3
Madsen / Eltan	---	25.4	57.7	57.0	99	6/11	28	0	9.5
LWW10-1073	---	25.4	56.7	56.8	98	6/10	31	0	9.8
Otto	---	24.2	55.2	57.9	99	6/13	28	0	9.2
IDO1108	16.7	28.1	54.9	55.6	99	6/11	26	0	7.6
DAS004	---	---	54.2	56.3	95	6/10	26	0	8.5
Eltan	17.1	25.7	54.0	57.3	98	6/12	26	0	9.7
UICF Brundage	12.0	24.8	53.5	54.5	98	6/8	26	0	8.8
Stephens	10.9	19.5	52.9	56.6	100	6/5	29	0	8.8
Kaseberg	14.2	24.1	52.4	54.7	100	6/7	26	0	8.9
UI Castle CLP	---	---	52.3	58.0	96	6/10	27	0	10.0
Bruneau	16.3	22.6	50.0	56.0	95	6/10	27	0	8.5
UI Magic CLP	---	---	49.9	57.3	94	6/4	27	0	9.9
DAS003	---	---	49.4	56.3	99	6/10	29	0	10.0
UI Palouse CLP	---	---	48.9	55.6	96	6/7	25	0	9.0
OR2080641	---	25.2	48.5	56.0	96	6/7	26	0	8.8
IDO1004	---	---	47.8	57.1	96	6/5	26	0	8.5
Jasper	---	---	47.7	55.0	99	6/9	26	0	9.3
IDO1005	---	---	47.6	57.0	95	6/10	26	0	9.4
LOR-334	---	---	47.4	55.9	94	6/6	24	0	9.0
Mary	12.3	22.2	46.9	56.6	98	6/6	26	0	9.1
Rosalyn	11.3	22.7	45.8	55.1	99	6/7	29	0	7.2
Madsen	15.2	21.9	45.7	56.7	95	6/10	26	0	9.3
IDN-02-29001A	---	23.9	44.6	57.0	98	6/6	27	0	8.5
LOR-913	---	---	44.3	55.8	100	6/5	27	0	10.3
OR2090473	---	21.7	43.7	53.3	98	6/8	24	0	7.7
WB 456	13.8	19.7	43.6	57.8	100	6/2	25	0	9.7
LOR-833	---	---	41.5	55.8	93	6/3	24	0	9.2
OR2080637	---	21.0	41.2	55.1	95	6/11	24	0	10.0
OR2100940	---	---	38.5	52.9	93	6/9	23	0	7.8
Brundage	10.5	21.7	38.3	56.8	95	6/1	28	0	8.4
LOR-978	---	---	37.9	55.7	88	6/8	25	0	9.4
WB1376CLP	---	---	37.2	58.6	95	6/5	28	0	10.5
Average	12.7	23.5	49.2	56.1	97	6/8	27	0	9.0
LSD (α=.05)	4.6	3.9	10.5	0.7	5.7	1.2	2.4	0.0	
CV %	25.4	11.8	15.3	0.9	4.2	0.5	6.3	.	
Pr > F	0.0007	0.0150	<.0001	<.0001	0.0210	<.0001	<.0001	.	

Table 35. Agronomic data for winter wheat at Soda Springs, Dryland 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**
Soft White Winter Wheat									
Jasper	---	---	132.5	58.4	100	6/21	36	0	10.8
SY Ovation	---	---	131.9	59.5	95	6/21	34	0	11.2
Bobtail	---	---	124.9	57.4	91	6/23	33	0	11.1
IDO1108	---	---	120.3	58.0	97	6/23	39	0	11.2
Bruneau	14.9	55.3	119.9	59.5	94	6/24	36	0	10.7
Kaseberg	---	---	119.6	58.3	94	6/21	33	0	11.3
UICF Brundage	9.9	74.9	117.7	59.3	100	6/22	34	0	11.8
Otto	---	---	112.6	58.3	94	6/25	37	0	12.5
Madsen	23.5	64.6	110.3	58.7	97	6/23	37	0	11.6
Rosalyn	---	---	108.5	57.2	87	6/25	34	0	11.0
WB1376CLP	---	---	108.5	61.9	92	6/20	36	0	12.8
WB 456	---	---	105.6	60.0	95	6/18	33	0	11.2
Stephens	---	53.4	101.2	56.6	93	6/21	35	0	12.8
Madsen / Eltan	---	82.4	97.7	57.3	97	6/24	39	10	11.8
Eltan	15.9	80.8	93.8	56.8	98	6/25	39	0	11.3
Average	23.0	68.4	113.7	58.5	95	6/22	36	1	11.5
LSD (α=.05)	24.8	14.9	14.2	1.7	3.5	1.6	2.3	7.5	
CV %	65.6	13.2	7.5	1.7	2.2	0.6	3.9	670.8	
Pr > F	0.4718	0.0003	<.0001	<.0001	<.0001	<.0001	<.0001	0.4793	

Table 36. Agronomic data for winter barley at Rupert, irrigated, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2012**	**2013**	**2015**	**(lb/bu)**	**Stand %**	**Date**	**(in)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
Maja	---	---	183.0	45.6	100	5/4	34	64	10.7	52.5	27.7	20.6
Strider	172.9	74.0	164.0	42.8	100	5/7	35	65	10.9	48.2	28.8	24.1
93Ab669	185.6	91.2	160.5	47.6	100	5/6	37	65	11.4	78.7	13.0	9.5
Sunstar Pride	191.5	62.2	157.5	40.9	100	5/24	40	5	10.3	27.3	20.0	53.6
UTWB10201-15	---	---	155.6	42.4	100	5/7	38	86	11.3	33.8	32.2	35.0
02Ab431	166.1	78.5	151.3	47.5	100	5/4	38	75	11.2	81.0	11.4	8.2
05ARS561-208	---	---	150.9	44.6	99	5/13	33	79	11.0	62.8	22.6	15.5
02Ab671	135.7	92.1	148.7	46.5	99	5/9	39	68	11.5	76.5	13.0	11.1
Eight-Twelve	174.7	92.6	146.3	41.0	100	5/9	36	64	10.8	32.2	26.1	42.6
TCFW6-140	---	---	141.7	46.2	98	5/6	38	25	10.7	60.2	27.8	12.7
Charles	159.3	85.8	141.6	44.6	100	5/5	35	66	11.6	77.3	12.1	11.5
Sprinter	176.1	46.3	138.6	43.1	100	5/9	37	44	10.9	52.0	26.6	22.3
Endeavor	165.6	85.8	138.2	46.9	98	5/6	40	93	11.3	56.0	22.2	22.7
Alba	187.0	87.6	134.4	45.4	100	5/9	37	56	10.7	68.1	21.6	11.7
04ARS635-4	---	---	132.4	45.0	99	5/7	40	68	11.4	60.6	20.9	19.3
Buck*	---	---	131.0	50.4	100	5/11	39	77	14.3	9.6	17.8	73.8
Streaker*	138.4	67.6	130.0	43.1	99	5/8	38	93	13.0	25.0	23.0	53.0
05ARS748-270	---	---	125.5	54.4	96	5/15	38	46	15.0	65.9	23.2	11.7
Schuyler	164.3	60.5	122.3	42.7	100	5/12	41	97	10.7	25.4	32.4	43.1
Verdant	---	---	120.0	38.8	97	5/20	44	25	10.8	64.2	22.4	14.1
Kamiak	148.8	57.6	114.7	45.3	97	5/6	44	64	10.6	61.7	22.4	17.0
Average	158.4	77.4	141.8	44.8	99	5/9	38	64	11.4	53.3	22.2	25.4
LSD (α=.05)	39.2	42.4	31.0	2.1	2.2	2.2	4.1	45.0				
CV %	17.5	38.3	15.5	3.4	1.6	1.2	7.6	50.1				
Pr > F	0.0152	0.2745	0.0069	<.0001	0.0208	<.0001	<.0001	0.0163				

*indicates hulless variety

Table 37. Agronomic data for winter barley at Aberdeen, irrigated, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
Sprinter	178.6	208.8	186.4	46.0	99	5/11	33	0	11.3	81.4	13.0	5.8
Strider	169.8	221.6	185.9	46.0	99	5/12	34	0	11.3	82.1	12.8	5.4
Schuyler	149.8	174.7	179.5	47.6	100	5/22	41	0	11.4	68.3	22.0	10.5
Eight-Twelve	174.7	220.9	178.5	46.0	99	5/14	37	0	11.0	71.1	18.9	10.0
Buck*	---	173.7	166.7	56.5	98	5/18	38	0	14.4	45.1	31.7	23.7
02Ab669	154.7	184.6	165.7	50.4	97	5/12	39	0	11.7	93.0	5.4	1.9
Sunstar Pride	163.9	236.1	165.6	43.2	100	5/27	36	0	10.7	27.5	22.4	50.3
02Ab671	157.1	197.8	164.0	50.2	99	5/13	38	0	11.6	96.7	2.7	1.3
05ARS561-208	---	---	162.7	46.1	99	5/23	35	1	11.4	82.6	11.6	6.0
04ARS635-4	---	---	161.0	48.6	87	5/15	37	0	11.1	88.6	8.0	3.4
UTWB10201-15	---	234.7	159.9	44.2	99	5/11	29	0	11.6	52.6	29.3	18.7
Endeavor	134.7	173.2	159.4	50.3	98	5/10	40	0	11.3	79.3	14.1	6.9
TCFW6-140	---	187.9	158.7	46.9	98	5/9	38	0	11.5	71.4	21.0	8.1
02Ab431	148.3	232.3	154.8	50.1	98	5/9	36	0	11.9	95.6	3.4	1.7
Streaker*	153.7	184.8	151.7	47.3	98	5/10	38	0	11.9	35.6	31.3	33.7
Alba	132.2	215.0	148.4	47.3	100	5/12	38	0	11.3	82.7	11.9	5.5
05ARS748-270*	---	---	146.4	57.6	96	5/21	37	0	16.8	82.2	13.5	4.8
Kamiak	161.5	158.4	146.1	48.4	100	5/5	38	0	11.4	82.6	13.0	4.5
Maja	---	---	145.4	48.2	100	5/8	37	0	11.5	78.2	16.1	6.5
Charles	162.0	168.8	137.2	47.3	98	5/6	33	0	11.9	90.2	6.3	3.8
Verdant	---	---	126.7	42.4	100	5/20	46	0	11.3	59.0	21.4	19.7
Average	164.3	195.8	159.6	48.0	98	5/13	37	0	11.8	74.2	15.6	10.5
LSD (α=.05)	31.7	24.4	15.2	1.7	4.9	3.5	3.2	0.7				
CV %	13.6	8.8	6.7	2.4	3.5	1.9	6.1	979.8				
Pr > F	0.0014	<.0001	<.0001	<.0001	0.0047	<.0001	<.0001	0.4773				

*indicates hulless variety

Table 38. Agronomic data for spring wheat at Rupert, irrigated, 2015.

Variety	Yield (bu/A) 2013	2014	2015	Test Wt. (lb/bu)	Spring Stand%	Heading Date	Height (in)	Lodging (%)	Protein (%)
Hard Spring Wheat									
LCS Star (W)	---	131.4	126.0	58.1	100	6/11	25	5	13.3
SY Teton (W)	---	142.3	123.1	57.9	100	6/7	23	0	14.3
Dayn (W)	96.6	146.7	122.3	60.4	100	6/9	26	4	13.9
WB9411	---	143.7	116.9	58.8	100	6/8	22	0	14.6
SY Basalt	---	132.6	114.1	57.7	100	6/12	23	3	13.1
HRS 3530	---	---	113.6	59.9	100	6/13	29	8	15.4
LCS Atomo (W)	---	130.9	113.4	58.2	99	6/8	20	3	14.0
LCS Iron	---	140.2	112.6	58.6	100	6/11	24	1	13.9
IDO1203 (W)	---	---	111.5	60.3	100	6/6	22	0	14.5
IDO862E	96.6	139.6	108.5	61.3	100	6/6	24	0	14.4
WB7589 (W)	---	---	107.7	57.7	99	6/8	22	20	14.9
SY Coho	---	142.8	106.7	56.7	100	6/12	23	0	14.0
WB9229	92.2	128.9	105.9	59.8	100	6/12	20	3	15.4
Jefferson	90.4	114.7	105.6	60.7	100	6/9	27	5	14.4
HRS 3504	---	---	102.8	57.2	100	6/13	25	0	14.0
Kelse	92.2	144.7	101.7	60.6	99	6/12	29	0	15.0
WB-Paloma (W)	88.9	146.0	101.0	59.6	100	6/7	23	0	14.5
Cabernet	88.9	140.7	100.8	58.7	98	6/9	23	8	14.2
Klasic (W)	88.6	124.0	100.1	58.0	100	6/5	17	0	14.0
WB7328 (W)	---	---	99.5	59.4	99	6/5	21	0	15.0
IDO1202S (W)	94.0	120.8	98.1	60.6	100	6/12	27	3	14.3
10SB0087-B	---	---	97.9	58.3	100	6/11	21	21	14.2
WB9668	---	136.5	97.8	60.3	100	6/8	23	3	15.4
HRS 3419	---	121.9	97.5	58.7	100	6/13	26	4	12.9
UI Winchester	84.2	114.3	97.0	60.4	100	6/11	22	26	14.8
UI Platinum (W)	91.5	148.6	96.7	57.6	100	6/6	23	0	13.8
Bullseye	94.4	126.7	94.5	60.6	100	6/10	23	15	14.3
Alzada (D)	99.5	141.5	91.9	58.9	100	6/8	23	0	14.3
Snow Crest (W)	90.0	137.5	91.2	59.9	100	6/6	23	0	14.6
LCS Kiko (D)	---	---	90.9	58.2	99	6/8	23	3	13.4
Average	90.1	132.4	104.9	59.1	100	6/9	23	4	14.3
LSD (α=.05)	9.7	15.1	16.3	1.0	1.6	1.4	4.7	18.7	
CV %	7.6	8.1	11.0	1.2	1.1	0.6	14.3	306.2	
Pr > F	0.0057	<0.0001	0.0001	<.0001	0.6787	<.0001	0.0011	0.3736	

All varieties are Hard Red unless annotated.

(W) = Hard White

(D) = Durum

Table 39. Agronomic data for spring wheat at Aberdeen, irrigated, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**
Hard Spring Wheat									
IDO1202S (W)	117.9	158.2	149.4	62.7	96	6/14	36	0	14.6
Dayn (W)	119.4	168.0	140.6	60.3	97	6/11	36	0	15.1
HRS 3504	---	---	137.7	59.9	98	6/14	34	0	13.6
SY Basalt	---	152.7	133.7	58.9	98	6/15	33	0	13.7
SY Teton (W)	---	153.4	126.7	57.7	99	6/10	32	0	14.2
LCS Iron	---	151.6	126.4	59.2	93	6/14	34	0	14.1
SY Coho	---	153.6	125.5	58.3	99	6/14	32	0	14.1
Jefferson	110.1	148.8	124.7	61.2	99	6/12	35	0	15.2
10SB0087-B	---	---	122.2	60.3	95	6/14	32	0	14.0
HRS 3530	---	---	121.9	60.0	98	6/15	42	0	15.6
UI Winchester	95.2	134.1	120.5	61.1	97	6/11	32	0	14.9
WB-Paloma (W)	85.9	151.3	118.9	60.0	100	6/10	32	0	15.2
LCS Star (W)	---	148.4	118.4	58.6	94	6/12	32	0	14.3
Bullseye	105.8	148.0	118.2	60.5	98	6/13	32	0	14.0
UI Platinum (W)	93.3	152.3	117.8	59.3	93	6/10	30	0	14.5
HRS 3419	---	131.5	117.3	58.7	96	6/14	33	0	12.9
WB9229	103.8	142.8	115.7	59.9	99	6/13	29	0	15.8
IDO1203 (W)	---	---	115.4	61.3	96	6/10	31	0	15.8
IDO862E	103.4	140.9	111.3	62.4	99	6/10	32	0	15.9
WB9411	---	147.4	111.0	59.4	97	6/11	31	0	15.2
LCS Atomo (W)	---	155.1	110.7	57.7	94	6/10	26	0	15.1
Cabernet	100.7	148.9	110.1	59.1	98	6/11	29	0	15.3
WB7589 (W)	---	---	109.3	59.1	98	6/11	25	0	15.8
WB9668	---	148.6	107.9	60.3	97	6/11	28	0	16.8
Kelse	107.3	153.4	107.0	60.1	95	6/13	38	0	16.0
WB7328 (W)	---	---	106.8	60.4	99	6/9	28	0	17.0
Snow Crest (W)	87.8	145.7	106.1	60.5	93	6/10	29	0	15.4
Klasic (W)	85.5	134.5	103.7	59.7	99	6/9	25	0	16.2
Alzada (D)	82.0	145.4	100.0	59.8	88	6/11	32	0	16.2
LCS Kiko (D)	---	---	98.7	56.6	92	6/12	31	0	15.6
Average	98.4	146.7	117.8	59.7	96	6/12	32	0	15.1
LSD (α=.05)	9.6	12.0	13.0	1.0	6.5	1.0	3.2	0.0	
CV %	6.9	5.8	7.9	1.2	4.8	0.4	7.3	.	
Pr > F	<.0001	<.0001	<.0001	<.0001	0.1239	<.0001	<.0001	.	

All varieties are Hard Red unless annotated.

(W) = Hard White

(D) = Durum

Table 40. Agronomic data for spring wheat, Idaho Falls, irrigated, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand%**	**Date**	**(in)**	**(%)**	**(%)**
Hard Spring Wheat									
Dayn (W)	110.7	124.8	116.1	62.1	100	6/13	33	0	14.2
IDO1203 (W)	---	---	115.5	62.3	100	6/12	32	0	14.9
SY Teton (W)	---	---	107.8	57.9	100	6/12	29	0	13.8
Snow Crest (W)	84.6	114.0	107.4	60.5	100	6/12	26	0	15.5
UI Platinum (W)	84.2	105.3	106.4	61.2	100	6/12	29	0	14.1
WB7328 (W)	---	---	105.6	60.8	100	6/12	27	0	15.7
WB9668	---	111.2	102.4	61.6	100	6/13	28	0	16.2
Klasic (W)	74.1	100.1	102.1	59.8	100	6/12	23	0	14.1
WB7589 (W)	---	---	101.2	60.1	100	6/12	25	0	14.9
WB9411	---	115.9	99.8	60.6	100	6/13	30	0	18.0
LCS Kiko (D)	---	---	99.7	59.6	100	6/13	29	0	14.2
LCS Atomo (W)	---	96.9	98.8	60.2	100	6/12	27	0	13.8
Cabernet	87.1	107.8	98.5	60.5	100	6/14	28	0	14.3
WB-Paloma (W)	86.8	113.3	98.4	61.0	100	6/13	29	9	14.1
IDO862E	81.7	104.5	96.3	62.5	100	6/12	33	0	15.2
Bullseye	98.7	80.6	95.4	62.3	100	6/17	31	0	14.8
WB9229	98.4	101.8	95.0	61.5	100	6/17	29	0	15.0
Jefferson	85.3	101.9	93.7	61.7	100	6/16	33	4	14.3
HRS 3504	---	---	91.1	59.1	100	6/18	32	10	14.5
Alzada (D)	71.9	113.3	88.2	60.6	100	6/13	30	5	13.7
LCS Iron	---	102.4	87.1	57.5	100	6/17	32	0	14.5
HRS 3419	---	90.6	85.0	60.2	100	6/19	32	0	13.1
LCS Star (W)	---	107.4	80.0	59.9	100	6/17	32	0	14.2
SY Basalt	---	98.9	79.1	59.6	100	6/19	30	0	13.9
HRS 3530	---	---	75.9	61.8	100	6/19	37	0	15.7
Kelse	92.6	110.2	73.3	62.0	100	6/18	33	0	16.0
UI Winchester	76.2	83.1	70.1	59.7	100	6/15	30	29	14.3
SY Coho	---	107.1	67.8	58.4	100	6/19	29	0	14.4
10SB0087-B	---	---	67.4	60.3	100	6/19	30	0	14.4
IDO1202S (W)	91.1	73.4	31.3	62.1	100	6/18	37	0	14.3
Average	86.6	103.0	91.2	60.6	100	6/15	30	2	14.7
LSD (α=.05)	11.3	13.7	14.8	0.8	0.0	1.2	2.0	9.0	
CV %	9.1	9.4	11.6	1.0	0.0	0.5	4.8	340.7	
Pr > F	<.0001	<.0001	<.0001	<.0001	.	<.0001	<.0001	<.0001	

All varieties are Hard Red unless annotated.

(W) = Hard White

(D) = Durum

Table 41. Agronomic data for spring wheat at Ashton, irrigated, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand %**	**Date**	**(in)**	**(%)**	**(%)**
Hard Spring Wheat									
SY Teton (W)	---	---	117.6	62.2	100	6/20	26	0	14.1
HRS 3504	---	---	113.0	62.8	100	6/23	28	0	15.3
LCS Iron	---	112.2	110.2	62.2	100	6/23	28	0	14.4
IDO1202S (W)	76.6	95.8	105.3	64.2	100	6/23	31	0	15.9
LCS Star (W)	---	111.8	103.9	63.0	100	6/22	28	0	13.4
HRS 3419	---	124.1	101.4	60.9	100	6/24	28	0	14.1
WB7589 (W)	---	---	100.6	63.3	100	6/20	22	0	16.1
Jefferson	65.7	96.9	99.6	64.0	100	6/21	29	0	16.5
SY Basalt	---	116.2	99.6	62.1	100	6/24	24	0	14.8
IDO1203 (W)	---	---	98.6	63.7	100	6/19	27	0	16.4
Bullseye	72.6	93.3	97.9	64.7	100	6/20	26	0	16.5
WB9668	---	118.0	97.6	63.6	100	6/20	27	0	18.4
Kelse	75.9	109.3	96.9	63.4	100	6/23	31	0	16.9
WB-Paloma (W)	74.4	103.1	95.3	63.9	100	6/20	26	0	16.6
SY Coho	---	108.2	95.0	61.7	100	6/23	24	0	14.1
LCS Atomo (W)	---	108.9	93.5	62.7	100	6/19	23	0	14.6
Dayn (W)	86.0	125.6	92.8	62.5	100	6/19	29	0	15.1
10SB0087-B	---	---	92.6	63.8	99	6/22	26	0	15.3
WB9229	74.8	112.2	92.6	63.5	100	6/23	25	0	16.8
IDO862E	74.4	106.4	88.9	64.2	100	6/18	29	0	17.5
WB7328 (W)	---	---	87.3	62.5	100	6/18	24	0	16.8
UI Platinum (W)	65.7	116.9	86.5	63.7	100	6/19	26	0	15.8
HRS 3530	---	---	84.3	63.3	100	6/23	26	0	16.5
UI Winchester	78.0	87.8	83.5	63.0	100	6/21	26	0	15.6
WB9411	---	113.6	82.5	61.8	100	6/18	26	0	17.0
Cabernet	66.4	103.8	81.7	62.8	100	6/21	24	0	17.1
Snow Crest (W)	56.6	76.2	79.9	62.3	99	6/18	23	0	17.6
LCS Kiko (D)	---	---	78.1	61.3	99	6/19	26	0	16.4
Klasic (W)	65.3	88.2	76.7	62.0	100	6/18	20	0	17.1
Alzada (D)	77.0	95.5	70.5	62.4	99	6/19	25	0	17.0
Average	73.3	100.1	93.5	62.9	100	6/20	26	0	16.0
LSD (α=.05)	17.5	13.4	18.2	0.8	0.9	0.8	3.1	0	
CV %	16.9	9.4	13.9	0.9	0.6	0.3	8.6	.	
Pr > F	0.3471	<.0001	<.0001	<.0001	0.5460	<.0001	<.0001	.	

All varieties are Hard Red unless annotated.

(W) = Hard White

(D) = Durum

Table 42. Agronomic data for spring wheat at Soda Springs, dryland, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand %**	**Date**	**(in)**	**(%)**	**(%)**
Hard Spring Wheat									
Dayn (W)	59.5	46.9	83.7	62.0	91	6/29	30	0	13.6
SY Teton (W)	---	49.2	79.1	61.5	91	6/28	26	0	11.8
IDO1202S (W)	54.4	50.6	68.6	61.5	88	6/30	30	0	12.0
WB9411	---	44.2	66.2	62.0	92	6/28	24	0	15.0
LCS Iron	---	---	64.4	61.0	91	6/30	25	0	14.1
WB9668	---	41.5	63.1	62.5	92	6/28	23	0	16.3
LCS Star (W)	---	43.5	62.2	62.5	91	6/29	25	0	13.7
SY Selway	---	---	62.1	61.5	93	6/28	28	0	13.9
UI Platinum (W)	60.7	45.2	61.1	63.5	89	6/28	24	0	14.0
10SB0087-B	---	---	60.0	61.0	93	6/30	23	0	14.5
Kelse	62.5	47.1	53.2	60.5	93	6/27	29	0	14.7
Jefferson	58.2	54.2	48.8	63.0	88	6/29	26	0	13.8
IDO862E	58.6	46.6	47.3	62.0	91	6/27	25	0	15.8
UI Winchester	68.2	36.5	44.0	62.0	90	6/28	23	0	14.5
LCS Atomo (W)	---	39.2	41.1	62.0	92	6/26	23	0	12.1
IDO1203 (W)	---	---	40.0	64.0	90	6/28	23	0	12.2
Klasic (W)	58.4	34.9	35.9	62.0	93	6/26	21	0	12.7
Average	58.6	44.5	57.7	62.0	91	6/28	25	0	13.8
LSD (α=.05)	10.9	8.4	15.2	1.3	3.4	1.8	2.6	0	
CV %	13.0	13.3	18.6	1.4	2.7	0.7	7.4	.	
Pr > F	0.1669	0.0022	<.0001	<.0001	0.1809	0.0001	<.0001	.	

All varieties are Hard Red unless annotated.

(W) = Hard White

Table 43. Agronomic data for spring wheat at Rupert, irrigated, 2015.

Variety	Yield (bu/A) 2013	2014	2015	Test Wt. (lb/bu)	Spring Stand%	Heading Date	Height (in)	Lodging (%)	Protein (%)
Soft White Spring Wheat									
UI Stone	117.6	150.2	121.2	59.4	100	6/9	35	3	10.7
Seahawk	107.1	117.6	116.7	60.4	100	6/13	36	4	10.4
Alturas	109.6	118.3	112.9	59.1	100	6/10	33	3	10.8
WB6430	118.0	139.1	111.4	59.2	100	6/10	32	2	10.6
WA 8189	---	115.0	110.8	60.8	100	6/13	35	4	9.9
IDO 851	119.4	153.8	106.5	58.8	100	6/10	31	4	10.6
M12001	---	---	104.3	58.3	100	6/10	33	4	11.5
Babe	103.1	119.2	103.9	59.1	100	6/11	35	4	10.2
WA 8214	---	---	99.2	57.6	100	6/7	35	4	11.8
Alpowa	107.1	123.2	94.4	60.3	100	6/13	35	9	9.9
UI Pettit	117.2	142.4	94.1	58.0	100	6/9	32	4	10.7
Diva	---	---	89.2	58.9	100	6/11	36	14	11.2
Average	112.1	129.9	105.4	59.2	100	6/10	34	5	10.7
LSD (α=.05)	13.5	20.2	8.5	0.6	0.7	1.1	2.7	8.4	
CV %	8.5	10.8	5.6	0.7	0.5	0.5	5.4	125.6	
Pr > F	0.0904	0.0008	<.0001	<.0001	0.6077	<.0001	0.0036	0.2704	

Table 44. Agronomic data for spring wheat at Aberdeen, irrigated, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**
Soft White Spring Wheat									
Seahawk	123.7	166.7	140.4	61.8	90	6/15	37	0	11.3
UI Stone	114.8	183.1	130.6	59.7	95	6/11	37	0	10.8
M12001	---	---	130.5	59.2	94	6/14	35	0	11.7
WB6430	---	162.8	129.0	60.7	97	6/13	33	0	11.2
IDO 851	117.9	170.8	128.0	60.0	87	6/13	36	0	10.9
Alpowa	98.4	161.6	122.2	60.3	91	6/15	37	0	11.3
Alturas	115.1	147.8	121.0	59.4	95	6/13	36	0	11.1
Babe	100.3	156.1	118.9	59.6	96	6/14	38	0	11.0
WA 8189	---	159.4	115.8	61.4	91	6/16	39	0	11.1
UI Pettit	95.6	150.3	115.7	59.8	94	6/9	35	0	10.6
WA 8214	---	---	106.1	58.9	98	6/11	35	0	11.8
Diva	---	---	105.9	60.1	95	6/14	38	22	12.1
Average	106.9	161.5	122.0	60.1	93	6/13	36	2	11.2
LSD (α=.05)	8.6	13.5	10.6	1.0	9.7	0.9	2.8	17.9	
CV %	5.7	5.8	6.0	1.1	7.2	0.4	5.4	692.8	
Pr > F	<.0001	0.0001	<.0001	<.0001	0.5964	<.0001	0.0093	0.4671	

Table 45. Agronomic data for spring wheat, Idaho Falls, irrigated, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand %**	**Date**	**(in)**	**(%)**	**(%)**
Soft White Spring Wheat									
UI Stone	104.2	131.2	125.1	60.9	100	6/14	32	0	10.7
Babe	88.6	112.9	117.3	62.3	100	6/16	34	0	10.6
Alturas	102.0	99.4	114.4	61.5	100	6/17	33	0	10.8
IDO 851	104.9	119.9	113.0	61.5	100	6/17	33	0	11.1
M12001	---	---	112.0	61.5	100	6/17	32	0	11.0
WA 8214	---	---	105.9	59.9	100	6/13	34	3	11.6
WB6430	105.6	115.1	103.8	61.1	100	6/16	30	0	10.5
UI Pettit	95.5	122.0	102.6	60.4	100	6/13	33	0	10.7
Alpowa	93.3	110.7	102.1	63.0	100	6/18	35	0	10.6
WA 8189	---	105.5	97.9	63.4	100	6/19	33	0	10.2
Seahawk	103.8	105.4	88.6	62.8	100	6/18	35	0	10.2
Diva	---	---	72.6	60.1	100	6/19	35	75	11.4
Average	98.9	113.7	104.6	61.5	100	6/16	33	6	10.8
LSD (α=.05)	16.2	17.1	13.0	0.9	0.0	0.8	2.3	5.5	
CV %	11.5	10.5	8.7	1.0	0.0	0.3	4.8	59.1	
Pr > F	0.3030	0.0241	<.0001	<.0001	.	<.0001	0.0025	<.0001	

Table 46. Agronomic data for spring wheat at Ashton, irrigated, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand %**	**Date**	**(in)**	**(%)**	**(%)**
Soft White Spring Wheat									
IDO 851	84.9	106.0	119.6	63.8	100	6/22	33	0	9.6
M12001	---	---	116.2	62.6	100	6/23	30	0	10.1
UI Stone	78.4	92.9	115.7	63.3	100	6/21	31	0	10.4
WB6430	---	98.4	114.6	63.5	100	6/22	27	0	11.1
Diva	---	---	111.6	64.4	100	6/23	35	3	10.0
Alum	---	---	111.6	65.7	100	6/23	31	0	12.4
Alturas	75.9	105.3	110.6	63.3	100	6/22	30	0	9.9
WA 8189	---	91.5	105.3	64.6	100	6/23	32	0	10.2
Seahawk	79.9	119.4	105.2	64.5	100	6/24	29	0	10.0
WA 8214	---	---	101.9	63.4	100	6/20	30	0	11.8
Babe	82.0	68.2	94.1	64.1	100	6/22	31	13	10.8
UI Pettit	81.7	68.6	93.3	62.5	100	6/19	28	0	10.5
Alpowa	86.4	123.4	92.3	64.8	100	6/24	33	20	10.7
Average	77.7	95.6	107.1	63.9	100	6/22	31	3	10.6
LSD (α=.05)	17.3	16.3	10.8	0.5	0.5	1.0	3.0	19.0	
CV %	15.6	11.9	7.0	0.5	0.4	0.4	6.8	491.8	
Pr > F	0.0234	<.0001	<.0001	<.0001	0.4685	<.0001	0.0010	0.5644	

Table 47. Agronomic data for spring wheat at Soda Springs, dryland, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand %**	**Date**	**(in)**	**(%)**	**(%)**
Soft White Spring Wheat									
Diva	---	---	84.2	60.8	94	7/2	28.5	0.0	11.6
Seahawk	63.1	55.8	80.7	60.2	93	7/2	26.3	0.0	11.8
WA 8189	---	52.5	79.6	62.4	94	7/2	30.0	0.0	10.0
UI Stone	57.8	38.6	70.2	62.3	94	6/29	26.3	0.0	9.6
IDO 851	62.9	46.3	64.9	61.6	91	7/1	25.3	0.0	9.9
WB6430	---	---	62.1	62.7	91	6/30	22.5	0.0	10.2
WA 8214	---	---	61.3	62.9	94	6/29	25.3	0.0	11.1
Alturas	61.3	50.6	60.9	62.5	93	7/2	25.8	0.0	9.9
M12001	---	---	56.0	61.3	93	7/2	25.0	0.0	11.0
UI Pettit	56.3	40.8	46.3	61.3	92	6/27	21.8	0.0	10.0
Babe	63.7	38.9	45.7	60.6	92	7/1	25.5	0.0	9.9
Alpowa	64.6	42.8	43.2	59.0	94	7/2	27.3	0.0	9.6
Average	58.7	44.9	62.9	61.5	93	7/1	25.8	0.0	10.4
LSD (α=.05)	10.8	11.2	9.2	1.2	3.8	1.5	3.1	0.0	
CV %	12.9	30.8	10.2	1.3	2.8	0.6	8.4	.	
Pr > F	0.1843	0.0756	<.0001	<.0001	0.7156	<.0001	0.0005	.	

Table 48. Agronomic data for spring barley at Rupert, irrigated, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
6- Row Spring Feed Barley												
Goldeneye	117.1	169.6	135.8	46.0	100	6/3	36	8	11.4	70.7	18.1	12.1
UT2183-85	---	177.7	124.2	49.7	97	6/5	34	5	11.5	91.8	6.5	2.6
Millennium	110.3	181.2	121.0	46.0	100	6/4	35	5	11.5	76.2	16.3	8.2
Herald	114.8	170.3	110.3	47.6	99	6/7	31	5	11.0	89.1	7.7	3.8
UT10901-66	---	---	105.3	47.2	100	6/4	37	25	11.2	85.5	10.8	4.8
6- Row Spring Malt Barley												
Lacey	---	132.5	108.5	49.3	100	6/4	36	26	11.2	90.9	8.2	2.2
Tradition	112.5	150.1	106.3	49.3	100	6/7	35	49	11.2	95.0	4.5	1.6
Celebration	104.4	132.6	101.9	48.3	99	6/6	35	27	11.3	94.6	5.1	1.4
Menan	103.9	137.4	101.4	49.6	99	6/7	38	6	10.8	95.9	3.8	1.3
Quest	89.4	130.6	97.7	48.4	100	6/6	36	35	11.1	84.5	11.2	5.5
Average	110.0	150.4	111.2	48.1	99	6/5	35	19	11.2	87.4	9.2	4.4
LSD (α=.05)	16.3	37.2	16.7	1.4	2.2	1.8	5.3	43.1				
CV %	10.3	17.2	10.3	2.1	1.5	0.8	10.3	155.9				
Pr > F	0.0018	0.0331	0.0013	<.0001	0.0455	0.0001	0.4469	0.3993				

Table 49. Agronomic data for spring barley, Aberdeen, irrigated, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
6-Row Spring Feed Barley												
Goldeneye	163.4	136.0	145.7	46.8	99	6/11	41	31	11.5	81.8	12.4	6.1
Millennium	161.0	194.2	142.4	47.0	99	6/10	39	9	11.8	86.2	10.3	4.6
UT2183-85	---	157.0	140.3	49.5	96	6/12	45	41	12.1	94.9	3.9	1.9
Herald	140.0	151.2	137.1	46.8	96	6/11	43	24	11.8	83.8	10.8	6.1
UT10901-66	---	---	119.4	47.8	96	6/10	41	0	12.3	89.3	7.7	4.0
6-Row Spring Malt Barley												
Menan	143.9	170.0	135.5	48.2	96	6/12	42	0	11.3	90.3	6.6	4.0
Tradition	143.4	125.5	123.7	49.9	94	6/12	43	0	11.8	96.4	3.1	1.4
Lacey	---	138.9	119.9	50.2	94	6/11	42	23	11.8	92.9	5.6	2.5
Celebration	131.2	134.2	107.9	49.0	95	6/13	42	10	12.1	94.8	4.1	1.9
Quest	127.3	131.1	98.5	48.8	96	6/12	41	11	11.8	85.3	10.7	4.8
Average	146.6	144.7	127.0	48.4	96	6/11	42	15	11.8	89.6	7.5	3.7
LSD (α=.05)	14.6	20.3	17.0	1.3	6.8	1.8	4.1	41.4				
CV %	6.9	9.8	9.2	1.9	4.9	0.8	6.8	192.3				
Pr > F	<.0001	<.0001	<.0001	<.0001	0.9154	0.0223	0.2722	0.4607				

Table 50. Agronomic data for spring barley at Idaho Falls, irrigated, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
6 - Row Spring Feed Barley												
UT10901-66	---	---	151.8	47.3	100	6/14	34	0	11.5	90.7	7.0	3.5
UT2183-85	---	167.6	139.0	48.8	100	6/14	32	0	11.6	94.5	5.3	1.6
Goldeneye	147.9	140.1	132.6	46.1	100	6/13	33	0	11.2	77.5	15.2	8.4
Millennium	156.1	147.6	130.7	44.9	100	6/13	31	0	11.6	75.3	16.0	9.7
Herald	151.6	145.3	124.1	46.0	100	6/14	31	0	11.2	87.9	8.9	4.2
6 - Row Spring Malt Barley												
Lacey	---	130.0	144.7	50.3	100	6/14	35	0	11.1	97.6	2.6	0.4
Celebration	149.7	124.3	137.8	49.7	100	6/14	32	5	11.5	97.1	2.8	1.1
Quest	155.6	128.8	133.4	49.3	100	6/15	33	3	11.5	94.6	5.1	1.6
Tradition	141.1	134.8	132.6	50.1	100	6/14	33	0	11.3	97.7	2.6	0.6
Menan	133.4	152.6	128.4	48.5	100	6/14	35	0	10.6	93.7	5.2	2.2
Average	153.9	139.6	135.5	48.1	100	6/14	33	1	11.3	90.7	7.1	3.3
LSD (α=.05)	23.2	18.3	8.5	1.0	0.0	1.0	2.5	5.2				
CV %	10.5	9.1	4.3	1.4	0.0	0.4	5.3	478.3				
Pr > F	0.0173	<.0001	<.0001	<.0001	.	0.0052	0.0231	0.5507				

Table 51. Agronomic data for spring barley at Ashton, irrigated, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
6-Row Spring Feed Barley												
UT10901-66	---	---	132.9	51.8	100	6/19	34	0	11.2	98.6	1.5	0.5
Goldeneye	99.8	91.7	132.3	48.9	100	6/18	34	0	11.1	94.7	3.7	1.5
Millennium	92.1	112.5	131.8	49.3	100	6/18	33	0	11.3	94.2	4.1	1.2
Herald	91.2	86.7	122.6	48.7	100	6/20	32	0	11.4	97.6	1.9	0.5
UT2183-85	---	105.3	120.7	51.9	100	6/20	32	0	11.8	99.1	0.7	0.2
6-Row Spring Malt Barley												
Menan	93.5	93.9	131.0	53.8	100	6/22	36	0	11.3	99.0	0.8	0.4
Quest	88.0	80.8	116.7	50.7	100	6/20	34	0	11.7	97.4	2.0	0.6
Lacey	---	92.6	110.7	51.9	100	6/19	34	0	12.2	99.2	0.8	0.3
Celebration	82.6	90.8	105.0	50.8	100	6/20	33	0	11.9	99.5	0.5	0.3
Tradition	97.1	99.4	100.9	51.5	100	6/22	33	0	11.6	99.0	0.8	0.4
Average	93.4	92.3	120.5	50.9	100	6/20	34	0	11.5	97.8	1.7	0.6
LSD (α=.05)	24.4	13.2	15.5	0.6	0.0	1.1	3.2	0.0				
CV %	18.1	9.9	8.9	0.8	0.0	0.5	6.7	.				
Pr > F	0.7742	0.0002	0.0006	<.0001	.	<.0001	0.3692	.				

Table 52. Agronomic data for spring barley at Rupert, irrigated, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
2-Row Spring Malt Barley												
ACC Synergy	---	---	150.7	51.8	99	6/10	34	24	10.9	97.5	2.3	1.3
2Ab07-X031098-31	142.9	148.1	141.7	50.7	94	6/10	35	44	11.4	92.7	5.1	2.8
Conrad	111.2	135.3	132.4	50.9	99	6/9	32	71	10.9	94.4	4.2	2.6
ABI Voyager	128.4	142.0	129.0	51.6	95	6/10	37	94	11.1	98.2	1.5	1.1
ABI Balster	129.3	144.5	128.1	50.0	99	6/10	30	45	11.6	92.2	5.2	3.5
ABI Growler	---	148.4	122.8	49.5	98	6/10	33	84	11.3	85.0	10.1	5.9
LCS Overture	---	---	120.0	45.6	99	6/12	27	98	11.7	87.3	9.0	4.4
Merem	106.6	124.2	119.7	48.6	99	6/14	36	45	11.6	81.4	10.9	8.9
CDC Copeland	112.1	138.6	114.9	50.9	99	6/11	35	56	11.5	93.3	4.9	3.0
LCS Odyssey	---	---	114.8	44.2	99	6/12	29	95	11.3	83.0	11.1	6.7
2Ab04-X01084-27	105.7	143.9	114.3	47.6	98	6/10	32	75	11.2	85.1	9.1	6.6
2Ab08-X05M010-82	124.8	149.6	113.8	49.1	96	6/11	33	83	11.1	82.9	10.3	7.5
ND Genesis	---	---	113.8	51.6	100	6/8	36	45	11.6	95.5	3.1	1.9
AC Metcalfe	116.2	137.8	111.3	50.6	97	6/11	34	41	11.5	93.9	4.5	2.6
Moravian 69	139.3	151.8	110.2	46.7	99	6/12	25	92	11.5	79.8	13.0	7.9
Hockett	123.0	127.0	109.4	51.3	95	6/9	31	63	11.5	89.7	6.4	4.5
CDC Meredith	123.9	144.7	109.3	48.6	96	6/13	32	85	11.5	90.7	6.7	3.5
LCS Genie	128.4	146.7	107.7	49.1	99	6/12	26	84	11.3	89.4	7.7	3.8
Merit 57	104.8	142.7	106.9	48.4	99	6/11	35	65	11.6	83.9	10.6	6.3
Harrington	100.3	123.8	100.8	49.3	98	6/11	35	94	11.6	79.7	12.4	8.9
Average	120.0	140.2	118.6	49.3	98	6/11	32	69	11.4	88.8	7.4	4.7
LSD (α=.05)	21.1	21.0	22.8	1.7	5.9	1.9	3.9	44.1				
CV %	12.5	10.6	13.6	2.4	4.3	0.8	8.7	45.1				
Pr > F	<.0001	0.2213	0.0064	<.0001	0.8010	<.0001	<.0001	0.0169				

Table 53. Agronomic data for spring barley, Aberdeen, irrigated, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
2-Row Spring Malt Barley												
LCS Odyssey	---	---	164.5	48.7	95	6/14	30	27	11.8	95.8	3.4	1.4
ACC Synergy	---	---	161.2	51.3	98	6/13	37	8	11.8	97.7	1.9	1.1
LCS Genie	138.6	167.9	157.4	49.2	95	6/15	37	0	11.8	90.3	4.0	6.6
LCS Overture	---	---	153.7	49.4	97	6/16	35	0	11.9	97.1	2.4	1.3
ABI Voyager	146.9	145.3	144.2	51.7	86	6/13	41	30	11.6	96.6	2.7	1.4
2Ab08-X05M010-82	131.2	143.0	140.4	51.1	97	6/15	36	20	11.6	96.6	2.7	1.7
2Ab07-X031098-31	151.3	127.6	140.3	50.8	94	6/14	38	23	12.5	89.7	6.9	4.2
ABI Growler	---	136.6	138.6	51.1	95	6/14	34	1	12.3	93.1	4.2	3.6
Conrad	135.6	138.0	138.4	50.9	99	6/13	35	33	11.8	93.7	4.8	2.6
ABI Balster	143.0	156.5	136.6	50.3	96	6/14	35	35	12.5	95.1	3.8	2.5
ND Genesis	---	---	136.5	51.3	98	6/13	40	0	12.4	98.5	1.9	0.7
2Ab04-X01084-27	128.3	128.3	136.0	49.7	96	6/15	33	22	11.9	89.2	7.2	4.2
Moravian 69	141.5	151.0	130.7	48.4	95	6/15	29	17	11.4	88.1	7.8	5.3
Hockett	132.2	141.7	127.9	52.0	98	6/12	35	12	12.3	93.3	4.5	3.1
CDC Copeland	151.7	143.3	126.8	50.9	98	6/15	40	70	12.1	93.9	4.3	2.7
Merit 57	130.3	142.3	122.3	50.0	96	6/15	38	66	12.1	91.8	5.5	3.6
Merem	132.2	128.0	122.1	50.5	97	6/17	36	40	11.8	91.2	5.5	4.3
AC Metcalfe	128.3	136.3	111.1	52.3	96	6/14	41	25	12.3	97.1	2.3	1.5
Harrington	134.7	121.0	106.0	51.8	96	6/15	38	30	12.2	94.7	3.8	2.4
CDC Meredith	118.6	137.6	92.7	47.5	94	6/16	36	99	12.5	89.0	8.0	4.2
Average	133.7	142.0	134.4	50.4	96	6/14	36	28	12.0	93.6	4.4	2.9
LSD (α=.05)	14.5	27.7	22.5	1.3	7.2	1.4	4.2	44.7				
CV %	7.7	13.7	11.8	1.9	5.3	0.6	7.1	98.0				
Pr > F	<.0001	0.1016	<.0001	<.0001	0.2907	<.0001	<.0001	0.0051				

Table 54. Agronomic data for spring barley at Idaho Falls, irrigated, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
2-Row Spring Malt Barley												
2Ab07-X031098-31	150.6	141.8	144.4	50.8	100	6/17	29	0	11.5	93.0	5.2	3.0
ACC Synergy	---	---	144.3	51.9	100	6/17	31	0	11.2	98.1	1.7	0.7
ABI Balster	148.4	138.3	139.9	49.8	100	6/18	29	0	11.3	93.8	4.8	2.6
ABI Voyager	140.2	141.1	129.4	51.3	100	6/17	31	25	11.0	98.0	2.2	1.5
CDC Meredith	128.0	133.5	126.2	49.6	100	6/19	32	20	11.1	95.1	4.3	2.0
ABI Growler	---	161.7	125.9	48.8	100	6/19	27	0	11.2	88.6	8.6	4.5
CDC Copeland	137.9	135.8	124.4	50.8	100	6/17	34	26	10.9	96.1	3.0	1.7
Merit 57	133.9	133.3	124.0	48.0	100	6/18	30	6	11.3	82.0	11.5	7.7
ND Genesis	---	---	123.7	51.4	100	6/17	32	0	11.7	98.9	1.7	0.7
Merem	129.3	125.8	121.4	49.4	100	6/20	32	6	11.1	89.4	7.0	4.9
AC Metcalfe	126.6	122.5	115.4	50.9	100	6/18	33	21	11.1	94.7	4.1	2.8
2Ab04-X01084-27	141.6	130.4	114.0	47.9	100	6/18	27	33	10.8	90.4	7.0	3.9
Hockett	124.3	121.2	111.9	52.2	100	6/17	31	48	11.6	95.6	3.4	1.9
Harrington	115.3	117.2	111.8	50.0	100	6/19	30	3	11.2	91.6	6.9	2.4
LCS Odyssey	---	---	110.5	44.5	100	6/21	24	48	11.2	86.2	10.4	4.3
Conrad	133.9	129.1	106.3	49.6	100	6/18	28	36	11.0	91.0	6.1	3.8
Moravian 69	121.6	125.6	102.6	45.2	100	6/20	20	25	11.6	77.1	15.4	8.9
2Ab08-X05M010-82	147.0	140.0	97.3	46.3	100	6/18	31	65	11.1	76.0	15.2	10.0
LCS Genie	126.1	147.1	84.2	46.5	100	6/21	20	0	11.2	84.8	10.3	5.6
LCS Overture	---	---	65.8	40.3	100	6/21	24	60	11.8	71.2	18.7	11.2
Average	133.0	135.5	116.2	48.8	100	6/18	29	21	11.2	89.6	7.4	4.2
LSD (α=.05)	12.2	19.3	18.5	1.6	0.0	1.4	3.3	39.5				
CV %	6.5	10.0	11.3	2.4	0.0	0.6	8.1	132.9				
Pr > F	<.0001	0.0025	<.0001	<.0001	.	<.0001	<.0001	0.0073				

Table 55. Agronomic data for spring barley at Ashton, irrigated, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
2-Row Spring Malt Barley												
LCS Overture	---	---	162.0	52.5	100	6/25	26	0	11.3	99.4	0.3	0.3
2Ab04-X01084-27	99.8	84.4	151.2	52.5	100	6/24	24	0	11.0	98.8	0.5	0.3
LCS Odyssey	---	---	143.6	52.3	100	6/26	23	0	11.4	98.9	0.5	0.3
Merit 57	97.6	79.0	142.3	51.4	100	6/23	27	0	11.4	99.5	0.6	0.3
2Ab08-X05M010-82	104.4	86.2	142.3	53.1	100	6/25	25	0	11.1	99.5	0.0	0.6
ABI Growler	---	79.9	139.9	52.4	100	6/23	25	0	11.7	99.3	0.5	0.2
Merem	85.3	90.8	137.8	52.1	100	6/27	28	5	11.4	98.5	1.0	0.6
2Ab07-X031098-31	92.6	87.1	135.8	52.9	100	6/23	26	0	11.6	98.9	0.6	0.5
ABI Balster	110.7	93.0	135.1	51.0	100	6/23	28	0	11.8	99.3	0.3	0.3
Conrad	100.7	85.8	134.4	52.7	100	6/24	27	0	10.9	99.5	0.3	0.3
LCS Genie	99.4	74.0	134.3	53.0	100	6/26	24	0	11.1	99.5	0.2	0.2
Baronesse (feed)	113.9	92.6	134.3	53.2	100	6/24	27	0	11.0	99.3	0.6	0.5
CDC Meredith	89.4	83.9	130.1	51.7	100	6/24	27	0	11.1	99.1	0.5	0.2
CDC Copeland	100.3	81.7	128.7	52.4	100	6/25	29	0	11.3	98.8	0.7	0.6
ACC Synergy	---	---	128.3	52.1	100	6/23	27	0	11.4	99.9	0.0	0.4
ABI Voyager	---	---	127.8	52.1	100	6/24	29	0	11.4	99.2	0.3	0.5
AC Metcalfe	77.6	75.6	127.6	53.0	100	6/23	28	0	11.5	99.3	0.3	0.4
Hockett	95.3	89.8	118.1	53.2	100	6/22	25	0	11.8	99.5	0.3	0.1
ND Genesis	---	---	118.1	52.2	100	6/21	28	0	11.5	99.4	0.3	0.2
Harrington	84.4	60.3	113.5	53.8	100	6/24	27	0	11.5	99.2	0.6	0.3
Average	96.9	83.1	134.3	52.5	100	6/24	26	0	11.4	99.2	0.4	0.4
LSD (α=.05)	14.5	15.7	16.2	0.6	0.5	1.2	3.0	3.2				
CV %	7.7	13.0	8.5	0.8	0.4	0.5	8.1	894.4				
Pr > F	<.0001	0.0024	<.0001	<.0001	0.5787	<.0001	0.0081	0.4750				

Table 56. Agronomic data for spring barley at Rupert, irrigated, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
2-Row Spring Feed Barley												
Vespa	162.4	175.2	159.8	50.5	100	6/9	29	95	11.3	92.8	5.7	2.6
Claymore	---	---	150.4	50.3	100	6/12	33	53	10.6	91.4	5.7	3.7
Harriman	122.5	149.9	129.4	50.7	99	6/12	34	39	11.0	93.6	4.7	2.5
Lenetah	134.8	162.9	123.7	49.6	100	6/9	33	70	11.6	90.2	5.7	4.4
03ARS391-34	---	---	118.8	49.6	99	6/10	33	98	10.8	84.0	10.8	5.6
08ARS206-17	---	---	118.6	52.2	100	6/8	33	64	11.4	94.8	3.6	2.3
Champion	147.5	161.3	116.5	50.1	99	6/8	30	98	11.8	87.8	8.6	4.5
Oreana	---	---	112.0	48.5	100	6/11	30	73	11.8	78.1	14.3	8.1
Idagold II	129.3	155.5	109.8	48.2	98	6/12	29	74	10.9	83.8	10.5	6.8
Xena	144.7	157.7	108.6	49.6	100	6/9	34	100	11.2	89.8	6.5	5.5
RWA 1758	135.7	155.8	107.7	48.0	100	6/8	33	100	11.0	76.8	13.1	10.4
Tetonia	130.7	149.9	104.3	49.1	99	6/9	35	94	11.5	80.8	10.9	8.8
Baronesse	123.4	127.8	103.3	50.1	100	6/9	33	97	10.8	86.1	7.9	6.7
Sawtooth*	110.3	120.6	97.2	55.4	88	6/12	34	81	14.3	62.1	29.0	9.6
Julie*	129.3	116.8	95.6	54.8	99	6/13	35	78	13.5	80.3	14.4	6.4
Kardia	118.4	138.9	86.6	49.1	100	6/12	36	83	12.0	82.9	10.9	7.0
Clearwater*	103.0	105.2	80.7	53.8	98	6/10	36	100	16.3	59.1	27.5	14.6
2Ab09-X06F058HL-31*	88.9	102.1	80.2	56.6	98	6/11	34	92	14.4	84.2	12.0	4.5
CDC Fibar*	82.1	97.3	78.7	55.3	94	6/10	35	87	15.4	72.2	20.9	7.3
Transit*	90.8	103.4	74.3	53.0	98	6/11	36	93	14.9	55.3	32.2	13.4
Average	121.5	136.3	107.8	51.2	98	6/10	33	83	12.3	81.3	12.7	6.7
LSD (α=.05)	19.8	20.7	23.2	1.9	5.9	1.1	3.9	34.7				
CV %	11.5	10.7	15.2	2.6	4.2	0.5	8.2	29.5				
Pr > F	<.0001	<.0001	<.0001	<.0001	0.0475	<.0001	0.0025	0.0275				

* indicates hulless variety

Table 57. Agronomic data for spring barley, Aberdeen, irrigated, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
2-Row Spring Feed Barley												
Claymore	---	---	164.5	51.3	97	6/14	38	9	11.4	93.5	4.0	2.8
Oreana	---	---	155.4	50.2	98	6/14	31	8	12.2	91.4	6.1	3.5
Vespa	149.8	163.1	153.8	50.4	96	6/14	31	3	11.7	94.5	4.3	2.0
Xena	143.9	146.8	150.2	50.6	97	6/13	36	48	11.6	88.8	7.2	4.7
Lenetah	152.2	137.4	146.2	51.6	100	6/13	35	30	12.1	95.7	3.3	2.4
08ARS206-17	---	---	145.6	52.2	99	6/12	35	19	12.1	95.2	3.8	1.9
Champion	164.4	163.0	145.3	51.5	99	6/13	37	19	12.2	91.4	5.5	3.7
Baronesse	137.6	132.0	144.7	51.9	97	6/13	36	19	11.2	95.1	3.5	2.5
Idagold II	140.5	167.4	141.3	50.2	100	6/14	36	6	11.7	90.4	7.2	3.0
Harriman	145.9	140.9	139.2	50.1	97	6/15	38	30	11.4	91.8	6.7	2.5
Kardia	138.1	135.4	138.9	50.0	100	6/17	37	34	12.3	89.6	7.2	4.2
03ARS391-34	---	---	138.2	52.0	86	6/14	37	8	11.1	94.9	3.8	2.2
RWA 1758	143.9	154.9	125.4	51.1	94	6/14	32	69	11.1	91.7	6.0	3.4
Tetonia	146.9	147.2	123.1	51.2	98	6/14	34	43	11.5	91.9	5.5	3.0
Julie*	129.3	131.3	121.3	57.0	91	6/17	36	5	15.6	91.9	6.2	2.8
Transit*	133.7	109.6	103.5	56.1	98	6/16	38	33	15.8	82.9	12.4	5.2
2Ab09-X06F058HL-31*	122.5	103.9	103.1	56.1	97	6/16	37	45	17.0	83.4	9.6	8.1
Sawtooth*	132.2	127.3	100.1	56.5	78	6/16	39	9	14.8	75.7	16.0	8.5
Clearwater*	114.2	120.8	97.2	55.8	91	6/16	38	55	15.5	79.5	13.2	8.0
CDC Fibar*	100.0	107.5	95.9	55.9	96	6/14	35	86	17.1	81.3	14.1	5.3
Average	134.9	135.7	131.6	52.6	95	6/14	36	29	13.0	89.5	7.3	4.0
LSD (α=.05)	18.8	19.7	20.4	1.2	7.7	1.4	3.0	33.5				
CV %	9.8	10.2	10.9	1.6	5.7	0.6	5.9	82.4				
Pr > F	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001				

* indicates hulless variety

Table 58. Agronomic data for spring barley at Idaho Falls, irrigated, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
2-Row Spring Feed Barley												
08ARS206-17	---	---	155.9	52.7	100	6/18	30	13	11.1	96.9	2.2	1.8
Champion	153.6	152.5	153.5	52.7	100	6/17	32	3	11.2	95.5	3.9	1.7
Tetonia	142.9	155.9	151.6	51.3	100	6/20	32	0	10.4	94.7	4.3	2.1
Lenetah	148.0	132.3	148.1	52.2	100	6/19	33	9	11.1	96.8	2.5	1.7
Xena	156.1	129.1	147.2	51.8	100	6/19	32	3	10.5	94.1	4.5	2.3
03ARS391-34	---	---	143.7	50.5	100	6/18	31	23	10.3	89.8	8.0	3.2
Claymore	---	---	139.0	48.3	100	6/19	32	14	11.0	86.9	9.3	4.7
Harriman	140.9	164.3	134.8	50.5	100	6/20	30	11	10.4	92.8	5.4	2.9
Vespa	145.2	157.2	127.6	49.6	100	6/20	27	35	11.0	88.3	9.1	3.2
Kardia	133.0	121.1	125.9	49.3	100	6/20	33	35	11.4	89.8	7.6	3.6
Baronesse	140.7	120.4	125.7	49.6	100	6/19	30	74	10.5	89.4	7.6	4.4
RWA 1758	139.1	130.7	123.8	49.7	100	6/19	28	72	10.3	89.4	7.5	4.1
Sawtooth*	122.2	135.5	118.2	56.8	100	6/19	32	0	14.7	71.4	20.6	9.1
Julie*	120.2	126.8	117.8	55.8	100	6/20	32	0	14.0	87.6	10.6	3.0
CDC Fibar*	90.5	82.2	103.9	56.1	100	6/17	33	13	16.0	87.3	10.4	3.3
Transit*	107.1	112.2	103.0	57.2	100	6/20	34	1	15.0	78.3	18.0	4.7
Clearwater*	107.1	100.2	102.3	56.5	100	6/17	32	31	15.6	73.8	18.3	8.8
Idagold II	136.1	144.6	99.4	48.0	100	6/19	29	35	11.0	75.9	13.3	11.9
2Ab09-X06F058HL-31*	110.0	96.4	97.6	56.8	100	6/17	31	61	14.1	87.6	9.1	4.2
Oreana	---	---	89.4	47.1	100	6/20	26	86	11.4	68.5	18.2	14.5
Average	129.6	128.4	125.4	52.1	100	6/19	31	26	12.0	86.7	9.5	4.8
LSD (α=.05)	14.6	21.0	14.6	1.6	0.0	1.3	2.3	31.5				
CV %	7.9	11.5	8.2	2.2	0.0	0.5	5.4	86.1				
Pr > F	<.0001	<.0001	<.0001	<.0001	.	<.0001	<.0001	<.0001				

* indicates hulless variety

Table 59. Agronomic data for spring barley at Ashton, irrigated, 2015.

	Yield (bu/A)			Test Wt.	Spring	Heading	Height	Lodging	Protein	Plump		
Variety	**2013**	**2014**	**2015**	**(lb/bu)**	**Stand %**	**Date**	**(in.)**	**(%)**	**(%)**	**(>6/64)**	**(>5.5/64)**	**% Thin**
2-Row Spring Feed Barley												
Claymore	---	---	144.8	53.2	100	6/24	24	0	10.6	99.0	0.6	0.5
Tetonia	108.0	122.1	142.9	54.1	100	6/26	23	0	11.1	98.5	1.0	0.5
Vespa	101.2	109.9	142.4	53.4	100	6/25	25	0	11.3	99.2	0.2	0.5
Xena	101.2	123.3	139.3	53.5	100	6/23	26	0	11.1	98.9	0.4	0.5
03ARS391-34	---	---	137.6	54.2	100	6/24	23	0	11.1	98.7	0.5	0.4
Kardia	105.3	114.9	135.3	53.0	100	6/25	23	0	11.5	97.9	1.8	0.3
Lenetah	111.2	121.0	133.7	53.5	100	6/24	24	0	11.2	99.0	0.6	0.4
Oreana	---	---	132.5	52.8	100	6/25	22	0	11.7	97.9	1.0	0.8
Sawtooth*	90.6	69.5	125.5	60.1	98	6/25	26	0	14.6	91.8	6.2	2.0
Champion	110.3	134.6	124.0	53.6	100	6/23	27	0	11.7	98.7	1.0	0.5
08ARS206-17	---	---	122.7	53.4	100	6/23	24	0	11.1	98.7	0.5	0.7
RWA 1758	115.7	129.4	122.6	53.9	100	6/24	23	0	11.0	99.0	0.4	0.5
Idagold II	94.8	96.4	117.4	53.7	100	6/24	23	0	11.2	98.8	0.7	0.3
Harriman	99.8	106.0	116.5	52.4	100	6/25	22	0	10.9	97.3	1.3	0.8
Baronesse	94.4	119.9	107.1	54.0	100	6/24	22	0	10.8	98.8	0.5	0.4
CDC Fibar*	70.0	57.3	102.2	58.7	100	6/23	28	0	15.9	98.0	1.4	0.5
Julie*	85.0	102.0	98.7	59.6	99	6/27	25	0	15.7	96.9	2.2	0.5
Transit*	68.0	69.9	95.9	59.7	100	6/24	24	0	15.4	93.2	4.6	1.1
2Ab09-X06F058HL-31*	79.3	66.0	95.5	60.3	98	6/24	24	0	16.5	96.8	2.0	1.4
Clearwater*	82.4	71.6	92.7	59.3	99	6/24	24	0	15.8	94.3	4.1	1.8
Average	93.0	101.2	121.5	55.3	100	6/24	24	0	12.5	97.6	1.6	0.7
LSD (α=.05)	20.2	14.3	25.7	0.6	1.4	1.3	3.4	0.0				
CV %	15.4	10.0	14.9	0.8	1.0	0.5	10.1	.				
Pr > F	<.0001	<.0001	<.0001	<.0001	0.0112	<.0001	0.0298	.				

* indicates hulless variety

Table 60. Hard Winter Wheat Yield Percentage of Location Averages, 2015.

	(100% =Average)						
Variety	**Kimberly**	**Aberdeen**	**Rupert**	**Ririe**	**Rockland**	**Soda Springs**	**Variety Average**
UI Silver (W)	---	---	---	113	102	118	111
LCS Jet	116	104	119	105	104	---	110
LCS Colonia	99	107	115	112	110	105	108
Keldin	113	95	115	---	---	---	108
Colter	106	102	102	102	115	117	107
IDO1101 (W)	113	99	113	123	89	105	107
Yellowstone	108	111	99	103	110	110	107
WB-Arrowhead / Keldin	118	103	111	95	91	117	106
WB3768 (W)	107	103	105	99	106	113	106
Deloris	---	---	---	109	116	90	105
UI SRG	---	---	---	102	109	101	104
Juniper / Deloris	---	---	---	107	112	92	104
Curlew	---	---	---	105	93	110	103
Northern	96	104	101	100	115	99	103
Moreland	104	100	99	115	95	---	102
IDO1209DH (W)	99	99	91	105	118	---	102
Promontory	104	100	117	98	93	102	102
Greenville	100	113	100	107	104	80	101
WB-Arrowhead	111	105	103	101	85	98	100
Golden Spike (W)	92	102	104	94	123	85	100
Juniper / Promontory	99	90	89	99	113	108	100
Lucin-CL	---	---	---	103	107	89	100
Utah 100	91	92	92	113	109	100	99
Judee	96	103	89	97	94	116	99
SY Clearstone 2CL	96	101	91	88	107	111	99
LCS Azimut	94	99	108	94	98	---	99
Whetstone	106	97	95	87	99	---	97
Warhorse	---	---	---	108	90	93	97
Norwest 553	94	105	106	95	83	---	97
Manning	86	102	93	106	83	109	96
DAS001	98	94	99	96	89	---	95
Earl (W)	99	96	98	91	92	---	95
Garland	94	95	94	105	102	76	94
Weston	---	---	---	100	100	79	93
OR2100081H	92	107	100	83	82	---	93
Juniper	85	78	85	96	103	107	92
Bearpaw	---	---	---	96	93	86	92
OR2110019H	87	97	92	91	90	---	91
IDO1103	93	98	74	94	74	---	87
UICF Grace (W)	---	---	---	92	81	84	86
Location Average (bu/A)	136	115	126	45	47	98	

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

Table 61. Soft White Winter Wheat Yield Percentage of Location Averages, 2015.

	(100% =Average)					
	Kimberly	Aberdeen	Rupert	Ririe	Soda Springs	Variety Average
LWW10-1073	---	---	---	115	---	115
Bobtail	104	111	118	124	110	113
SY Ovation	113	101	111	---	116	110
IDN-01-10704A	98	109	106	125		109
IDO1108	95	111	109	112	106	106
UICF Brundage	---	---	---	109	104	106
UI-WSU Huffman	106	99	96	123	---	106
Kaseberg	105	110	101	107	105	106
Otto	---	---	---	112	99	106
06-03303B	100	109	107	---	---	105
Mary	113	98	112	95	---	105
Jasper	108	103	99	97	117	105
Rosalyn	108	113	112	93	95	104
OR2080641	100	111	107	98	---	104
LCS Biancor	96	101	113	---	---	104
Norwest Duet	110	96	90	118	---	103
LCS Artdeco	101	95	114	---	---	103
WB1529	103	108	99	---	---	103
WB 528	95	104	110	---	---	103
Bruneau	98	105	100	102	105	102
SY 107	98	105	102	---	---	102
IDO1004	110	97	101	97	---	101
IDO1005	97	112	99	97	---	101
LCS Drive	104	94	103	---	---	100
IDN-02-29001A	107	105	96	91	---	100
DAS003	101	106	91	100	---	99
LOR-334	104	98	98	96	---	99
UI Magic CLP	99	102	93	101	---	99
Stephens	102	93	98	108	89	98
DAS004	97	96	87	110	---	98
Brundage	104	98	106	78	---	96
Madsen / Eltan	89	100	88	117	86	96
OR2090473	97	101	96	89	---	96
Madsen	91	102	95	93	97	96
UI Palouse CLP	90	95	96	99	---	95
WB 456	103	86	103	89	93	95
UI Castle CLP	91	92	88	106	---	94
LOR-833	101	90	99	84	---	93
Eltan	85	96	91	110	82	93
LOR-913	95	87	100	90	---	93
OR2080637	93	103	89	84	---	93
OR2100940	104	92	95	78	---	92
SY 96-2	100	81	95	---	---	92
WB1376CLP	92	90	96	76	95	90
LOR-978	91	95	92	77	---	89
Location Average (bu/A)	134	137	133	49	114	113

Table 62. Winter Barley Yield Percentage of Location Averages, 2015.

	(100% =Average)		Variety
	Aberdeen	Rupert	Average
Strider	117	116	116
Maja	91	129	110
93Ab669	104	113	109
Eight-Twelve	112	103	108
Sunstar Pride	104	111	107
Sprinter	117	98	107
UTWB10201-15	100	110	105
05ARS561-208	102	106	104
02Ab671	103	105	104
02Ab431	97	107	102
TCFW6-140	99	100	100
Schuyler	112	86	99
Endeavor	100	97	99
Buck*	104	92	98
04ARS635-4	101	93	97
Alba	93	95	94
Streaker*	95	92	93
Charles	86	100	93
05ARS748-270*	92	89	90
Kamiak	92	81	86
Verdant	79	85	82
Location Average (bu/A)	160	142	

* indicates hulless variety

Table 63. Hard Spring Wheat Yield Percentage of Location Averages, 2015.

		(100% =Average)			Soda	Variety
Variety	**Rupert**	**Aberdeen**	**Idaho Falls**	**Ashton**	**Springs**	**Average**
Dayn (W)	117	119	127	99	145	122
SY Teton (W)	117	108	118	126	137	121
HRS 3504	98	117	100	121	---	109
LCS Iron	107	107	96	118	112	108
SY Selway	---	---	---	---	108	108
LCS Star (W)	120	101	88	111	108	105
SY Basalt	109	113	87	107	---	104
WB9411	111	94	109	88	115	104
WB7589 (W)	103	93	111	108	---	103
WB9668	93	92	112	104	109	102
WB-Paloma (W)	96	101	108	102	---	102
UI Platinum (W)	92	100	117	93	106	101
IDO1203 (W)	106	98	127	105	69	101
WB9229	101	98	104	99	---	101
Jefferson	101	106	103	107	85	100
Bullseye	90	100	105	105	---	100
WB7328 (W)	95	91	116	93	---	99
HRS 3419	93	100	93	109	---	99
IDO1202S (W)	93	127	34	113	119	97
LCS Atomo (W)	108	94	108	100	71	96
HRS 3530	108	103	83	90	---	96
Cabernet	96	93	108	87	---	96
IDO862E	103	95	106	95	82	96
SY Coho	102	107	74	102	---	96
Snow Crest (W)	87	90	118	86	---	95
10SB0087-B	93	104	74	99	104	95
Kelse	97	91	80	104	92	93
LCS Kiko (D)	87	84	109	84	---	91
Klasic (W)	95	88	112	82	62	88
UI Winchester	92	102	77	89	76	87
Alzada (D)	88	85	97	75	---	86
Location Average (bu/A)	105	118	91	93	58	

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

Table 64. Soft White Spring Wheat Yield Percentage of Location Averages, 2015.

	(100% =Average)				Soda	Variety
	Rupert	**Aberdeen**	**Idaho Falls**	**Ashton**	**Springs**	**Average**
UI Stone	115	107	120	108	112	112
Seahawk	111	115	85	98	128	107
IDO 851	101	105	108	112	103	106
Alum	---	---	---	104	---	104
WA 8189	105	95	94	98	126	104
WB6430	106	106	99	107	99	103
Alturas	107	99	109	103	97	103
M12001	99	107	107	108	89	102
Diva	85	87	69	104	134	96
WA 8214	94	87	101	95	97	95
Babe	99	97	112	88	73	94
UI Pettit	89	95	98	87	74	89
Alpowa	90	100	98	86	69	88
Location Average (bu/A)	105	122	105	107	63	

Table 65. 6-Row Spring Barley Yield Percentage of Location Averages, 2015.

	(100% =Average)				
	Rupert	**Aberdeen**	**Idaho Falls**	**Ashton**	**Variety Average**
Feed					
Goldeneye	122	115	98	110	111
Millennium	109	112	96	109	107
UT2183-85	112	110	103	100	106
UT10901-66	95	94	112	110	103
Herald	99	108	92	102	100
Malt					
Menan	91	107	95	109	100
Lacey	98	94	107	92	98
Tradition	96	97	98	84	94
Celebration	92	85	102	87	91
Quest	88	78	98	97	90
Location Average (bu/A)	111	127	136	120	

Table 66. 2-Row Spring Malt Barley Yield Percentage of Location Averages, 2015.

	(100% =Average)				Variety
	Rupert	**Aberdeen**	**Idaho Falls**	**Ashton**	**Average**
ACC Synergy	127	120	124	96	117
2Ab07-X031098-31	120	104	124	101	112
ABI Balster	108	102	120	101	108
ABI Voyager	109	107	111	95	106
LCS Odyssey	97	122	95	107	105
ABI Growler	104	103	108	104	105
2Ab04-X01084-27	96	101	98	113	102
Conrad	112	103	92	100	102
ND Genesis	96	102	106	100	101
Merem	101	91	105	103	100
CDC Copeland	97	94	107	96	99
Merit 57	90	91	107	106	98
LCS Overture	101	114	57	121	98
2Ab08-X05M010-82	96	104	84	106	98
LCS Genie	91	117	72	100	95
Hockett	92	95	96	88	93
AC Metcalfe	94	83	99	95	93
CDC Meredith	92	69	109	97	92
Moravian 69	93	97	88	88	92
Harrington	85	79	96	85	86
Location Average (bu/A)	119	134	116	134	

Table 67. 2-Row Spring Feed Barley Yield Percentage of Location Averages, 2015.

	(100% =Average)				Variety
	Rupert	**Aberdeen**	**Idaho Falls**	**Ashton**	**Average**
Claymore	139	125	111	119	124
Vespa	148	117	102	117	121
Lenetah	115	111	118	110	113
Xena	101	114	117	115	112
08ARS206-17	110	111	124	101	111
03ARS391-34	110	105	115	113	111
Champion	108	110	122	102	111
Harriman	120	106	107	96	107
Tetonia	97	93	121	118	107
Oreana	104	118	71	109	101
Kardia	80	105	100	111	99
RWA 1758	100	95	99	101	99
Baronesse	96	110	100	88	99
Idagold II	102	107	79	97	96
Sawtooth*	90	76	94	103	91
Julie*	89	92	94	81	89
CDC Fibar*	73	73	83	84	78
2Ab09-X06F058HL-31*	74	78	78	79	77
Transit*	69	79	82	79	77
Clearwater*	75	74	82	76	77
Location Average (bu/A)	108	132	125	121	

* indicates hulless variety

2015 Winter Grain Yield Percentage Across All Locations Charts

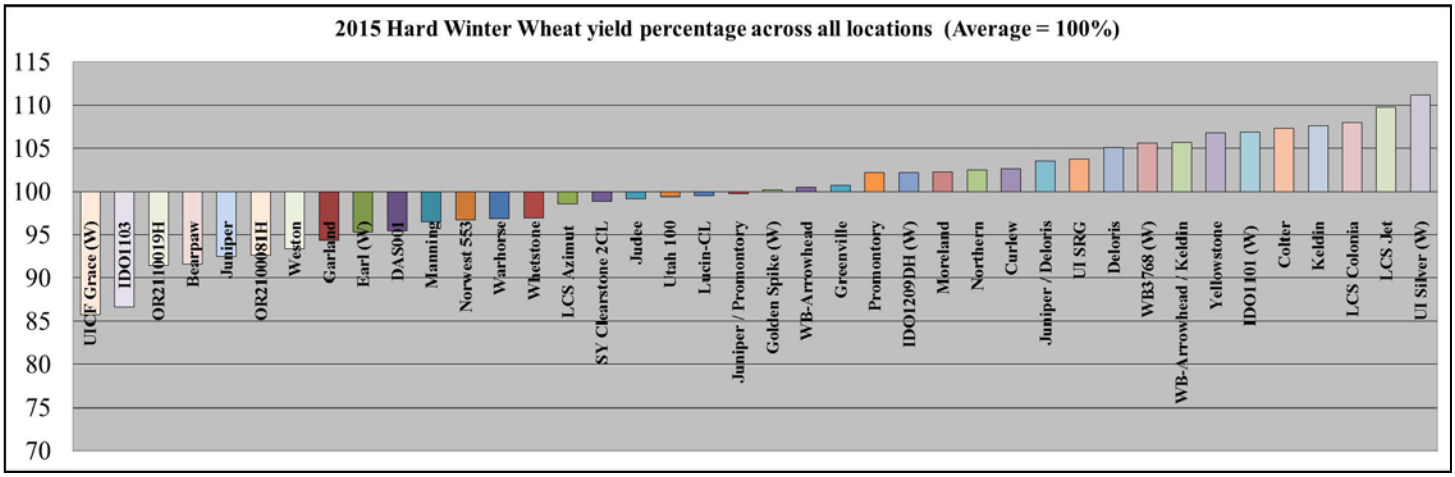


Chart 2. Hard Winter Wheat Yield Percentage Across All Locations.

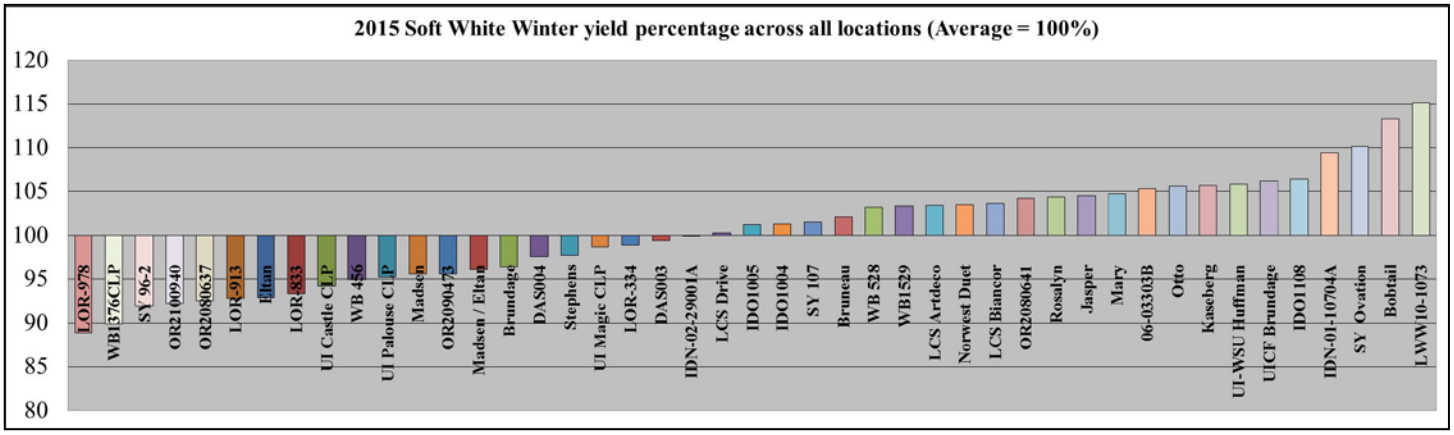


Chart 3. Soft White Winter Wheat Yield Percentage Across All Locations.

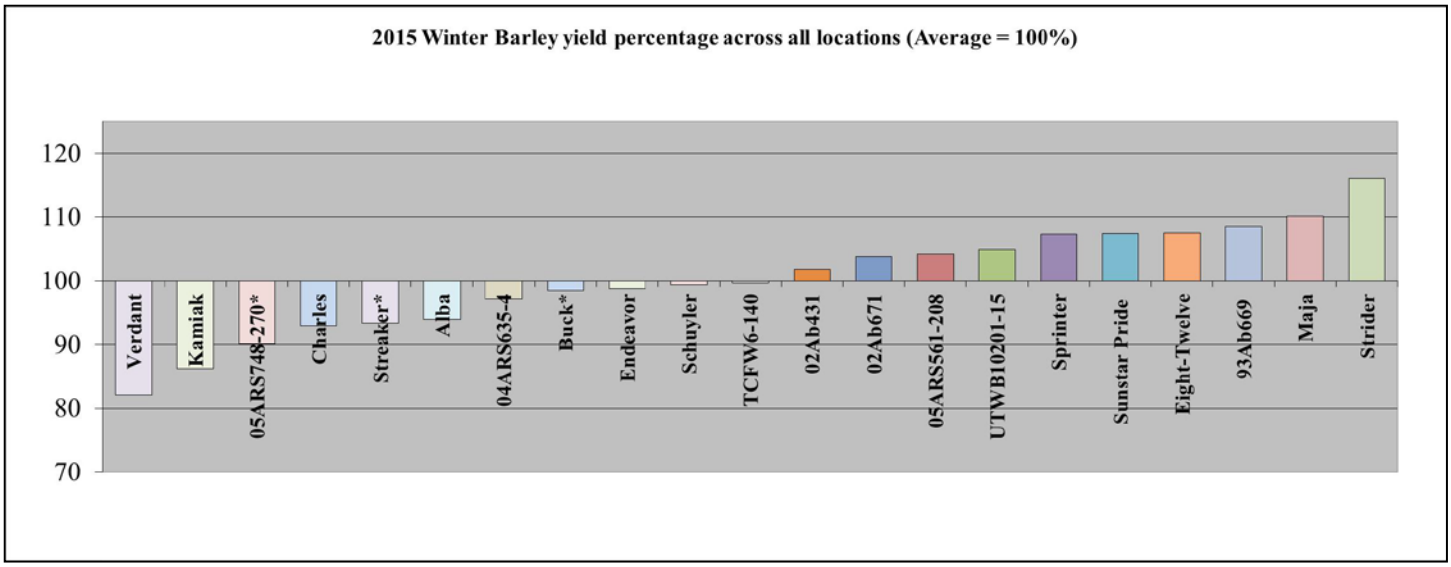


Chart 4. Winter Barley Yield Percentage Across All Locations. * indicates hulless variety.

2015 Spring Grain Yield Percentages Across All Locations Charts

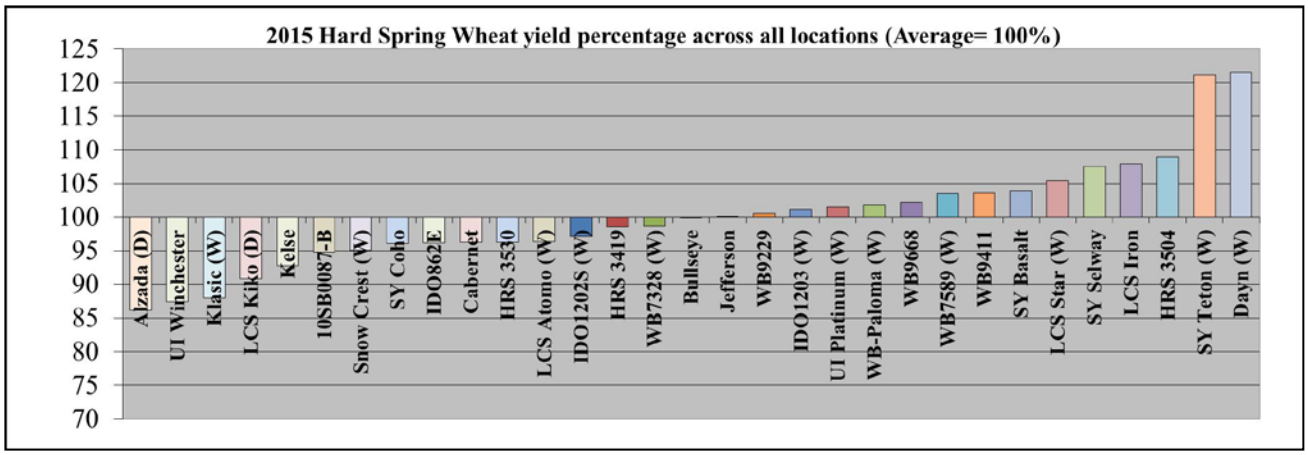


Chart 5. Hard Spring Wheat Yield Percentage Across All Locations.

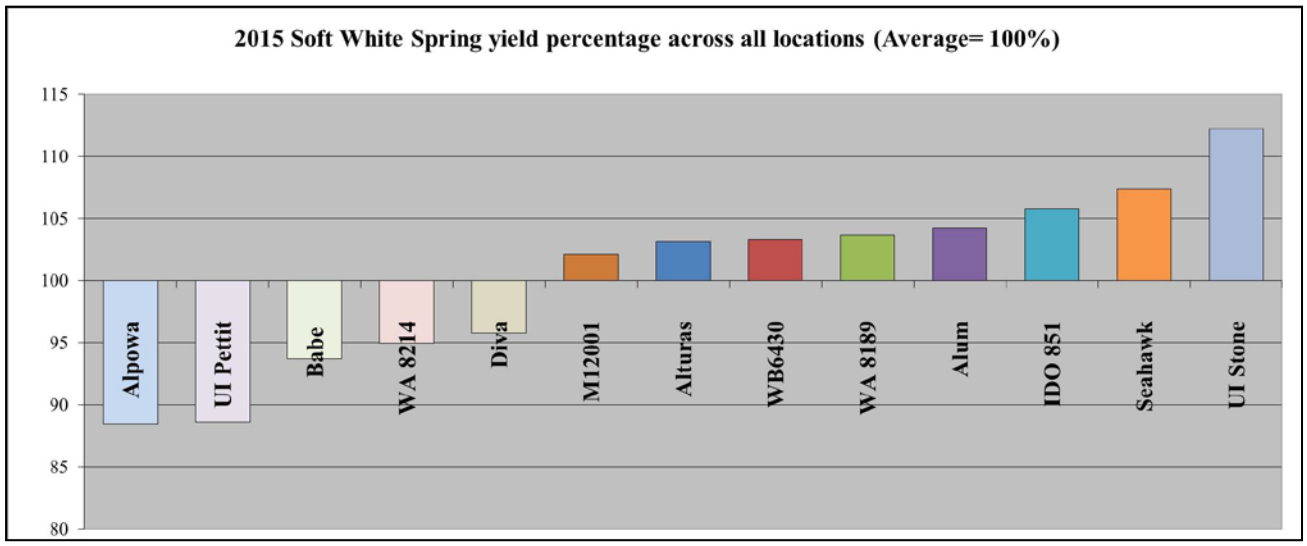


Chart 6. Soft White Spring Yield Percentage Across All Locations.

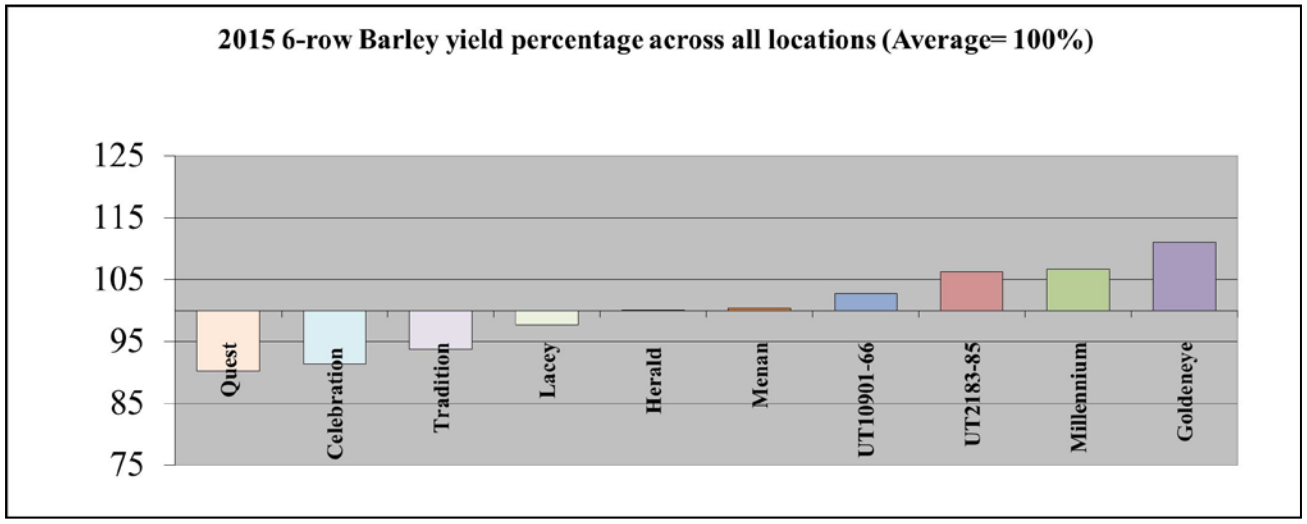


Chart 7. 6-Row Spring Barley Yield Percentage Across All Locations.

2015 2-Row Barley Yield Percentage Across All Locations Charts

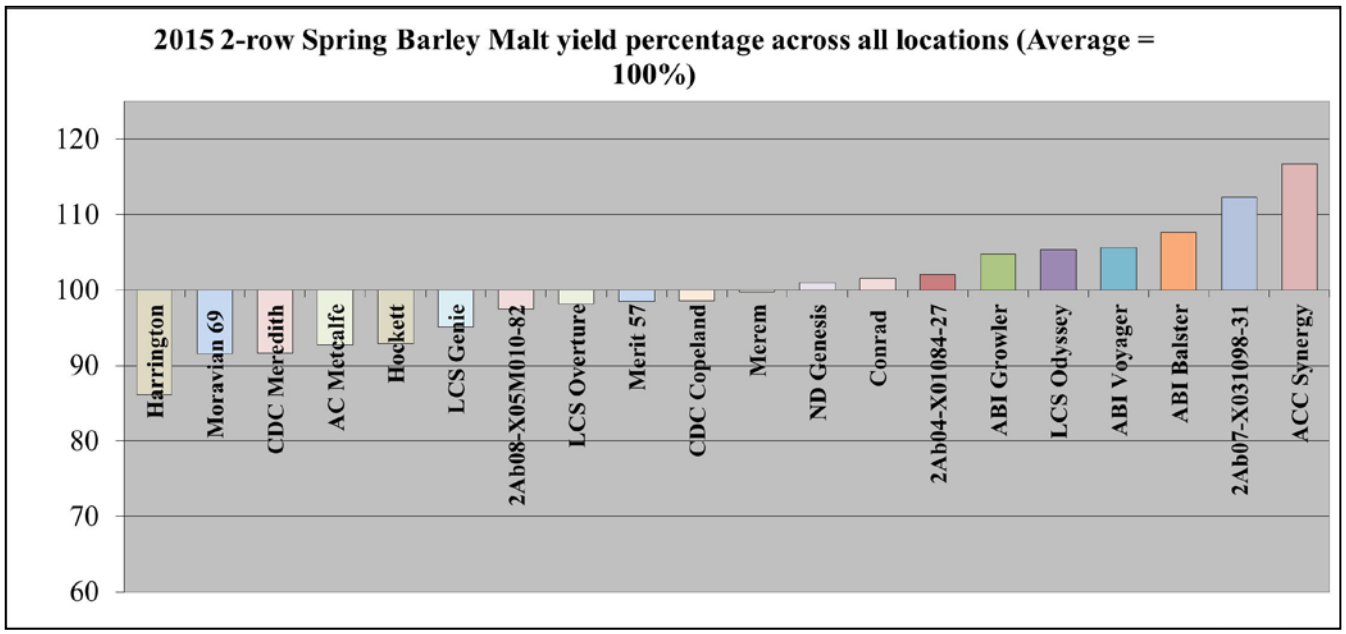


Chart 8. 2-Row Spring Malt Barley Yield Percentage Across All Locations.

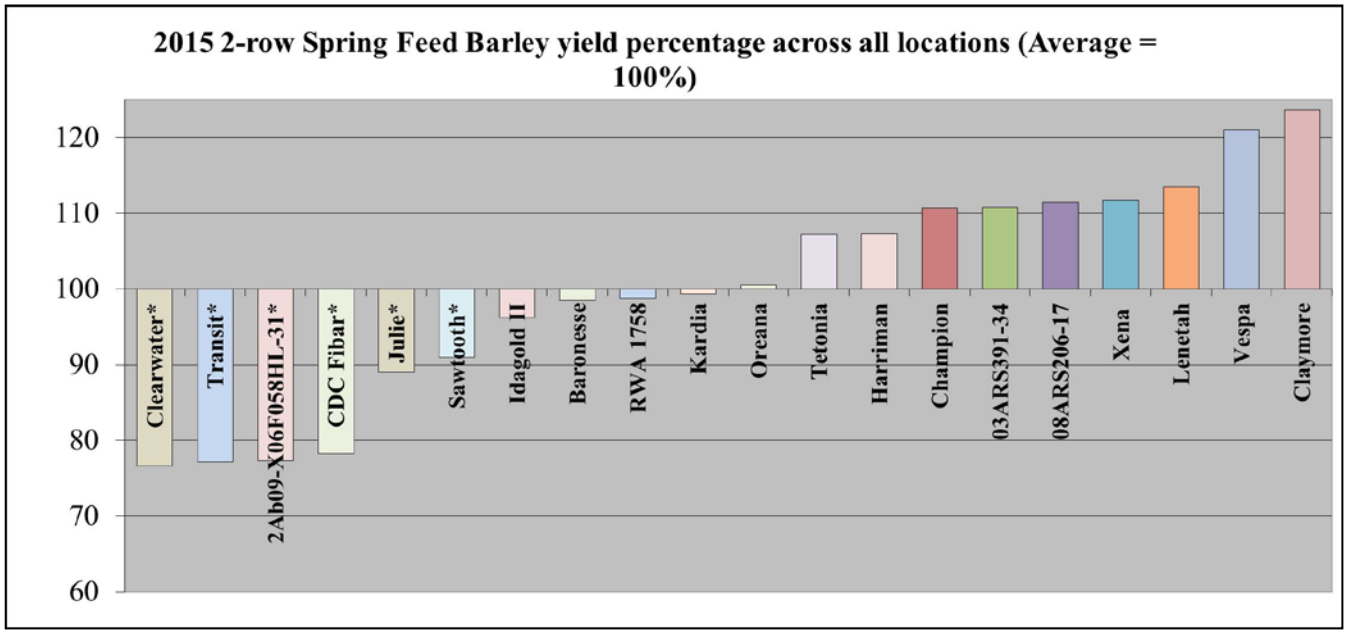


Chart 9. 2-Row Spring Feed Barley Yield Percentage Across All Locations. *indicates hulless variety.

Table 68. Hard Winter Wheat Grain Protein & Kernel Hardness, 2014.

	----------Grain Protein %----------					----------Kernel Hardness 0-100----------				
Variety	**Kimberly**	**Aberdeen**	**Ririe**	**Rockland**	**Average**	**Kimberly**	**Aberdeen**	**Ririe**	**Rockland**	**Average**
DAS001	11.2	12.2	---	---	**11.7**	71	77	---	---	**74.0**
DAS002	11.0	11.7	---	---	**11.4**	57	65	---	---	**61.0**
Garland	11.6	12.0	13.6	10.4	**11.9**	63	64	63.0	74.0	**66.0**
Golden Spike (W)	11.6	12.1	13.1	10.4	**11.8**	58	70	58	69	**63.8**
Greenville	11.5	11.8	12.4	9.9	**11.4**	62	64	51	72	**62.3**
IDO1101 (W)	11.5	12.5	12.4	9.4	**11.5**	72	82	67.0	87.0	**77.0**
IDO1103	11.7	12.6	13.9	9.8	**12.0**	74	86	70	86	**79.0**
Judee	10.9	12.3	13.9	9.9	**11.8**	59	77	65	76	**69.3**
Juniper	12.3	13.1	13.7	10.8	**12.5**	82	82	76	90	**82.5**
Juniper / Promontory	12.6	12.8	12.5	10.9	**12.2**	71	83	68	82	**76.0**
Keldin	10.8	11.5	13.2	9.7	**11.3**	60	71	56	69	**64.0**
LCS Azimut	10.7	10.5	12.1	9.9	**10.8**	63	65	55.0	69.0	**63.0**
LCS Colonia	10.5	11.5	12.1	10.6	**11.2**	54	61	40	60	**53.8**
LCS Evina	11.8	13.0	14.0	11.0	**12.5**	77	81	62	77	**74.3**
Manning	11.8	11.7	12.9	10.7	**11.8**	62	72	64	80	**69.5**
Moreland	10.8	12.7	12.7	10.5	**11.7**	70	79	60.0	73.0	**70.5**
Norwest 553	11.1	12.2	13.2	11.6	**12.0**	64	73	62	79	**69.5**
LCS Jet	10.4	11.1	---	---	**10.8**	59	73	---	---	**66.0**
OR2080236H (W)	10.4	12.7	12.7	10.2	**11.5**	73	91	77	88	**82.3**
OR2100081H	10.6	11.5	13.4	11.6	**11.8**	67	76	67	78	**72.0**
Promontory	10.3	11.5	12.5	10.1	**11.1**	58	72	61	73	**66.0**
UI Silver (W)	11.7	12.0	12.7	9.5	**11.5**	71	79	75	75	**75.0**
Utah 100	11.2	12.1	12.9	10.6	**11.7**	71	84	75.0	80.0	**77.5**
WA8183	11.0	11.5	13.1	11.2	**11.7**	57	60	61	72	**62.5**
Earl (W)	10.7	11.9	12.9	10.5	**11.5**	60.0	69.0	64	77	**67.5**
WB3768 (W)	11.0	12.0	13.2	10.8	**11.8**	68.0	83.0	76	81	**77.0**
WB-Arrowhead	10.7	11.6	12.8	10.6	**11.4**	61.0	71.0	62	72	**66.5**
WB-Arrowhead / Keldin	9.9	11.4	12.6	9.6	**10.9**	57.0	72.0	58	68	**63.8**
Whetstone	10.8	12.0	13.1	9.5	**11.4**	64.0	75.0	63	80	**70.5**
Yellowstone	10.5	11.4	12.9	9.5	**11.1**	61.0	73.0	64	73	**67.8**
Otto (SWW)	---	---	---	10.4	**10.4**	---	---	---	33	**33.0**
Eltan (SWW)	---	---	---	9.7	**9.7**	---	---	---	23	**23.0**
AP503 CL2	---	---	13.3	10.5	**11.9**	---	---	62	74	**68.0**
Bearpaw	---	---	12.8	10.3	**11.6**	---	---	69	83	**76.0**
Curlew	---	---	13.4	9.8	**11.6**	---	---	69	74	**71.5**
Deloris	---	---	13.7	9.7	**11.7**	---	---	68	82	**75.0**
IDO816	---	---	13.1	10.7	**11.9**	---	---	68	87	**77.5**
Juniper / Deloris	---	---	---	10.0	**10.0**	---	---	---	87	**87.0**
Garland/Juniper	---	---	13.6	10.3	**12.0**	---	---	74	84	**79.0**
Lucin-CL	---	---	13.7	10.3	**12.0**	---	---	62	82	**72.0**
SY Clearstone 2CL	---	---	13.3	10.5	**11.9**	---	---	63	83	**73.0**
UI SRG	---	---	13.9	10.1	**12.0**	---	---	75	87	**81.0**
UICF Grace (W)	---	---	13.6	9.8	**11.7**	---	---	78	89	**83.5**
WA8158	---	---	13.8	11.4	**12.6**	---	---	64	82	**73.0**
Weston	---	---	13.4	10.0	**11.7**	---	---	59	71	**65.0**
Location Average	**11.1**	**12.0**	**13.1**	**10.3**	**11.6**	**64.9**	**74.3**	**64.9**	**75.7**	**69.5**

(W) = White

Table 69. Soft White Winter Wheat Grain Protein & Kernel Hardness, 2014.

	--------Grain Protein %--------				----Kernel Hardness 0-100----			
Variety	**Kimberly**	**Aberdeen**	**Ririe**	**Average**	**Kimberly**	**Aberdeen**	**Ririe**	**Average**
Bobtail	8.9	10.0	12.9	**10.6**	13	18	21	**17.3**
Brundage	9.0	10.4	12.4	**10.6**	19	23	16	**19.3**
Bruneau	9.4	10.5	14.1	**11.3**	16	18	19	**17.7**
Eltan	9.4	12.6	15.1	**12.4**	18	34	23	**25.0**
IDN-01-10704A	8.9	11.2	14	**11.4**	21	28	24	**24.3**
IDN-02-08806A	8.8	10.8	13.7	**11.1**	15	23	21	**19.7**
IDN-02-29001A	8.3	11.9	14.4	**11.5**	17	28	24	**23.0**
UI-WSU Huffman	9.7	11.3	15.2	**12.1**	21	31	25	**25.7**
IDN-04-00405B	8.9	11.1	13.8	**11.3**	17	24	13	**18.0**
IDO1108	8.8	11.8	14.2	**11.6**	18	35	25	**26.0**
Kaseberg	7.4	10.2	13.6	**10.4**	13	21	17	**17.0**
Ladd	9.5	11.6	14.8	**12.0**	20	25	24	**23.0**
LCS Artdeco	8.0	10.8	---	**9.4**	12	24	---	**18.0**
LCS Biancor	8.3	10.1	---	**9.2**	15	20	---	**17.5**
LCS Drive	8.1	11.0	---	**9.6**	16	25	---	**20.5**
Madsen	9.2	11.5	14.3	**11.7**	16	23	27	**22.0**
Madsen / Eltan	8.6	12.0	14.6	**11.7**	18	29	24	**23.7**
Mary	8.7	10.7	14.1	**11.2**	21	19	21	**20.3**
OR2080637	8.9	11.9	14.5	**11.8**	19	29	21	**23.0**
OR2080641	8.2	11.4	14.6	**11.4**	16	31	28	**25.0**
OR2090473	8.6	10.6	12.4	**10.5**	12	21	12	**15.0**
Rosalyn	7.6	10.4	13.6	**10.5**	8	24	22	**18.0**
Skiles	9.8	12.4	14.4	**12.2**	18	29	22	**23.0**
Stephens	8.8	11.2	14.3	**11.4**	17	26	24	**22.3**
SY Ovation	8.5	10.4	14.1	**11.0**	16	27	24	**22.3**
SY 107	8.8	11.7	14.1	**11.5**	19	33	21	**24.3**
WB 456	9.2	11.6	14.1	**11.6**	21	29	27	**25.7**
WB 528	9.0	11.7	14	**11.6**	15	26	21	**20.7**
WB-1038CL	8.4	11.4	---	**9.9**	14	26	---	**20.0**
WB-1070CL	9.2	12.2	13.5	**11.6**	14	25	25	**21.3**
WB-Junction	8.3	11.1	---	**9.7**	16	23	---	**19.5**
WB1529	8.9	11.7	---	**10.3**	15	26	---	**20.5**
WB1529/WB-Junction	7.8	11.8	---	**9.8**	13	27	---	**20.0**
LWW10-1073	---	---	15.2	**15.2**	---	---	21	**21.0**
UICF Brundage	---	---	14.1	**14.1**	---	---	17	**17.0**
Otto	---	---	14.8	**14.8**	---	---	24	**24.0**
Location Average	**8.7**	**11.2**	**14.1**	**11.3**	**16.3**	**25.8**	**21.8**	**21.1**

Table 70. Hard Spring Wheat Grain Protein & Kernel Hardness, 2014.

	----------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												
LCS Iron	12.9	13.2	11.8	12.3	---	**12.6**	77	79	72	92	---	**80.0**
Buck Pronto	14.2	14.5	12.9	13.3	---	**13.7**	75	76	71	79	---	**75.3**
Bullseye	13.6	13.1	12.4	13.0	---	**13.0**	79	83	71	85	---	**79.5**
WB9411	13.6	13.4	12.2	13.8	13.6	**13.3**	72	78	71	85	67	**74.6**
Cabernet	12.9	13.0	11.6	12.2	---	**12.4**	64	70	55	68	---	**64.3**
IDO862E	13.4	14.0	11.9	13.9	13.3	**13.3**	79	79	79	90	68	**79.0**
IDO862T	13.6	14.0	12.0	13.0	---	**13.2**	82	80	81	92	---	**83.8**
Jefferson	13.4	13.4	11.6	12.8	13.6	**13.0**	72	81	72	81	72	**75.6**
Kelse	13.7	14.0	11.8	12.8	14.0	**13.3**	77	82	82	95	75	**82.2**
HRS 3361	13.1	13.9	12.1	12.5	---	**12.9**	77	83	72	73	---	**76.3**
HRS 3378	12.9	13.2	11.9	12.4	---	**12.6**	86	90	77	92	---	**86.3**
HRS 3419	12.7	12.9	11.1	11.1	---	**12.0**	79	79	68	85	---	**77.8**
SY Basalt	13.2	12.7	11.5	12.2	---	**12.4**	71	70	56	77	---	**68.5**
SY Coho	13.5	13.6	11.5	12.6	---	**12.8**	79	82	67	82	---	**77.5**
UI Winchester	13.6	13.7	12.1	13.1	13.2	**13.1**	64	70	55	68	59	**63.2**
WA 8166	13.8	---	---	---	---	**13.8**	73	---	---	---	---	**73.0**
WB9229	13.7	13.5	12.4	13.2	---	**13.2**	76	78	69	83	---	**76.5**
Westbred 936	13.6	13.2	11.7	13.6	13.6	**13.1**	66	69	59	66	61	**64.2**
WB9668	14.1	14.6	12.7	14.0	14.6	**14.0**	80	79	71	92	71	**78.6**
Alzada (D)	15.2	14.7	12.4	13.9	---	**14.1**	100	---	99	---	---	**99.5**
Hard White Spring												
Dayn (W)	13.0	13.3	11.4	12.5	13.1	**12.7**	73	84	67	85	73	**76.4**
IDO1202S (W)	13.4	13.7	11.6	12.8	13.1	**12.9**	68	8	69	90	66	**60.2**
UI Platinum (W)	12.3	12.7	11.5	12.9	12.9	**12.5**	58	62	51	66	50	**57.4**
Klasic (W)	12.5	13.1	11.5	12.5	12.6	**12.4**	50	58	51	55	39	**50.6**
LCS Atomo (W)	12.6	12.5	12.2	12.5	13.2	**12.6**	73	85	78	81	78	**79.0**
LCS Star (W)	12.8	12.9	11.6	13.4	13.5	**12.8**	62	70	71	77	73	**70.6**
Snow Crest (W)	13.0	13.5	11.7	13.1	---	**12.8**	54	58	48	52	---	**53.0**
SY Teton (W)	12.5	12.7	---	---	12.5	**12.6**	62	64	---	---	48	**58.0**
WB-Paloma (W)	13.6	14.3	12.5	13.4	---	**13.5**	67	72	63	69	---	**67.8**
Location Average	**13.3**	**13.5**	**11.9**	**12.9**	**13.3**	**13.0**	**72.2**	**72.9**	**68.3**	**79.2**	**64.3**	**72.7**

(W) = White
(D) = Durum

Table 71. Soft White Spring Wheat Grain Protein & Kernel Hardness, 2014.

	--------Grain Protein %--------						--------Kernel Hardness 0-100--------					
Variety	**Rupert**	**Aberdeen**	**Idaho Falls**	**Ashton**	**Soda Springs**	**Average**	**Rupert**	**Aberdeen**	**Idaho Falls**	**Ashton**	**Soda Springs**	**Average**
Alpowa	11.4	10.1	8.6	10.9	14.0	**11.0**	20	26	18	36	30	**26.0**
Alturas	11.4	10.0	8.1	11.0	12.4	**10.6**	15	17	11	25	23	**18.2**
Babe	11.5	9.8	8.4	11.1	12.9	**10.7**	11	14	10	16	16	**13.4**
IDO 851	10.5	9.9	8.6	9.8	12.1	**10.2**	16	14	10	23	12	**15.0**
IDO 852	10.9	10.1	8.0	10.8	13.1	**10.6**	14	15	8	24	20	**16.2**
Penawawa	12.2	12.1	8.8	11.3	14.3	**11.7**	14	19	11	21	23	**17.6**
UI Pettit	10.7	9.4	8.1	10.7	12.6	**10.3**	19	17	13	21	25	**19.0**
UI Stone	10.4	9.8	7.7	10.8	13.3	**10.4**	12	10	6	21	16	**13.0**
Seahawk	11.8	9.9	8.6	10.8	13.1	**10.8**	18	20	19	35	26	**23.6**
WA 8189	12.1	10.1	8.1	11.1	12.6	**10.8**	14	17	14	30	26	**20.2**
WB6121	11.9	11.5	9.4	12.2	13.1	**11.6**	19	21	12	28	17	**19.4**
WB6430	10.8	10.3	7.4	10.4	---	**9.7**	13	17	9	25	---	**16.0**
Location Average	**11.3**	**10.3**	**8.3**	**10.9**	**13.0**	**10.7**	**15.4**	**17.3**	**11.8**	**25.4**	**21.3**	**18.1**

Table 72. Percent flour protein and flour yield for soft white winter wheat at Kimberly, Ririe, and Aberdeen, 2014.

	Flour Protein (%)				Flour Yield (%)			
Variety	**Kimberly**	**Aberdeen**	**Ririe**	**Average**	**Kimberly**	**Aberdeen**	**Ririe**	**Average**
Bobtail	7.4	8.7	11.0	**9.0**	69.8	69.8	64.9	**68.2**
Brundage	6.0	8.1	10.4	**8.2**	67.9	66.1	65.2	**66.4**
Bruneau	6.4	8.3	11.8	**8.8**	68.6	67.3	63.6	**66.5**
Eltan	6.7	10.6	13.4	**10.2**	69.2	67.7	62.0	**66.3**
IDN-01-10704A	6.1	9.7	11.5	**9.1**	69.7	69.7	64.2	**67.9**
IDN-02-08806A	6.4	9.3	11.6	**9.1**	69.8	70.0	64.9	**68.2**
IDN-02-29001A	6.0	10.3	12.0	**9.4**	70.5	69.7	64.8	**68.3**
UI-WSU Huffman	7.0	9.9	13.2	**10.0**	69.6	70.3	62.0	**67.3**
IDN-04-00405B	6.4	9.7	11.5	**9.2**	67.4	67.5	62.0	**65.6**
IDO1108	6.0	10.1	11.5	**9.2**	66.1	66.2	60.8	**64.4**
Kaseberg	4.8	10.5	11.9	**9.1**	66.8	68.8	60.9	**65.5**
Ladd	7.2	8.6	12.6	**9.5**	69.9	66.2	63.2	**66.4**
LCS Artdeco	5.4	9.2	---	**7.3**	66.7	65.6	---	**66.2**
LCS Biancor	5.7	8.8	---	**7.3**	66.7	64.7	---	**65.7**
LCS Drive	5.2	9.1	---	**7.2**	66.1	63.9	---	**65.0**
Madsen	6.7	10.3	12.4	**9.8**	68.3	67.9	62.7	**66.3**
Madsen / Eltan	6.9	10.8	12.8	**10.2**	67.3	67.3	61.2	**65.3**
Mary	6.1	9.9	12.1	**9.4**	69.6	68.4	64.5	**67.5**
OR2080637	6.6	10.1	13.3	**10.0**	69.9	69.3	62.9	**67.4**
OR2080641	6.0	9.6	12.4	**9.3**	68.8	66.6	61.6	**65.7**
OR2090473	6.1	9.3	10.1	**8.5**	67.5	66.4	62.8	**65.6**
Rosalyn	5.5	8.7	10.9	**8.4**	66.5	63.3	60.2	**63.3**
Skiles	7.1	10.6	12.1	**9.9**	66.4	64.7	61.5	**64.2**
Stephens	6.3	9.7	12.4	**9.5**	67.2	65.4	62.8	**65.1**
SY Ovation	6.2	9.5	12.3	**9.3**	66.7	66.0	64.0	**65.6**
SY 107	6.3	9.7	11.6	**9.2**	65.0	63.2	59.0	**62.4**
WB 456	7.1	10.4	12.0	**9.8**	68.9	66.4	63.1	**66.1**
WB 528	6.8	10.3	12.0	**9.7**	67.0	65.4	61.9	**64.8**
WB-1038CL	6.0	10.0	---	**8.0**	68.9	67.6	---	**68.3**
WB-1070CL	7.3	10.2	11.7	**9.7**	67.2	63.2	63.7	**64.7**
WB-Junction	6.9	9.1	---	**8.0**	67.8	63.2	---	**65.5**
WB1529	7.9	10.2	---	**9.1**	64.2	61.4	---	**62.8**
WB1529/WB-Junction	6.8	10.4	---	**8.6**	66.3	64.5	---	**65.4**
LWW10-1073	---	---	13.0	**13.0**	---	---	56.2	**56.2**
UICF Brundage	---	---	11.8	**11.8**	---	---	60.4	**60.4**
Otto	---	---	12.5	**12.5**	---	---	60.8	**60.8**
Location average	**6.4**	**9.7**	**12.0**	**9.3**	**67.8**	**66.5**	**62.3**	**65.3**

Table 73. Percent break flour yield and cookie diameter for soft white winter wheat at Kimberly, Ririe, and Aberdeen 2014.

	Break Flour Yield (%)				Cookie Diameter (cm)			
Variety	**Kimberly**	**Aberdeen**	**Ririe**	**Average**	**Kimberly**	**Aberdeen**	**Ririe**	**Average**
Bobtail	48.2	46.2	48.1	**47.5**	8.9	9.0	8.6	**8.9**
Brundage	48.1	44.2	47.9	**46.7**	9.0	8.8	8.7	**8.8**
Bruneau	49.1	44.5	46.4	**46.7**	9.0	9.4	8.5	**9.0**
Eltan	48.7	41.7	46.4	**45.6**	9.0	8.7	8.2	**8.6**
IDN-01-10704A	50.5	47.9	47.1	**48.5**	8.8	9.1	8.8	**8.9**
IDN-02-08806A	47.0	44.7	46.5	**46.1**	8.8	8.9	8.6	**8.8**
IDN-02-29001A	50.4	47.2	47.3	**48.3**	9.1	8.8	8.5	**8.8**
UI-WSU Huffman	47.2	44.7	43.7	**45.2**	8.9	8.8	8.5	**8.7**
IDN-04-00405B	48.6	45.9	46.6	**47.0**	8.9	8.7	8.5	**8.7**
IDO1108	43.8	40.4	44.9	**43.0**	8.8	8.6	8.6	**8.7**
Kaseberg	50.8	43.0	47.1	**47.0**	8.9	8.7	8.7	**8.8**
Ladd	46.3	47.4	44.0	**45.9**	8.7	9.0	8.6	**8.8**
LCS Artdeco	45.7	43.8	---	**44.8**	8.5	8.5	---	**8.5**
LCS Biancor	49.7	46.5	---	**48.1**	8.8	8.9	---	**8.8**
LCS Drive	46.6	43.4	---	**45.0**	8.9	9.1	---	**9.0**
Madsen	45.6	42.4	42.3	**43.4**	8.6	8.7	8.5	**8.6**
Madsen / Eltan	46.5	43.1	43.8	**44.5**	8.6	8.7	8.5	**8.6**
Mary	46.9	43.6	45.5	**45.3**	8.6	8.8	8.5	**8.7**
OR2080637	54.8	51.8	48.8	**51.8**	9.1	9.1	8.4	**8.9**
OR2080641	44.7	40.2	42.5	**42.5**	8.5	8.8	8.4	**8.6**
OR2090473	48.1	45.2	47.5	**46.9**	8.8	8.8	8.6	**8.7**
Rosalyn	46.0	41.9	44.1	**44.0**	8.8	8.5	8.6	**8.6**
Skiles	47.6	42.9	44.4	**45.0**	9.0	9.0	8.5	**8.8**
Stephens	43.1	39.5	41.0	**41.2**	8.6	8.7	8.5	**8.6**
SY Ovation	44.6	41.5	45.0	**43.7**	8.8	8.8	8.5	**8.7**
SY 107	44.8	40.2	43.1	**42.7**	8.6	9.0	8.5	**8.7**
WB 456	43.8	39.8	41.2	**41.6**	8.8	8.7	8.6	**8.7**
WB 528	45.0	40.8	42.0	**42.6**	8.7	8.5	8.4	**8.5**
WB-1038CL	43.6	40.9	---	**42.3**	8.6	8.6	---	**8.6**
WB-1070CL	43.7	39.1	40.5	**41.1**	8.6	8.5	8.4	**8.5**
WB-Junction	49.6	44.2	---	**46.9**	9.0	9.0	---	**9.0**
WB1529	45.1	39.7	---	**42.4**	8.8	8.7	---	**8.7**
WB1529/WB-Junction	46.3	42.1	---	**44.2**	8.8	8.9	---	**8.8**
LWW10-1073	---	---	39.7	**39.7**	---	---	8.2	**8.2**
UICF Brundage	---	---	45.7	**45.7**	---	---	8.3	**8.3**
Otto	---	---	45.1	**45.1**	---	---	8.4	**8.4**
Location average	**47.0**	**43.3**	**44.8**	**44.9**	**8.8**	**8.8**	**8.5**	**8.7**

Table 74. Percent flour protein and flour yield for soft white spring wheat at Rupert, Aberdeen, Idaho Falls, Ashton, and Soda Springs, 2014.

	Flour Protein (14% mb)						Flour Yield (%)					
Variety	**Rupert**	**Aberdeen**	**Idaho Falls**	**Ashton**	**Soda Springs**	**Average**	**Rupert**	**Aberdeen**	**Idaho Falls**	**Ashton**	**Soda Springs**	**Average**
Alpowa	10.5	8.5	8.0	8.0	11.8	**9.4**	65.5	68.4	67.2	60.1	62.2	**64.7**
Alturas	10.6	8.9	7.8	8.6	9.7	**9.1**	67.6	71.0	68.3	63.1	63.2	**66.6**
Babe	10.5	8.2	8.0	8.4	10.3	**9.1**	64.4	67.5	64.7	56.1	59.0	**62.3**
IDO 851	10.2	9.0	8.2	7.8	9.7	**9.0**	69.0	70.3	67.5	62.8	64.3	**66.8**
IDO 852	10.2	8.7	7.8	8.1	10.5	**9.1**	67.6	70.2	69.2	64.8	64.6	**67.3**
Penawawa	11.2	10.2	8.3	8.3	12.5	**10.1**	61.8	62.8	62.2	54.8	57.2	**59.7**
UI Pettit	10.4	7.9	8.0	8.2	10.5	**9.0**	68.3	69.1	68.2	63.2	66.3	**67.0**
UI Stone	10.1	8.3	7.7	8.1	12.3	**9.3**	68.5	70.5	69.1	64.8	63.9	**67.4**
Seahawk	10.8	8.3	7.8	8.0	11.7	**9.3**	65.1	69.1	66.9	61.0	63.0	**65.0**
WA 8189	11.1	8.4	7.8	8.5	11.0	**9.4**	65.9	70.1	68.9	62.0	64.4	**66.2**
WB6121	11.1	9.7	8.9	9.5	11.9	**10.2**	64.7	65.2	65.0	58.2	62.4	**63.1**
WB6430	10.8	8.9	7.3	7.6	---	**8.7**	68.1	69.4	68.2	62.9	---	**67.2**
Location Average	**10.6**	**8.8**	**8.0**	**8.3**	**11.1**	**9.3**	**66.4**	**68.6**	**67.1**	**61.2**	**62.8**	**65.3**

mb=moisture basis

Table 75. Percent break flour and cookie diameter for soft white spring wheat at Rupert, Aberdeen, Idaho Falls, Ashton, and Soda Springs, 2014.

	Break Flour (%)						Cookie Diameter (cm)					
Variety	**Rupert**	**Aberdeen**	**Idaho Falls**	**Ashton**	**Soda Springs**	**Average**	**Rupert**	**Aberdeen**	**Idaho Falls**	**Ashton**	**Soda Springs**	**Average**
Alpowa	45.6	46.4	45.3	35.8	41.2	**42.9**	8.8	8.7	9.0	8.6	8.5	**8.7**
Alturas	49.0	48.8	48.9	39.7	42.6	**45.8**	8.7	9.0	8.9	8.6	8.5	**8.7**
Babe	45.9	45.2	44.3	38.3	41.3	**43.0**	8.5	8.9	9.1	8.6	8.5	**8.7**
IDO 851	46.0	45.8	46.3	38.2	42.9	**43.8**	8.8	8.8	8.9	8.6	8.6	**8.7**
IDO 852	48.1	46.6	48.5	40.9	43.8	**45.6**	9.0	9.1	9.2	8.8	8.8	**9.0**
Penawawa	44.4	42.2	43.5	36.7	39.9	**41.3**	8.3	8.6	8.8	8.5	8.2	**8.5**
UI Pettit	45.0	44.7	45.7	40.3	42.9	**43.7**	8.7	9.0	9.0	8.8	8.9	**8.9**
UI Stone	47.3	46.4	48.3	44.2	43.8	**46.0**	8.9	8.9	9.1	8.7	8.6	**8.8**
Seahawk	47.0	45.9	45.9	35.1	41.2	**43.0**	8.7	8.9	9.0	8.6	8.5	**8.7**
WA 8189	49.0	46.9	48.2	38.6	43.3	**45.2**	8.5	9.1	9.2	8.5	8.6	**8.8**
WB6121	42.2	41.4	45.3	36.1	41.6	**41.3**	8.6	8.9	8.9	8.6	8.6	**8.7**
WB6430	47.7	46.2	47.6	39.9	---	**45.4**	8.7	9.0	9.1	8.7	---	**8.9**
Location Average	**46.4**	**45.5**	**46.5**	**38.7**	**42.2**	**43.9**	**8.7**	**8.9**	**9.0**	**8.6**	**8.6**	**8.8**

Table 76. Percent flour protein and flour yield for hard winter wheat at Aberdeen, Kimberly, Ririe and Rockland 2014.

	Flour Protein (14% mb)					Flour Yield (%)				
Variety	**Kimberly**	**Aberdeen**	**Ririe**	**Rockland**	**Average**	**Kimberly**	**Aberdeen**	**Ririe**	**Rockland**	**Average**
Hard Red Winter Wheat										
DAS001	10.6	12.5	---	---	**11.6**	65.0	65.6	---	---	**65.3**
DAS002	11.0	12.2	---	---	**11.6**	65.2	64.8	---	---	**65.0**
Garland	10.9	11.9	13.9	9.9	**11.7**	62.6	61.7	62.8	56.3	**60.8**
Greenville	10.7	11.6	12.6	9.6	**11.1**	59.6	58.5	60.3	52.6	**57.8**
IDO1103	11.0	12.4	14.1	9.9	**11.9**	66.1	66.1	67.0	60.7	**65.0**
Judee	10.7	12.3	14.2	10.1	**11.8**	63.3	63.3	64.6	58.1	**62.3**
Juniper	12.4	13.8	14.8	11.1	**13.0**	62.0	63.0	63.5	59.3	**62.0**
Juniper / Promontory	12.1	13.1	13.0	11.3	**12.4**	62.0	63.1	64.4	59.0	**62.1**
Keldin	10.8	12.2	13.6	9.9	**11.6**	63.3	63.0	62.6	59.6	**62.1**
LCS Azimut	10.2	10.7	12.4	9.6	**10.7**	62.7	64.4	60.0	59.6	**61.7**
LCS Colonia	10.4	11.9	12.5	11.4	**11.6**	66.8	65.1	61.4	62.6	**64.0**
LCS Evina	11.3	12.9	14.4	11.3	**12.5**	65.3	63.9	63.2	59.6	**63.0**
Manning	11.5	12.1	13.3	10.6	**11.9**	60.7	63.6	63.5	58.3	**61.5**
Moreland	10.5	12.8	13.1	11.2	**11.9**	63.5	63.4	61.5	57.3	**61.4**
Norwest 553	11.0	11.9	13.0	11.7	**11.9**	64.6	64.3	63.4	61.1	**63.4**
LCS Jet	9.2	11.0	---	---	**10.1**	64.3	64.3	---	---	**64.3**
OR2100081H	9.8	11.4	13.1	11.5	**11.5**	66.6	65.7	63.3	59.5	**63.8**
Promontory	10.0	11.5	13.5	10.1	**11.3**	65.4	65.8	64.5	59.2	**63.7**
Utah 100	10.7	12.0	12.6	10.3	**11.4**	65.1	63.7	62.6	57.2	**62.1**
WA8183	10.8	11.7	13.4	11.3	**11.8**	61.7	61.7	62.7	58.1	**61.0**
WB-Arrowhead	9.5	11.9	13.1	11.2	**11.4**	64.4	66.2	65.4	59.2	**63.8**
WB-Arrowhead / Keldin	10.3	11.0	12.9	10.1	**11.1**	67.5	67.3	64.3	58.9	**64.5**
Whetstone	11.0	11.9	13.6	9.4	**11.5**	64.8	66.6	63.2	59.9	**63.6**
Yellowstone	11.0	11.3	13.4	9.2	**11.2**	65.8	68.1	63.9	60.9	**64.7**
AP503 CL2	---	---	14.2	10.3	**12.3**	---	---	60.1	57.1	**58.6**
Bearpaw	---	---	13.4	9.8	**11.6**	---	---	62.0	62.1	**62.1**
Curlew	---	---	14.4	9.5	**12.0**	---	---	61.7	61.9	**61.8**
Deloris	---	---	14.8	9.3	**12.1**	---	---	63.9	61.3	**62.6**
IDO816	---	---	14.1	10.2	**12.2**	---	---	61.8	59.0	**60.4**
Juniper / Deloris	---	---		9.9	**9.9**	---	---		60.2	**60.2**
Garland/Juniper	---	---	15.0	9.8	**12.4**	---	---	60.0	58.8	**59.4**
Lucin-CL	---	---	15.2	10.1	**12.7**	---	---	63.7	61.7	**62.7**
SY Clearstone 2CL	---	---	14.1	9.9	**12.0**	---	---	59.6	57.2	**58.4**
UI SRG	---	---	14.5	9.6	**12.1**	---	---	60.8	59.2	**60.0**
WA8158	---	---	14.9	11.4	**13.2**	---	---	64.1	60.3	**62.2**
Weston	---	---	15.1	11.0	**13.1**	---	---	61.6	60.8	**61.2**
Location Average	**10.7**	**12.0**	**13.8**	**10.3**	**11.8**	**64.1**	**64.3**	**62.7**	**59.3**	**62.2**
Hard White Winter Wheat										
Golden Spike (W)	11.0	12.3	13.3	10.6	**11.8**	65.9	66.3	66.5	59.5	**64.6**
Earl (W)	10.0	11.8	13.7	10.5	**11.5**	60.6	60.5	60.8	54.5	**59.1**
IDO1101 (W)	10.6	12.4	12.3	9.0	**11.1**	65.5	64.3	63.8	56.8	**62.6**
OR2080236H (W)	10.2	12.4	13.2	10.2	**11.5**	62.2	60.4	59.7	57.4	**59.9**
UI Silver (W)	11.3	11.9	13.1	9.4	**11.4**	62.7	66.0	65.0	59.7	**63.4**
WB3768 (W)	11.1	12.1	13.2	11.0	**11.9**	64.6	63.3	63.1	57.2	**62.1**
UICF Grace (W)	---	---	14.6	9.5	**12.1**	---	---	56.5	54.1	**55.3**
Location Average	**10.7**	**12.2**	**13.3**	**10.0**	**11.6**	**63.6**	**63.5**	**62.2**	**57.0**	**61.0**

mb= moisture basis

Table 77. Bake volume for hard winter wheat at Aberdeen, Kimberly, Rupert, Ririe and Rockland 2014.

	Bake Volume (cc)				
Variety	**Aberdeen**	**Kimberly**	**Ririe**	**Rockland**	**Average**
Hard Red Winter Wheat					
DAS001	1050	925	---	---	**988**
DAS002	900	800	---	---	**850**
Garland	900	900	1100	700	**900**
Greenville	1075	975	1150	675	**969**
IDO1103	975	875	1075	775	**925**
Judee	1075	975	1400	850	**1075**
Juniper	1125	1050	1200	950	**1081**
Juniper / Promontory	1025	1075	1150	875	**1031**
Keldin	925	875	1100	750	**913**
LCS Azimut	850	825	1150	775	**900**
LCS Colonia	975	925	1075	875	**963**
LCS Evina	925	975	1225	900	**1006**
Manning	975	975	1175	900	**1006**
Moreland	1075	1025	1150	700	**988**
Norwest 553	1025	1000	1150	975	**1038**
LCS Jet	950	800	---	---	**875**
OR2100081H	1000	850	1075	950	**969**
Promontory	925	900	1125	800	**938**
Utah 100	1050	925	1125	875	**994**
WA8183	900	925	1175	975	**994**
WB-Arrowhead	1025	875	1050	925	**969**
WB-Arrowhead / Keldin	950	925	1050	825	**938**
Whetstone	975	1025	1175	800	**994**
Yellowstone	1025	950	1075	750	**950**
AP503 CL2	---	---	1250	825	**1038**
Bearpaw	---	---	1000	775	**888**
Curlew	---	---	1050	775	**913**
Deloris	---	---	1150	775	**963**
IDO816	---	---	1050	875	**963**
Juniper / Deloris	---	---	---	825	**825**
Garland/Juniper	---	---	1075	750	**913**
Lucin-CL	---	---	1225	875	**1050**
SY Clearstone 2CL	---	---	1075	750	**913**
UI SRG	---	---	1175	750	**963**
WA8158	---	---	1250	1050	**1150**
Weston	---	---	1225	925	**1075**
Location Average	**986**	**931**	**1140**	**835**	**969**
Hard White Winter Wheat					
Golden Spike (W)	1025	950	1150	875	**1000**
Earl (W)	875	900	1100	825	**925**
IDO1101 (W)	925	900	1050	650	**881**
OR2080236H (W)	975	850	925	800	**888**
UI Silver (W)	1075	1050	1200	875	**1050**
WB3768 (W)	1025	1050	1075	850	**1000**
UICF Grace (W)	---	---	1225	650	**938**
Location Average	**983**	**950**	**1104**	**789**	**954**

Table 78. Percent flour protein and flour yield for hard spring wheat at Rupert, Aberdeen, Idaho Falls, Ashton, and Soda Springs, 2014.

	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												
LCS Iron	13.4	13.3	12.4	12.6	---	**12.9**	61.0	62.3	60.6	55.3	---	**59.8**
Buck Pronto	14.6	14.6	13.9	14.2	---	**14.3**	61.7	62.3	61.1	58.4	---	**60.9**
Bullseye	13.9	13.9	12.7	13.7	---	**13.6**	62.2	66.6	59.1	57.3	---	**61.3**
WB9411	14.6	13.6	12.8	13.8	15.4	**14.0**	58.8	63.0	56.3	55.8	58.7	**58.5**
Cabernet	13.7	14.3	12.7	12.7	---	**13.4**	63.8	67.7	63.5	61.4	---	**64.1**
IDO862E	14.4	15.5	12.8	14.3	14.2	**14.2**	60.1	64.8	61.8	58.6	61.7	**61.4**
IDO862T	14.7	15.4	12.6	13.7	---	**14.1**	59.8	64.8	62.4	55.5	---	**60.6**
Jefferson	14.4	14.1	12.2	12.6	14.9	**13.6**	63.0	67.7	64.3	57.7	63.6	**63.3**
Kelse	14.6	15.3	12.5	13.3	15.5	**14.2**	60.4	64.7	62.7	54.9	60.7	**60.7**
HRS 3361	14.0	14.7	13.2	12.5	---	**13.6**	61.4	66.2	61.4	54.9	---	**61.0**
HRS 3378	13.6	13.6	12.1	12.9	---	**13.1**	58.4	62.2	60.3	51.9	---	**58.2**
HRS 3419	13.6	13.6	11.4	11.2	---	**12.5**	58.2	61.6	60.6	52.2	---	**58.1**
SY Basalt	14.2	13.7	11.9	11.9	---	**12.9**	61.5	65.3	63.8	57.7	---	**62.1**
SY Coho	14.2	14.0	11.9	12.7	---	**13.2**	60.6	63.8	59.6	52.9	---	**59.2**
UI Winchester	15.0	14.9	12.9	14.1	14.8	**14.3**	59.5	64.6	61.0	54.6	60.5	**60.0**
WA 8166	14.8	---	---	---	---	**14.8**	59.4	---	---	---	---	**59.4**
WB9229	14.7	14.7	12.9	13.3	---	**13.9**	58.2	61.1	56.5	50.0	---	**56.4**
Westbred 936	14.2	14.6	12.2	13.7	15.0	**13.9**	64.1	63.4	59.6	47.7	60.4	**59.1**
WB9668	14.8	16.5	13.1	14.5	14.8	**14.7**	61.9	62.3	58.1	57.0	58.7	**59.6**
Location Average	**14.3**	**14.5**	**12.6**	**13.2**	**14.9**	**13.8**	**60.7**	**64.1**	**60.7**	**55.2**	**60.6**	**60.2**
Hard White Spring												
Dayn (W)	14.7	14.7	11.7	13.1	14.6	**13.8**	65.0	64.7	61.9	57.7	63.9	**62.7**
IDO1202S (W)	14.8	13.2	12.0	13.0	15.1	**13.6**	63.8	66.0	63.2	55.4	62.4	**62.2**
UI Platinum (W)	13.7	12.9	12.0	13.5	14.4	**13.3**	67.4	66.6	63.4	62.6	65.8	**65.2**
Klasic (W)	13.6	14.2	11.8	13.1	12.8	**13.1**	67.0	66.9	63.5	59.7	63.8	**64.2**
LCS Atomo (W)	12.8	13.3	11.6	12.4	13.1	**12.6**	62.7	57.6	56.6	52.5	57.7	**57.4**
LCS Star (W)	13.4	12.9	11.8	14.1	14.0	**13.2**	61.9	63.8	61.0	55.3	61.5	**60.7**
Snow Crest (W)	14.9	15.1	12.6	14.4	---	**14.3**	60.8	63.6	60.3	54.8	---	**59.9**
SY Teton (W)	13.0	13.8	---	---	13.7	**13.5**	64.8	65.1	---	---	64.9	**64.9**
WB-Paloma (W)	13.5	14.9	12.6	13.8	---	**13.7**	62.6	61.7	58.7	58.5	---	**60.3**
Location Average	**13.8**	**13.9**	**12.0**	**13.4**	**14.0**	**13.5**	**64.0**	**64.0**	**61.1**	**57.1**	**62.9**	**61.9**

(W) = White

mb= moisture basis

Table 79. Bake volume for hard spring wheat, 2014.

	Bake Volume (cc)					
Variety	**Aberdeen**	**Ashton**	**Idaho Falls**	**Rupert**	**Soda Springs**	**Average**
Hard Red Spring Wheat						
LCS Iron	1050	950	975	1050	---	**1006**
Buck Pronto	1000	925	975	950	---	**963**
Bullseye	1050	1025	1100	1150	---	**1081**
WB9411	1050	1075	1025	1200	1125	**1095**
Cabernet	1150	1125	1125	1125	---	**1131**
IDO862E	1200	1100	1075	1150	1150	**1135**
IDO862T	1175	1025	1000	1150	---	**1088**
Jefferson	1125	1075	975	1100	1150	**1085**
Kelse	1025	1025	1025	1175	1150	**1080**
HRS 3361	1075	975	1025	975	---	**1013**
HRS 3378	1000	975	1000	1000	---	**994**
HRS 3419	1125	850	975	1000	---	**988**
SY Basalt	1100	900	975	1150	---	**1031**
SY Coho	1100	1025	1050	1125	---	**1075**
UI Winchester	1200	1075	1075	1250	1100	**1140**
WA 8166	---	---	---	1275	---	**1275**
WB9229	1175	1025	1025	1200	---	**1106**
Westbred 936	1200	1050	1050	1225	1200	**1145**
WB9668	1400	1125	1100	1300	1250	**1235**
Location Average	**1122**	**1018**	**1031**	**1134**	**1161**	**1088**
Hard White Spring Wheat						
Dayn (W)	1100	1000	925	1100	1175	**1060**
IDO1202S (W)	1000	950	800	1050	1075	**975**
UI Platinum (W)	1125	975	900	1125	1225	**1070**
Klasic (W)	1075	1050	1100	1225	1225	**1135**
LCS Atomo (W)	950	975	1000	1025	1075	**1005**
LCS Star (W)	1025	1150	950	1225	1075	**1085**
Snow Crest (W)	1175	1125	1125	1200	---	**1156**
SY Teton (W)	1150	---	---	1100	1150	**1133**
WB-Paloma (W)	1175	1100	1100	1200	---	**1144**
Location Average	**1086**	**1041**	**988**	**1139**	**1143**	**1085**

(W) = White

Table 80. Winter Wheat Quality Data from Soda Springs, 2014.

Variety	Class	Flour Protein	Flour Yield	Break Flour	Bake Volume	Kernel Hardness	Grain Protein	Cookie Diameter
Brundage	sww	11.0	66.4	46.3	---	16	11.4	8.5
Bruneau	sww	11.3	64.5	42.8	---	20	11.7	8.7
Eltan	sww	11.3	63.8	42.3	---	17	11.8	8.6
Madsen	sww	11.3	64.9	39.2	---	17	12.1	8.5
Madsen / Eltan	sww	11.3	63.6	41.2	---	16	12.2	8.6
Stephens	sww	12.0	60.0	37.7	---	22	12.8	8.5
UICF Brundage	sww	12.4	64.4	36.6	---	39	12.7	8.3
Golden Spike (W)	hww	11.4	65.8	33.5	975	57	11.4	---
Juniper	hrw	13.5	62.0	29.4	1200	76	13.0	---
Juniper / Promontory	hrw	13.4	61.1	34.5	1075	49	12.3	---
Manning	hrw	13.4	63.3	32.6	1125	66	12.3	---
Norwest 553	hrw	12.5	65.4	34.1	975	61	12.2	---
Promontory	hrw	12.0	65.0	32.2	1025	63	11.9	---
Utah 100	hrw	13.9	63.9	33.1	1100	72	13.0	---
Yellowstone	hrw	12.5	60.7	33.5	1050	56	11.8	---
Bearpaw	hrw	14.5	62.3	29.5	1075	72	13.6	---
Deloris	hrw	12.9	64.1	32.6	1100	62	12.5	---
Garland/Juniper	hrw	13.2	62.3	32.0	1075	77	12.9	---
Lucin-CL	hrw	12.3	65.1	35.0	1050	69	12.3	---
UI SRG	hrw	12.9	62.6	31.1	1100	71	12.1	---
UICF Grace (W)	hww	14.0	59.2	30.3	1125	80	13.3	---
Weston	hrw	12.5	64.9	34.4	1125	59	12.5	---
Average		12.5	63.4	35.2	1078	52	12.4	8.5

Table 81. Winter Wheat Quality Data from Idaho Falls, 2014.

Variety	Class	Flour Protein	Flour Yield	Break Flour	Bake Volume	Kernel Hardness	Grain Protein	Cookie Diameter
Brundage	sww	9.5	65.1	44.1	---	12	9.8	8.8
Bruneau	sww	9.6	65.8	44.8	---	12	10.0	8.8
IDO1108	sww	8.9	64.1	43.0	---	15	9.8	8.7
LCS Artdeco	sww	8.9	64.1	43.2	---	9	9.9	8.7
Skiles	sww	9.7	65.3	45.3	---	19	10.9	8.7
Stephens	sww	9.6	64.7	39.2	---	19	10.6	8.5
SY Ovation	sww	9.2	66.0	42.8	---	17	9.7	8.7
WB 456	sww	11.5	63.3	37.2	---	22	12.4	8.4
WB 528	sww	9.7	65.3	40.5	---	18	10.8	8.8
WB-Junction	sww	9.9	62.3	41.4	---	18	11.3	8.8
WB 456 / WB 528 / WB1529	sww	9.3	62.6	41.2	---	13	10.3	8.7
Greenville	hrw	11.9	58.5	30.3	1075	59	11.7	---
Keldin	hrw	11.8	63.1	31.4	1075	52	11.6	---
LCS Azimut	hrw	10.4	65.1	32.7	825	57	10.6	---
LCS Colonia	hrw	11.0	67.3	38.2	975	51	10.5	---
Norwest 553	hrw	11.2	65.6	35.8	975	52	11.3	---
UI Silver (W)	hww	11.3	66.2	34.5	1050	68	11.5	---
WB-Arrowhead	hrw	11.2	65.7	34.5	1000	53	10.9	---
Whetstone	hrw	13.0	62.1	30.9	1175	64	12.3	---
Yellowstone	hrw	12.0	63.9	32.3	1050	62	11.6	---
Average		10.5	64.3	38.2	1022	35	10.9	8.7

Addendum 1. Resistance reaction of winter wheat varieties in a heavily inoculated dwarf bunt *(Tilletia controversa)* nursery, Logan, UT. 2015. Cooperator Dr. David Hole.

0	VR = very resistant
1 - 2	R = resistant
3 - 5	MR = moderately resistant
6 - 15	MS = moderately susceptible
> 15	S = suseptible

Hard Red and White Winter Wheat Variety	2014 bunted heads (%)	2015 bunted heads (%)	DB 2-yr ave (%)	Overall disease rating
Curlew	0	0	0	VR
Deloris	0	0	0	VR
Golden Spike (W)	0	0	0	VR
IDO1101 (W)	0	0	0	VR
IDO1103	0	0	0	VR
Juniper	0	0	0	VR
UI SRG	0	0	0	VR
Utah 100	0	0	0	VR
Eltan	-	0.5	0.5	R
Garland	1	0	0.5	R
UI Silver	1	0	0.5	R
Greenville	1	2.5	1.75	R
Manning	1	2.5	1.75	R
UICF Grace (HW imi)	1	2.5	1.75	R
IDO1209DH (W)	-	2	2	R
Promontory	2	3	2.5	R
OR2110019H	-	3.5	3.5	MR
Weston	5	2	3.5	MR
WB3768 (W)	4	10	7	MS
SY Clearstone 2CL	2	12.5	7.25	MS
Colter	-	12.5	12.5	MS
Yellowstone	8	18.5	13.25	MS
LCS Colonia	20	7	13.5	MS
Earl (WA8184)	15	21.5	18.25	S
WB-Rimrock	-	20	20	S
Lucin-CL	30	12.5	21.25	S
Moreland	40	6.5	23.25	S
OR2100081H	25	21.5	23.25	S
Judee	55	5	30	S
Norwest 553	22	32.5	32.5	S
Keldin	55	11	33	S
DAS001	40	30	35	S
LCS Jet	41	30	35.5	S
LCS Azimut	45	37.5	41.25	S
Bearpaw	43	40	41.5	S
Warhorse	-	45	42	S
Northern	-	42.5	42.5	S
Whetstone	50	50	50	S
Wanser	70	-	70	S

Soft White Winter Wheat Variety	2014 bunted heads (%)	2015 bunted heads (%)	DB 2-yr ave (%)	Overall disease rating
IDO1108	0	0	0	VR
WB523		0	0	VR
SY 96-2	-	0.5	0.5	VR
WB1604	-	0.5	0.5	VR
SY 107	1	0.5	0.75	R
DAS003	-	1.5	1.5	R
UI Castle	-	1.5	1.5	R
WB1529	2	1	1.5	R
Otto	2	1.5	1.75	R
Eltan	4	0.5	2.25	MR
WB 528	3	1.5	2.25	MR
Rosalyn	3	2	2.5	MR
Norwest Duet	-	3	3	MR
UI Magic	-	3	3	MR
LOR-833	-	3.5	3.5	MR
LWW10-1073	4	3.5	3.75	MR
IDN-02-29001A	5	3	4	MR
Bruneau	3	7.5	5.25	MS
LOR-978	-	6.5	6.5	MS
Madsen	10	3.5	6.75	MS
IDO1004	-	7.5	7.5	MS
Stephens	10	5	7.5	MS
DAS004	-	8	8	MS
UICF Brundage	10	6	8	MS
LCS Biancor	3	15	9	MS
OR2080637	15	3.5	9.25	MS
OR2080641	15	3.5	9.25	MS
IDO1005	-	10	10	MS
LOR-913	-	11	11	MS
IDN-01-10704A	18	5.5	11.75	MS
WB1376CLP	17	6.5	11.75	MS
Mary	-	13.5	13.5	MS
WB-Junction	14	17.5	15.75	S
LCS Artdeco	23	11	17	S
UI Palouse	-	18.5	18.5	S
WB 456	32	5	18.5	S
Jasper	-	20	20	S
LOR-334	-	20	20	S
Brundage	18	22.5	20.25	S
UI-WSU Huffman	45	2	23.5	S
SY Ovation	33	15	24	S
LCS Drive	30	22.5	26.25	S
Bobtail	45	22.5	33.75	S
OR2100940	-	35	35	S
Kaseberg	65	29.5	47.25	S
OR2090473	45	55	50	S

Addendum 2. Results from snow mold screening in Tetonia, ID. No inoculation was used and results should be used only as a relative ranking of varieties. Planted Fall 2014, ratings taken spring 2015.

Hard Winter Wheat		Snow mold average rating
entry	Variety	
7	IDO1103	2.5
5	Greenville	3
26	WB-Arrowhead	3
6	IDO1101 (W)	3.25
53	Survivor	3.5
57	WB-Rimrock	3.75
15	Manning	4
12	Keldin	4.5
41	Warhorse	4.5
14	LCS Colonia	5
36	Lucin-CL	5
39	UI SRG	5
51	Blizzard	5
3	Garland	5.5
13	LCS Azimut	5.5
18	Norwest 553	5.5
22	Promontory	5.5
30	Yellowstone	5.5
37	Otto	5.5
10	Juniper	6
17	Northern	6
20	OR2100081H	6
23	SY Clearstone 2CL	6
24	Utah 100	6
28	WB3768 (W)	6
32	Curlew	6
34	Eltan	6
9	Judee	6.25
29	Whetstone	6.25
1	Colter	6.5
4	Golden Spike (W)	6.5
8	IDO1209DH (W)	6.5
31	Bearpaw	6.5
33	Deloris	6.5
42	Weston	6.5
52	IDO444	6.5
16	Moreland	7
19	LCS Jet	7
38	UI Silver	7
40	UICF Grace (HW imi)	7
2	DAS001	7.25
25	WA8184	7.5

Snow mold ratings 1 = healthy and 10 is dead

Soft White Winter Wheat		Snow mold average rating
entry	Entry	
36	Jasper	2.75
1	Bobtail	3
15	Kaseberg	3.5
42	UICF Brundage	3.5
5	DAS004	4
43	Otto	4
34	SY 96-2	4.25
6	Eltan	4.5
13	IDO1005	4.5
28	OR2090473	4.5
30	Rosalyn	4.5
10	IDN-01-10704A	4.75
3	Bruneau	5
14	IDO1108	5
19	LOR-334	5
24	Madsen	5
55	WB523	5
16	LCS Artdeco	5.5
20	LOR-833	5.5
21	LOR-913	5.5
22	LOR-978	5.5
32	SY Ovation	5.5
38	WB 528	5.5
2	Brundage	6
8	UI Magic	6
9	UI Palouse	6
18	Norwest Duet	6
27	OR2080641	6
31	Stephens	6
37	WB 456	6
40	WB1529	6
56	WB-Junction	6
4	DAS003	6.5
12	IDO1004	6.5
33	SY 107	6.5
41	LWW10-1073	6.5
54	WB1604	6.5
7	UI Castle	7
17	LCS Biancor	7
26	OR2080637	7
35	UI-WSU Huffman	7
39	WB1376CLP	7.5
25	Mary	8

Addendum 3. Results from BYDV and PLS symptoms in Ririe, ID, 2015 Extension variety Trials.
Results should be used only as a relative ranking of varieties. Planted Fall 2014, ratings taken spring 2015.

Hard Winter Wheat

entry	Variety	BYD rating	Physiological Leaf Spot
31	Bearpaw	2.7	2.0
1	Colter	2.8	1.0
32	Curlew	3.7	1.0
2	DAS001	2.3	2.5
33	Deloris	2.8	1.8
3	Garland	3.0	2.0
4	Golden Spike (W)	2.9	1.0
5	Greenville	3.3	1.0
6	IDO1101 (W)	3.5	2.3
7	IDO1103	3.4	1.0
8	IDO1209DH (W)	3.3	2.8
9	Judee	2.9	2.8
10	Juniper	2.9	1.8
35	Juniper / Deloris	2.8	2.0
11	Juniper / Promontory	2.6	1.5
13	LCS Azimut	2.9	6.5
14	LCS Colonia	2.8	2.5
19	LCS Jet	2.4	2.3
36	Lucin-CL	2.3	7.0
15	Manning	3.2	1.3
16	Moreland	3.4	1.3
17	Northern (MT0978)	3.4	0.8
18	Norwest 553	2.2	4.5
20	OR2100081H	2.3	1.8
21	OR2110019H	2.4	2.5
22	Promontory	3.0	2.5
23	SY Clearstone 2CL	2.7	8.0
38	UI Silver	3.6	1.3
39	UI SRG	3.3	1.8
40	UICF Grace (HW imi)	2.1	3.3
24	Utah 100	3.4	1.8
25	WA8184	2.5	1.8
41	Warhorse	3.4	3.0
26	WB-Arrowhead	2.9	2.0
27	WB-Arrowhead / Keldin	3.3	2.0
28	WB3768 (W)	3.5	1.0
42	Weston	2.7	1.0
29	Whetstone	3.1	2.0
30	Yellowstone	3.6	2.8
	average	3.0	2.3
	LSD	0.4	1.1
	cv	10.4	32.9
	p>f	<.0001	<.0001

Soft White Winter Wheat

entry	Variety	BYD rating	Physiological Leaf Spot
1	Bobtail	2.8	1.3
2	Brundage	2.9	1.3
3	Bruneau	2.8	1.5
4	DAS003	2.7	2.0
5	DAS004	2.4	1.3
6	Eltan	2.8	2.8
10	IDN-01-10704A	2.6	1.3
11	IDN-02-29001A	2.2	2.3
12	IDO1004	2.2	2.0
13	IDO1005	2.9	1.3
14	IDO1108	2.9	1.3
36	Jasper (WA8169)	3.2	1.0
15	Kaseberg	2.9	4.0
19	LOR-334	3.4	3.0
20	LOR-833	2.8	2.5
21	LOR-913	2.1	2.3
22	LOR-978	3.3	1.5
43	LWW10-1073	2.7	1.3
24	Madsen	3.1	1.8
41	Madsen / Eltan	2.9	2.0
25	Mary	2.5	2.3
18	Northwest Duet	2.9	1.0
26	OR2080637	2.4	3.3
27	OR2080641	2.9	1.0
28	OR2090473	2.9	2.0
29	OR2100940	2.9	1.8
45	Otto	2.8	3.3
30	Rosalyn	2.8	2.0
31	Stephens	2.4	1.5
7	UI Castle CLP	2.8	1.0
8	UI Magic CLP	3.2	1.3
9	UI Palouse CLP	2.8	2.3
35	UI-WSU Huffman	2.9	1.5
44	UICF Brundage	2.9	3.5
37	WB 456	2.3	1.8
39	WB1376CLP	2.3	2.8
	average	2.8	1.9
	LSD	0.5	0.8
	cv	12.6	28.3
	p>f	<.0001	<.0001

BYD symptoms rated on a 1 (clean) to 10 (dead) scale
PLS rated on a 1 (clean) to 10 (dead) scale

Addendum 4. Results from the 2015 FHB Screening nursery, Aberdeen, ID, where plots were incoulated with corn spawn colonized with *Fusarium graminearum* . Results are based on one year's data. Rankings may change from year to year and with high disease pressure.

2015 Fusarium Head Blight disease index of hard spring wheat varieties. Lines with the same letter behind the rating are not signfcantly different. Plots were inoculated in Aberdeen.

Variety	FHB* Index		Overall Rating
Durum			
Alzada (D)	17.7	e-o	S
Hard red spring			
HRS 3419	7.1	l-o	MR
HRS 3504	8.7	k-o	MR
LCS Iron (11SB0096)	8.9	k-o	MR
Cabernet	9.3	k-o	MR
HRS 3530	9.5	k-o	MR
WB9411	10.0	j-o	MR
WB9229	11.6	i-o	MR
SY Coho (40292R)	16.3	f-o	MR
SY Basalt	20.0	d-n	MS
Kelse	20.4	c-n	MS
Bullseye	21.2	c-m	MS
UI Winchester	22.6	c-k	MS
WB9668	27.1	b-h	S
SY Selway (SY3001-2)	29.4	a-g	S
IDO862E	32.2	a-e	S
Jefferson	33.6	a-d	S
Hard white spring			
IDO1202S	13.9	g-o	MR
10SB0087-B	14.5	g-o	MR
UI Platinum	15.8	g-o	MR
SY Teton (SY-10136)	19.4	d-n	MS
Dayn	19.9	d-n	MS
IDO1203	19.9	d-n	MS
LCS Star	23.9	c-k	MS
WB7328	27.6	b-h	S
LCS Atomo	31.5	a-f	S
WB7589	34.1	a-d	S
Snow Crest	39.2	abc	S
WB-Paloma	42.3	ab	VS
Klasic	44.4	a	VS

Data analyzed using PROC GLYMMIX in SAS

*FHB index = (% Severity x % Incidence)/100

0	VR = very resistant
1 - 2	R = resistant
3 - 17	MR = moderately resistant
18 - 25	MS = moderately susceptible
26 - 40	S = suseptible
41 - 100	VS = very susceptible

2015 Fusarium Head Blight disease index of soft white spring wheat varieties. Lines with the same letter behind the rating are not signfcantly different.

Variety	FHB* Index		Overall Rating
Soft white spring			
IDO 851	3.2	o	MR
M12001	5.2	mo	MR
Alpowa	6.2	mno	MR
Seahawk	6.6	l-o	MR
Alturas	12.5	h-o	MR
UI Stone	14.3	g-o	MR
WA 8189	14.9	g-o	MR
Alum	20.7	c-n	MS
Diva	22.0	c-l	MS
Babe	25.5	c-j	S
WB6430	25.8	c-i	S
WA 8214	26.9	b-i	S
UI Pettit	37.0	abc	VS

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Addendum 4. Results form the FHB Screening nursery, Aberdeen, ID, where plots were incoulated with corn spawn colonized with *Fusarium graminearum* .

2015 Fusarium Head Blight disease index of spring barley varieties. Lines with the same letter behind the rating are not signfcantly different. Plots were inoculated in A

*FHB index = (% Severity x % Incidence)/100

0	R = resistant
1 - 2	MR = moderately resistant
3 - 5	MS = moderately susceptible
6 - 15	S = suseptible
15 - 40	VS = very susceptible

Variety	FHB* Index		Overall Rating
Two-row feed			
RWA 1758	0.6	ij	MR
Vespa	1.7	hij	MR
Champion	1.8	f-j	MR
03ARS391-34	2.1	f-j	MS
Xena	2.3	e-j	MS
Clearwater (hulless)	2.4	e-j	MS
Baronesse	2.7	e-j	MS
Claymore	2.8	e-j	MS
Sawtooth	4.8	d-j	MS
08ARS206-17	5.7	c-j	S
2Ab08-X05M010-82	5.8	c-j	S
Oreana	6.6	c-i	S
Idagold II	7.1	c-h	S
Lenetah	8.0	c-f	S
Harriman	8.3	cde	S
Tetonia	11.7	bc	S
Six row feed			
2Ab04-X01084-27	1.5	hij	MR
Menan (01Ab9663)	1.8	f-j	MR
Millennium	4.7	d-j	MS
Herald	7.5	c-g	S
UT2183-85	10.8	bcd	S
UT10901-66	17.5	ab	S
Goldeneye	19.9	a	VS
Two-row food			
2Ab07-X031098-31	1.0	hij	MR
CDC Fibar (hulless)	4.1	e-j	MS
2Ab09-X06F084-31	11.5	bc	S
Julie (hulless)	11.8	bc	S
Kardia (2Ab09-X06F08	14.8	ab	S
Transit	17.8	ab	VS

Data analyzed using PROC GLYMMIX in SAS

This material is based

2015 Fusarium Head Blight disease index of barley varieties. Lines with the same letter behind the rating are not signfcantly different.

Variety	FHB* Index		Overall Rating
Two-row malt			
Conrad	0.6	ij	MR
Harrington	1.0	hij	MR
Hockett	1.4	hij	MR
ND Genesis	1.6	hij	MR
AC Metcalfe	2.3	e-j	MS
ABI Growler	2.8	e-j	MS
CDC Copeland	2.9	e-j	MS
Moravian 69	3.2	e-j	MS
ABI Voyager	3.2	e-j	MS
LCS Genie	3.3	e-j	MS
Merem	3.4	e-j	MS
Merit 57	3.7	e-j	MS
ACC Synergy	4.1	e-j	MS
LCS Overture	4.5	e-j	MS
ABI Balster	4.6	e-j	MS
LCS Odyssey	5.8	c-j	MS
CDC Meredith	8.0	c-f	S
Six-row malt			
Quest	0.2	j	MR
Lacey	1.5	hij	MR
Tradition	2.5	e-j	MR
Celebration	2.8	e-j	MR

Addendum 6. Summary of spring wheat tolerance and resistance traits for data grouped over two years. Reaction of soft white spring wheat and hard spring wheat to soils heavily infested with cereal cyst nematode (CCN) near St. Anthony, ID.

Cultivar	White females/ plant [v]	Resistance rating [w]	Yield increase [x] (%)	Tolerance rating [y]	MR + MT [z]
Soft white					
LCS Star	2.6	R	15.5	MI	
Cataldo	5.2	MR	39.1	I	
Alpowa	8.9	MS	7.1	T	
UI Stone	11.1	MS	18.7	MI	
Babe	15.7	S	20.4	MI	
LCS Iron	16.1	S	24.1	MI	
UI Pettit	19.7	S	17.7	MI	
WB6121	20.5	S	11.6	MT	
Penawawa	21.7	S	17	MI	
Alturas	25.0	S	16.1	MI	
Seahawk	26.6	VS	17.2	MI	
WB6430	28.9	VS	14.5	MT	
Hard red and hard white					
WB-Rockland	1.5	R	14.5	MT	X
Klasic (W)	4.4	MR	15	MT	X
Dayn (W)	7.5	MS	14.3	MT	
Jefferson	7.7	MS	38.7	I	
WB9576	7.8	MS	5.8	T	
UI Platinum	8.9	MS	20.7	MI	
WB9229	10.4	MS	26.6	MI	
Choteau	11.9	MS	18.3	MI	
Glee	12.4	S	16.9	MI	
Kelse	13	S	18.3	MI	
Cabernet	15.2	S	21.7	MI	
WB-Idamax (W)	16.2	S	22.4	MI	
UI Winchester	19.3	S	19.7	MI	
Blanca Grande (W)	20.8	S	10.4	MT	
Alzada	21.4	S	12.5	MT	
Bullseye	24.2	S	16.6	MI	
SY Basalt	24.7	S	23.8	MI	
Snow Crest (W)	26	VS	23.7	MI	
WB-Paloma (W)	26.2	VS	25.8	MI	
Volt	31.2	VS	35.4	I	
Westbred 936	60.8	VS	41.9	I	

[v] Number of *H. avenae* white females produced/plant for the control (no-nematicide) treatment.

[w] Cultivars were rated as very resistant (VR; ≤1 swollen female/plant), resistant (R; 1.1 to 3), moderately resistant (MR; 3.1 to 6), moderately susceptible (MS; 6.1 to 12), susceptible (S; 12.1 to 25), or very susceptible (VS; >25).

[x] Percentage increase in grain yield due to application of nematicide.

[y] Tolerance ratings were very tolerant (VT; <5% yield response to nematicide), tolerant (T; 5 to 10%), moderately tolerant (MT; 10 to 15%), moderately intolerant (MI; 15 to 30%), intolerant (I; 30 to 50%), or very intolerant (VI; >50%).

[z] Cultivars that were neither resistant nor tolerant but which met a balanced criteria of being at least both moderately resistant (≤6% swollen females/plant) and moderately tolerant (≤15% yield increase with nematicide).

Addendum 7. Spring barley tolerance and resistance to cereal cysts nemtaode (CCN) *Heterodera avenae* ; data are means of trials conducted during two successive years near St. Anthony, ID.

Market class and culti[v]	White females[1]	Resistance rating[2]	Yield increase[3]	Tolerance rating[4]	MR + MT[5]
2-row feed barley					
Lenetah	2.6	R	9.8	T	X
Xena	3.4	MR	5.4	T	X
CDC Fibar (hull-less)	4.4	MR	18.2	MI	
Idagold II	4.5	MR	10.6	MT	X
Transit	4.5	MR	10.5	MT	X
Champion	5.9	MR	7.2	T	X
Julie	6.2	MS	1.5	VT	
Baronesse	6.2	MS	8.7	T	
RWA 1758	6.3	MS	4.7	VT	
Clearwater	7.3	MS	23.1	MI	
CDC McGwire	8.6	MS	11.8	MT	
Vespa	10.1	MS	3	VT	
Tetonia	13.1	S	4.6	VT	
Spaulding	14.5	S	12.1	MT	
2-row malt barley					
Odyssey	0.9	VR	15.5	MI	
Conrad	9.8	MS	16.8	MI	
Merem	11.8	MS	5.6	T	
ABI Balster	12.2	S	1.5	VT	
Meredith	13.8	S	13.6	MT	
Merit	15.3	S	3.8	VT	
Metcalf	16.5	S	16.8	MI	
Overture	17.1	S	9.1	T	
Pinnacle	19.1	S	6.9	T	
Copeland	19.4	S	4.4	VT	
Harrington	20.8	S	10.3	MT	
Hockett	24.1	S	16.6	MI	
Merit 57	26.4	VS	6.5	T	
Genie	33.6	VS	10.7	MT	
ABI Voyager	38.6	VS	19	MI	
6-row feed barley					
Millenium	5	MR	2.6	VT	X
Steptoe	5.3	MR	17.2	MI	
Goldeneye	5.5	MR	13.8	MT	X
Herald	10.5	MS	5.6	T	
6-row malt barley					
Legacy	3.8	MR	27.2	MI	
Tradition	5.6	MR	20.8	MI	
Quest	6.4	MS	3	VT	
Celebration	6.4	MS	30.5	I	
Menan	7.8	MS	0.8	VT	
Morex	10.2	MS	17.6	MI	

[v] Number of *H. avenae* white females produced/plant for the control (no-nematicide) treatment.

[x] Percentage increase in grain yield due to application of nematicide.

Web Resources for Southcentral and Southeast Idaho Grain Production