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2010 Small Grain and Grain Legume Report

Northern Idaho Small Grain and Grain Legume Research and Extension Program

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Cover photo - Emerging spring peas in a direct-seeded field near Moscow, Idaho. Photo by Doug Finkelnburg

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Kyle Morschek- Genesee
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Ron Stone -Craigmont
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ProGene
Primeland Coop.
Connell Grain Growers
Limagrain
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Introduction

This report summarizes the performance of winter wheat, spring wheat, spring barley, spring pea, lentil and chickpea cultivars tested in extension variety trials conducted in northern Idaho during the 2009-2010 crop season. The variety trials were located in cooperators' fields at 11 test sites in Idaho, Lewis, Nez Perce, Latah and Boundary counties.

Plant breeding and extension testing programs strive to increase yield potential through enhanced disease and insect resistance, winter hardiness, straw strength and other agronomic factors. In addition, varieties are developed for improved end-use quality and new markets. A more detailed description of variety development, cooperative extension testing and evaluation, and seed production programs is given in the University of Idaho publication CIS 976 titled, "Small Grain Variety Development and Adaptation in Idaho". Additional information about the varieties can be found in the 2005 Idaho Certified Seed Selection Guide for Some Varieties of Winter Wheat (PR 311), 2006 Spring Wheat (PR 327), 2006 Spring Barley (PR 328), and 2004 Peas, Lentils and Chickpeas (PR 318). Additional variety performance data for northern Idaho and the rest of the state can be viewed at the website http://www.ag.uidaho.edu/cereals/. In Idaho, public varieties are evaluated for general adaptation in regional testing programs. The northern Idaho Extension variety-testing program evaluates the relative performance of cereal and legume varieties grown in various northern Idaho environments under a range of commercial production conditions. Breeding lines that have shown promise through regional, public and private testing programs were evaluated along with leading commercially released varieties.

Increases in field crop yield are the result of a combination of improved agronomic practices and advances in variety development. Trials reported in this publication help producers compare new cultivars with widely grown cultivars using field production practices common for their area. The information provided represents crop performance results from specific locations, production practices, and environmental conditions. Relative performance of varieties can change when tested under other environments and production practices. Evaluation of any variety included in these trials should not be construed as recommending any variety over varieties not included in the trials.

Cereal Test Procedures

Five winter cereal trials were established in northern Idaho during the fall of 2009 and seven spring cereal trials were seeded in the spring of 2010. For each crop, the seeding rate for all entries was a common number of seeds planted per square foot. These rates were determined by weighing 200 seeds of each cereal cultivar. Winter wheat and spring barley were planted at 24 seeds per square foot; spring wheat at 28 seeds. Winter and spring wheat seed was treated with Dividend Extreme at 1 ounce/100 pounds; spring barley seed was treated with Raxil-Thiram at 4 ounces/100 pounds. Plots were planted 15 feet long on 5-foot centers with 7 rows, 7-inches apart, except for trials with direct seeding. Direct seeded trials had five paired rows with 3-inch spacing and 10-inch from center to center of pairs. Typical cereal seeding depth varied from 1 to 1.5 inches depending on soil texture and moisture conditions. All trials were replicated four times in a lattice design. After plants were well established, plots were cut back to approximately 11.5 feet in length by application of glyphosate using a tractor-mounted, shielded sprayer. All trials were established and maintained primarily under "grower management" conditions. Fertilizers and pesticides used in the trials are listed in Table 1 for the sites where the information was reported. Planting and

harvesting operations by University of Idaho personnel were timed to approximately coincide with the cooperator's operations.

Each small grain entry at each location was evaluated for grain yield, test weight, plant height, and lodging. Lengths were measured on all plots after trimming to determine individual plot area. Cereal seed yields were reported in bushels per acre, using the standard 60 pounds per bushel conversion for wheat and 48 pounds per bushel for barley. Winter and spring wheat protein and kernel hardness were determined on samples that were composited from the four replications at each site. Wheat whole grain protein at 12% moisture was measured at the University of Idaho Wheat Quality Laboratory at Aberdeen using Near Infrared Spectrometry (NIRS) technology. Kernel hardness was also determined by NIRS. Values under 50 indicate soft wheat, and values above 50 indicate hard wheat. Cereal test weight is reported in pounds per standard bushel. Cereal plant height is inches from the soil surface to the tip of the heads, awns excluded.

Lodging was determined for all cereals. Area affected was scored from 1 to 100, with 1 equal to no lodging and 100 being completely lodged. Severity of lodging was scored from 1 to 5, with 1 equal to upright and 5 being bent flat. The product of the two scores was adjusted to a scale of 0 to 100 to reflect percent lodging. Percentage grain plumps and thins were measured for barley only. Plumpness is the percent of the sample that stayed on top of a 6/64-inch slotted screen after shaking. Thin percentage is the portion of the sample that went through a 5.5/64-inch slotted screen.

Legume Test Procedures

In the spring of 2010, spring pea and lentil trials were seeded near Nez Perce, Genesee and Moscow. A chickpea trial was conducted at the University of Idaho's Parker farm in Moscow. For each legume cultivar, 100 seeds were weighed and seeding rates calculated to give a planting density of pea at 8 seeds, lentil at 9 seeds, and chickpea at 6 seeds per square foot. Spring pea and lentil seed were treated with an Apron, Cruiser, and Maxim mix at 2 ounces/100 pounds; and chickpea seed was treated with Garb mix (Apron, Cruiser, Maxim and LSP) at 2.5 ounces/100 pounds. Legume plots were established in dimensions and manner similar to the cereal trials except that the legume plots were planted at 20-ft lengths and cut back to 15-ft. Planting depths were 1 to 2 inches for lentil and 2 to 2.5 inches for pea and chickpea. Sites were hand weeded to supplement chemical control. Legumes were evaluated for seed yield, plant height, and 100-seed weight. Seed yields were expressed as pounds per acre. Lentil or chickpea plant heights or pea vine lengths were measured from soil surface to end of growing point on the main tiller. Pea canopy heights were measured from the soil surface to the average tall point in the canopy approximately three weeks prior to harvest.

Statistical Interpretation

Crop class averages are shown within the body of the data tables and overall trial average is shown at the bottom of the table. The least significant difference (LSD) and the coefficient of variation (CV) are listed. The LSD 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 column differ by the LSD value or greater, they may be considered different with a confidence level of 95%. If the measured values are less than the LSD value, the differences may be due to random error rather than real differences. If no

significant statistical differences were found among cultivars, NS is shown for the LSD. Where data represent cultivar means across locations or years, an approximation of a combined LSD was calculated. Coefficient of variation (CV) is also included in the tables. This is given as a general measurement of the precision of each experiment. Lower CV percentage values indicate less experimental variation and greater precision. CV values were not averaged across trials or years. No LSD or CV is presented for wheat protein or hardness data from composited samples.

When making cultivar choices, try to evaluate as much performance data as possible. Make comparisons across years and locations. In addition to yield, also consider other characteristics, such as end use quality, disease and insect resistance, lodging tendency, maturity, plant height, winter hardiness, test weight, and any others you deem important. Grain quality of wheat varieties is listed on the Idaho Wheat Commission website: www.idahowheat.org under "Preferred Varieties".

Growing Conditions and Factors Affecting Trials

Fall cereal trials were seeded during October 2009. Winter wheat trials established well at all locations but a late November cold snap affected exposed wheat at higher elevations. Late winter and early spring were warmer than is typical, encouraging vigorous cereal growth as summer began. Heavy stripe rust occurred across the Palouse in early summer, including a new stripe rust race that overcame some previously resistant lines of wheat. Stripe rust problems were compounded by cool early-summer conditions that prevented high-temperature-adult-plant-resistance (HTAP)genes in certain varieties to activate. The average winter wheat yield over all locations in 2009-2010 was 15 bushels/acre higher than the average yield over the previous three crop years.

Spring trials were seeded between April 19 and May 14 (see Table 1). Early planting was possible at lower elevations due to dry soil conditions. Heavy rains arrived toward the end of the planting season, mobilizing certain post-plant, pre-emergent herbicides into the root-zone and creating a sprouting environment with excessive soil-moisture for many acres of legumes. The spring wheat and spring barley yields were generally well above average. Spring wheat yields in 2010 were 15 bushels/acre higher than the previous 3-year average, and spring barley was 27 bushels/acre higher than the previous 3-year average. Specific management practices for individual trials are listed in Table 1.

Trial Locations, Management and Varieties Tested

Table 1. 2009-2010 Northern Idaho Extension variety trial site management information.

County	Nursery Location	Crops[1]	Planting Date	Harvest Date	Previous Crop	Fertilizer N-P-K-S(lb/A)	----Chemical---- Name(s)	Rates(s)
Lewis	Craigmont	SW & SB	4/20/2010	8/27/2010	W. Wheat	100-28-0-29	Orion MCPA Ester	17 oz./A 10 oz./A
Lewis	Craigmont	SP & SL-DS	5/14/2010	9/27/2010	W. Wheat	None	BMP[2]	
Lewis	Craigmont	WW	10/8/2009	8/27/2010	W. Wheat	BMP[2]	BMP[2]	
Nez Perce	Tammany	WW	10/5/2009	7/29/2010	S. Fallow	110-15-0-12	Powerflex Affinity Broad Sp. Brox M AMS	3.5 oz./A 0.8 oz./A 1 pt./A 12 lb./100gal
Nez Perce	Genesee	SW & SB	4/19/2010	8/20/2010	W. Wheat	139-28-0-29	Huskie Axial TBC	11 oz./A
Nez Perce	Genesee	WW	10/5/2009	8/5/2010	W.Wheat	BMP[2]	BMP[2]	
Latah	Moscow	SP & SL	4/26/2010	8/10/2010	S. Barley	None	Warrior	3.5 oz./A
Latah	Moscow Parker Farm	WW-DS	10/7/2009	8/19/2010	S. Pea	139-28-0-29	Roundup RT Huskey Affinity BroadSpec	20 oz/A Pre 11 oz/A 0.5 oz/A
Latah	Moscow Parker Farm	SP&SL-DS	5/10/2009	8/18/2010	S. Barley	None	Roundup Metribuzin	32 oz/A Pre 6 oz/A
Latah	Moscow Parker Farm	CP	5/10/2010	9/28/2010	S. Barley	None	Roundup	20 oz/A Pre
Latah	Moscow Parker Farm	SB-DS	5/10/2010	8/25/2010	W. Wheat	139-28-0-29	Roundup	20 oz/A Pre

1- CP-Chickpea, SP- Spring Pea, SL-Spring Lentil, SW-Spring Wheat, SB-Spring Barley, WW-Winter Wheat, DS-Direct Seed.

2- BMP - Recommended best management practice rates of chemical application assumed. Cooperator survery not received at time of publication.

Table 1 (continued). 2009-2010 Northern Idaho Extension variety trial site management informatio

County	Nursery Location	Crops[1]	Planting Date	Harvest Date	Previous Crop	Fertilizer N-P-K-S(lb/A)	----Chemical---- Name(s)	Rates(s)
Latah	Genesee	SP-DS	5/5/2010	8/24/2010		None	Roundup Dimethoate Warrior	16 oz/A Pre 3/4 pt/A 1 1/2 oz./A
Latah	Genesee	SL-DS	5/10/2010	8/24/2010		None	Roundup Dimethoate Warrior	16 oz/A Pre 3/4 pt/A 1 1/2 oz./A
Boundary	B. Ferry	WW	10/11/209	9/14/2010		BMP[2]	BMP[2]	
Boundary	B. Ferry	SW + SB	4/15/2010	9/14/2010		BMP[2]	BMP[2]	

1- CP-Chickpea, SP- Spring Pea, SL-Spring Lentil, SW-Spring Wheat, SB-Spring Barley, WW-Winter Wheat, DS-Direct Seed.

2- BMP - Recommended best management practice rates of chemical application assumed. Cooperator survery not received at time of publication.

Table 2. Released varieties tested in Northern Idaho Extension variety trials in 2009-2010

Variety	Experimental No.	Released	Developer(s) of variety
Soft white winter wheat			
Bitterroot	ID 92-22407A	2007	University of Idaho, USDA/ARS
Bruneau	ID 93-64901A	2009	University of Idaho, USDA/ARS
Brundage 96	ID-B-96	2001	University of Idaho, USDA/ARS
IDO 587	IDO 587	2002	University of Idaho, USDA/ARS
IDO 655	IDO 655	2009	University of Idaho, USDA/ARS
Lambert	ID 85-153	1993	University of Idaho, USDA/ARS
Madsen	WA 7163	1988	Washington State University, USDA/ARS
ORCF-101	OR2010051	2002	Oregon State University, USDA/ARS
ORCF-102	OR2010007	2004	Oregon State University, USDA/ARS
ORCF-103	ORI2042037	2008	Oregon State University, USDA/ARS
Simon	ID 91-34302A	2002	University of Idaho, USDA/ARS
Stephens	OR 65-116	1977	Oregon State University, USDA/ARS
Tubbs 06	OR 939526 - re-select	2006	Oregon State University, USDA/ARS
Xerpha	WA7973	2008	Washington State University, USDA/ARS
Skiles	ORH010085	2007	Oregon State University, USDA/ARS
UICF-Brundage	ID 02-859	2009	University of Idaho, USDA/ARS
UICF-Lambert	ID 99-435	2008	University of Idaho, USDA/ARS
WB 528	BZ 6W98-528	2004	WestBred, LLC, Bozeman, MT
AP Legacy	ORF2BC9800267-0	2009	Syngenta Cereals
AP Badger	Rem Pop 80-3	2010	Syngenta Cereals
Winter club wheat			
Cara	ARS97135-9	2007	Washington State University, USDA/ARS
Chukar	WA 7855	2001	Washington State University, USDA/ARS
Coda	WA 7752	1998	Washington State University, USDA/ARS
Hard winter wheat			
Boundary (HR)	IDO 467	1997	University of Idaho, USDA/ARS
Bauermeister (HR)	WA 7939	2005	Washington State University, USDA/ARS
Esperia (HR)			AllStar. Inc.
MDM (HW)	WA 7936	2005	Washington State University, USDA/ARS
Norwest 553 (HR)	ORN00B553	2007	OSU, USDA/ARS with Nickerson, UK
Soft white spring wheat			
Alturas	IDO 526	2002	University of Idaho, USDA/ARS
Babe	WA 8039	2009	Washington State University, USDA/ARS
Cataldo	IDO 642	2007	University of Idaho, USDA/ARS
Diva	WA 8090	2009	Washington State University, USDA/ARS
Eden	WA 7902	2002	Washington State University, USDA/ARS
JD	WA 8047	2009	Washington State University, USDA/ARS
Nick	BZ 698-31	2000	WestBred, LLC, Bozeman, MT
Penawawa		1985	Washington State University, USDA/ARS
Whit	WA 8008	2008	Washington State University, USDA/ARS
Hard white spring wheat			
Lolo	IDO 533	1999	University of Idaho, USDA/ARS
WB-Hartline	BZ 903-445 WP	2010	WestBred/Monsanto

Table 2 (cont.) Released varieties tested in Northern Idaho Extension variety trials in 2009-2010.

Variety	Experimental No.	Released	Developer(s) of variety
Hard red spring wheat			
Cabernet		2007	Syngenta Cereals
Hank	BZ 992-322	1999	WestBred, LLC/Monsanto
Jedd		2002	WestBred, LLC/Monsanto
Jefferson	IDO 462	1998	University of Idaho, USDA/ARS
Jerome	IDO 566	2004	University of Idaho, USDA/ARS
Kelse	WA 7954	2009	Washington State University, USDA/ARS
WB-Fuzion	BZ901-717	2010	WestBred, LLC/Monsanto
UI Winchester	IDO 578	2009	University of Idaho, USDA/ARS
Two-row spring barley			
Baronesse	NS 078054	1992	WestBred, LLC/Monsanto
Bob	WA 8682-96		
Camas	ND 9147	1998	University of Idaho, USDA/ARS
Champion	YU-501-385D		WestBred, LLC/Monsanto
Conrad	B5057	2005	Busch Ag. Resources, Inc.
Harrington	TR-441	1981	University of Saskatchewan, Canada
Lenetah	01Ab11107	2007	University of Idaho, USDA/ARS
Merit	2B91-4947	2000	Busch Ag. Resources, Inc.
AC Metcalfe	TR-232	1994	Ag. Canada
Radiant	98NZ223	2003	Washington State University, USDA/ARS
Spaulding	PB1-95-2R-522	2005*	Plant Breeders 1, Moscow, ID
Tetonia	99Ab11720	2007	University of Idaho, USDA/ARS
Two-row hulless spring barley			
Clearwater	01AB435H	2006	University of Idaho, USDA/ARS
Salute		2007	WestBred, LLC/Monsanto
Six-row spring barley			
Tradition	6B95-2482	2003	Busch Ag. Resources, Inc.
Lentil			
Brewer		1984	Washington State University, USDA/ARS
Cedar	LC00600917RZ		Washington State University, USDA/ARS
Crimson		1990	Washington State University, USDA/ARS
Eston		1980	University of Saskatchewan, Canada
Merrit	LC 460266B	2001	Washington State University, USDA/ARS
Pardina			Spain
Richlea			Ag. Canada
Riveland			Washington State University, USDA/ARS
Shasta	LC7601114YZ	2008	Washington State University, USDA/ARS

* certified

Table 2 (cont.) Released varieties tested in Northern Idaho Extension variety trials in 2009-2010.

Variety	Experimental No.	Released	Developer(s) of variety
Yellow pea			
Carousel	SW 995848	2004	ProGene
Delta			Cebeco, Netherlands
Rex		1993	Crop and Food Research, New Zealand
Shawnee	PS 010603	1997	Washington State University, USDA/ARS
Universal		2000	Svalof Weibull
Green pea			
Aragorn			ProGene
Ariel	NZ 4L25	2001	Crop and Food Research, New Zealand
Banner	Pro 031-7053	2007	ProGene
Columbian			Campbell Soup Co.
Cruiser	NZ 4L28	2001	Crop and Food Research, New Zealand
Joel	PS 110028	1997	Washington State University, USDA/ARS
Karita		1995	Svalof Weibull
Medora	PS 99102238	2006	Washington State University, USDA/ARS
Monarch	Pro 98106	2003	ProGene
Pacifica	Pro 011-7107	2003	ProGene
Stirling	PS 610152	2002	Washington State University, USDA/ARS
Kabuli chickpea			
Dwelley		1994	Washington State University, USDA/ARS
Dylan	CA 9990I604C	2005	Washington State University, USDA/ARS
Sierra	CA 9783152C	2001	Washington State University, USDA/ARS
Spanish White			Spain
Troy	CA 99901875W	2007	Washington State University, USDA/ARS
Desi chickpea			
Myles		1994	Washington State University, USDA/ARS

Winter Wheat

Table 3. Winter wheat variety performance results at Lewiston, 2009-2010**.**

Variety or Selection	Seed Yield	Seed Protein	Hardness Score	Test Weight	Plant Height
	bu/acre	%	0-100	lb/bu	inches
Soft White					
Bitterroot	109	11.8	21	59.9	44
Brundage 96	100	12.3	20	59.4	39
UICF-Brundage	118	12.0	13	59.3	39
Bruneau	114	11.3	18	60.2	42
IDO 587	112	11.8	24	60.8	38
IDO 655	103	12.0	25	60.7	43
Lambert	107	11.2	28	60.3	43
UICF-Lambert	107	11.5	27	59.7	43
ID 00-475-2DH	111	12.1	20	60.5	41
Madsen	109	12.4	30	59.5	40
ORCF-101	106	12.7	30	59.6	41
ORCF-102	113	12.2	27	60.7	42
ORCF-103	97	12.1	26	59.8	40
Simon	105	12.4	26	59.1	41
Stephens	105	12.1	25	60.4	38
Tubbs 06	117	11.8	28	58.5	43
Xerpha	115	11.7	28	59.8	42
Skiles	107	12.2	19	60.1	39
WB 528	118	11.7	25	62.1	39
AP Legacy	109	11.5	22	58.5	42
AP Badger	123	11.7	30	59.6	36
Average	110	11.9	24	59.9	41
Hard Wheat					
MDM	100	11.7	57	59.1	42
Boundary	102	12.3	77	60.3	40
Bauermeister	96	11.9	67	58.6	43
Esperia	100	12.4	72	62.1	32
IDO 621	114	11.4	67	61.3	38
Norwest 553	103	12.0	72	62.1	36
Average	103	12.0	69	60.6	39
Club					
Cara	109	11.7	26	59.1	39
Chuckar	102	11.5	24	57.9	42
Coda	104	12.3	32	61.1	42
Average	105	11.8	27	59.3	41
Overall Average	108	11.9	34	60.0	40
LSD (0.05)	11	--	--	0.8	1
CV (%)	7	--	--	1.0	3

Table 4. Winter wheat variety performance results at Genesee, 2009-2010.

Variety or Selection	Seed Yield	Seed Protein	Hardness Score	Test Weight	Plant Height
	bu/acre	%	0-100	lb/bu	inches
Soft White					
Bitterroot	44	15.1	20	57.3	38
Brundage 96	51	15.5	20	56.7	36
UICF-Brundage	45	16.5	21	54.8	34
Bruneau	46	14.3	19	58.0	37
IDO 587	50	15.3	27	57.1	34
IDO 655	45	14.4	24	56.7	38
Lambert	58	13.6	29	56.6	40
UICF-Lambert	59	13.7	30	56.3	42
ID 00-475-2DH	47	13.4	24	58.6	39
Madsen	56	13.5	27	56.3	41
ORCF-101	49	15.1	26	55.1	39
ORCF-102	55	13.6	26	57.4	41
ORCF-103	40	14.2	26	55.8	39
Simon	58	13.5	24	56.6	41
Stephens	66	13.6	24	57.0	39
Tubbs 06	59	14.4	24	55.0	40
Xerpha	54	14.1	25	56.3	41
Skiles	51	14.5	19	58.0	37
WB 528	48	14.1	22	58.2	37
AP Legacy	64	12.6	20	58.7	40
AP Badger	54	14.4	26	56.4	34
Average	52	14.3	24	56.8	38
Hard Wheat					
MDM	37	14.7	46	56.1	38
Boundary	54	13.3	66	59.1	38
Bauermeister	44	13.7	58	54.7	40
Esperia	47	13.9	70	60.3	33
IDO 621	60	13.1	63	60.6	36
Norwest 553	39	13.8	64	60.4	34
Average	47	13.8	61	58.5	36
Club					
Cara	51	12.3	28	58.4	39
Chuckar	55	12.4	25	58.2	41
Coda	45	14.0	30	59.5	40
Average	50	12.9	28	58.7	40
Overall Average	51	14.0	32	57.3	38
LSD (0.05)	16	--	--	0.7	2
CV (%)	22	--	--	0.8	4

Table 5. Winter wheat variety performance results at Moscow, 2009-2010**.**

Variety or Selection	Seed Yield	Seed Protein	Hardness Score	Test Weight	Plant Height
	bu/acre	%	0-100	lb/bu	inches
Soft White					
Bitterroot	115	9.4	27	60.6	45
Brundage 96	116	9.5	30	59.8	42
UICF-Brundage	117	8.9	21	60.4	40
Bruneau	131	8.8	26	60.9	44
IDO 587	116	10.3	30	60.8	42
IDO 655	117	9.8	35	62.5	46
Lambert	102	10.0	35	59.8	45
UICF-Lambert	107	9.2	35	59.8	46
ID 00-475-2DH	115	8.9	20	61.1	41
Madsen	125	9.8	32	60.8	42
ORCF-101	116	9.9	31	60.7	40
ORCF-102	118	9.6	34	60.8	43
ORCF-103	115	9.2	24	59.6	43
Simon	121	9.3	30	59.6	43
Stephens	122	9.7	30	60.6	41
Tubbs 06	109	9.2	31	59.2	45
Xerpha	111	9.9	37	60.0	43
Skiles	117	10.2	31	61.8	39
WB 528	116	10.7	34	61.7	41
AP Legacy	99	8.9	29	58.4	45
AP Badger	106	9.1	26	58.8	38
Average	115	9.5	30	60.4	43
Hard Wheat					
MDM	118	9.7	60	60.9	46
Boundary	106	8.8	60	60.6	44
Bauermeister	116	9.1	60	60.5	47
Esperia	84	11.0	66	63.1	36
IDO 621	109	9.5	66	62.0	41
Norwest 553	113	10.4	63	61.1	38
Average	108	9.8	63	61.4	42
Club					
Cara	109	9.7	33	59.6	42
Chuckar	109	9.1	31	59.6	47
Coda	117	9.7	41	62.6	47
Average	112	9.5	35	60.6	45
Overall Average	113	9.6	37	60.6	43
LSD (0.05)	8	--	--	0.7	2
CV (%)	5	--	--	0.8	3

Table 6. Winter wheat variety performance results at Craigmont, 2009-2010.

Variety or Selection	Seed Yield	Seed Protein	Hardness Score	Test Weight	Plant Height
	bu/acre	%	0-100	lb/bu	inches
Soft White					
Bitterroot	42	14.4	20	51.2	37
Brundage 96	29	14.8	18	48.7	32
UICF-Brundage	33	15.5	14	47.9	35
Bruneau	32	13.6	11	50.9	32
IDO 587	23	16.1	23	45.6	35
IDO 655	34	16.1	21	50.7	39
Lambert	33	14.7	24	47.9	36
UICF-Lambert	27	15.8	26	46.8	38
ID 00-475-2DH	35	16.0	20	50.5	35
Madsen	36	16.6	24	48.9	33
ORCF-101	37	17.5	25	46.7	34
ORCF-102	46	16.6	27	48.4	36
ORCF-103	38	15.8	20	48.4	35
Simon	35	15.8	22	50.2	32
Stephens	30	15.3	21	48.5	34
Tubbs 06	33	15.2	21	47.7	35
Xerpha	37	14.5	22	49.1	33
Skiles	38	15.2	15	49.3	30
WB 528	38	14.7	18	51.8	32
AP Legacy	31	13.8	19	51.2	35
AP Badger	37	14.8	21	46.4	31
Average	35	15.4	21	48.9	34
Hard Wheat					
MDM	25	15.8	54	50.7	36
Boundary	18	14.2	61	52.9	36
Bauermeister	31	14.5	59	50.6	37
Esperia	19	13.7	56	49.4	29
IDO 621	27	14.1	56	52.7	35
Norwest 553	33	14.0	52	52.3	27
Average	25	14.4	56	51.4	33
Club					
Cara	37	16.0	26	46.9	32
Chuckar	34	16.0	26	47.3	35
Coda	39	15.4	23	51.8	35
Average	37	15.8	25	48.7	34
Overall Average	33	15.2	28	49.4	34
LSD (0.05)	19	--	--	2.4	4
CV (%)	9	--	--	1.7	2

Table 7. Winter wheat variety performance results at Bonners Ferry, 2009-2010.

Variety or Selection	Seed Yield	Seed Protein	Hardness Score	Test Weight	Plant Height
	bu/acre	%	0-100	lb/bu	inches
Soft White					
Bitterroot	130	10.8	20	57.3	40
Brundage 96	107	11.0	23	56.7	34
UICF-Brundage	103	10.8	17	54.8	34
Bruneau	131	11.8	28	58.0	37
IDO 587	106	11.3	28	57.1	35
IDO 655	116	11.3	31	56.7	41
Lambert	108	11.1	31	56.6	38
UICF-Lambert	109	11.5	35	56.3	39
ID 00-475-2DH	135	11.4	26	58.6	36
Madsen	126	11.4	29	56.3	36
ORCF-101	116	12.1	28	55.1	37
ORCF-102	121	11.0	26	57.4	37
ORCF-103	121	11.6	25	55.8	36
Simon	130	11.2	29	56.6	36
Stephens	115	11.0	30	57.0	35
Tubbs 06	131	10.8	36	55.0	39
Xerpha	127	10.6	29	56.3	37
Skiles	114	12.1	23	58.0	34
WB 528	118	12.0	28	58.2	35
AP Legacy	116	11.0	28	58.7	37
AP Badger	122	11.0	27	56.4	32
Average	119	11.3	27	56.8	37
Hard Wheat					
MDM	124	11.8	64	56.1	38
Boundary	108	11.3	66	59.1	34
Bauermeister	127	11.3	71	54.7	40
Esperia	82	14.1	72	60.3	28
IDO 621	91	11.1	66	60.6	34
Norwest 553	110	12.9	71	60.4	33
Average	107	12.1	68	58.5	35
Club					
Cara	122	11.6	29	58.4	35
Chuckar	112	11.5	27	58.2	36
Coda	116	12.7	33	59.5	38
Average	116	11.9	30	58.7	36
Overall Average	116	11.5	36	57.3	36
LSD (0.05)	18	--	--	0.7	1
CV (%)	11	--	--	0.7	3

Table 8. Combined winter wheat performance data for Lewiston, Genesee, Moscow, Bonners Ferry, and Craigmont, 2009-2010.

Variety or Selection	Seed Yield						Test Weight
	Lewiston	Genesee	Moscow	B. Ferry	Craigmont	Average	Average
	bu/acre						lb./bu
Soft White							
Bitterroot	109	44	115	130	42	88	57.3
Brundage 96	100	51	116	107	29	81	56.2
UICF-Brundage	118	45	117	103	33	83	55.4
Bruneau	114	46	131	131	32	91	57.6
IDO 587	112	50	116	106	23	81	56.3
IDO 655	103	45	117	116	34	83	57.5
Lambert	107	58	102	108	33	82	56.2
UICF-Lambert	107	59	107	109	27	82	55.8
ID 00-475-2DH	111	47	115	135	35	89	57.9
Madsen	109	56	125	126	36	91	56.4
ORCF-101	106	49	116	116	37	85	55.4
ORCF-102	113	55	118	121	46	91	57.0
ORCF-103	97	40	115	121	38	82	55.9
Simon	105	58	121	130	35	90	56.4
Stephens	105	66	122	115	30	88	56.7
Tubbs 06	117	59	109	131	33	90	55.1
Xerpha	115	54	111	127	37	89	56.3
Skiles	107	51	117	114	38	85	57.5
WB 528	118	48	116	118	38	88	58.4
AP Legacy	109	64	99	116	31	84	57.1
AP Badger	123	54	106	122	37	88	55.5
Average	110	52	115	119	35	86	56.6
Hard Wheat							
MDM	100	37	118	124	25	81	56.6
Boundary	102	54	106	108	18	78	58.4
Bauermeister	96	44	116	127	31	83	55.8
Esperia	100	47	84	82	19	67	59.0
IDO 621	114	60	109	91	27	80	59.5
Norwest 553	103	39	113	110	33	80	59.3
Average	103	47	108	107	25	78	58.1
Club							
Cara	109	51	109	122	37	85	56.5
Chuckar	102	55	109	112	34	82	56.2
Coda	104	45	117	116	39	84	58.9
Average	105	50	112	116	37	84	57.2
Overall Average	108	51	113	116	33	84	56.9
LSD (0.05)	11	16	8	18	19	6	0.5
CV (%)	7	22	5	11	9	--	--

Table 9. Grain yield averages of winter-wheat varieties tested for multiple years in northern Idaho**.**

Variety or Selection	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	3-Year Average	4-Year Average	5-Year Average
Number of sites	5	5	5	4	5			
Soft White	----------	----------	----------	bu/acre	----------	----------	----------	----------
Bitterroot	85	68	78	62	88	76	74	76
Bruneau		75	80	69	91	80	79	
Brundage 96	82	73	74	79	81	78	77	78
UICF-Brundage		70	79	74	83	79	76	
ID 00-475-2DH			70	72	89	77		
IDO 587	80	64	71	72	81	75	72	74
IDO 655	86	62	72	67	83	74	71	74
Lambert	82	68	74	74	82	77	74	76
UICF-Lambert	84	71	75	66	82	74	73	76
Madsen	82	69	70	73	91	78	76	77
ORCF-101	83	68	74	79	85	79	77	78
ORCF-102	91	68	79	68	91	79	76	79
Simon	84	69	77	68	90	79	76	78
Stephens	82	67	72	78	88	79	76	77
Tubbs 06	88	69	78	65	90	78	76	78
Xerpha			84	76	89	83		
Average	84	69	75	68	86	77	75	77
Hard Wheat								
MDM	80	64	75	57	81	71	69	71
Boundary	81	70	74	59	78	70	70	72
Bauermeister	80	70	75	58	83	72	71	73
IDO 621	82	68	75	68	80	74	73	75
Average	81	68	75	62	80	72	71	73
Club								
Cara		63	74	62	85	74	71	
Chukar	84	65	74	70	82	76	73	75
Coda	80	65	69	68	84	74	72	73
Average	82	64	72	66	84	74	72	74
Overall Average	83	68	75	67	85	76	74	76
LSD (0.10)	3	3	4	7	6*	--	--	--

* - LSD (0.05) for 2009-2010 crop year.

Spring Wheat

Table 10. Spring wheat variety preliminary results at Craigmont, 2010.

Variety or Selection	Seed Yield	Seed Protein	Hardness Score	Test Weight	Plant Height
	bu/acre	%	0-100	lb/bu	inches
Soft White					
Alturas	48	12.5	23	55.7	36
Babe	54	13.9	29	56.4	38
Cataldo	45	13.3	19	54.0	38
Diva	56	12.8	24	56.0	40
Nick	47	13.7	20	53.6	37
Penawawa	43	14.3	19	53.5	35
Whit	45	14.4	19	54.2	35
IDO599	48	16.0	24	53.9	37
IDO644	52	13.6	26	52.0	36
IDO668	49	13.5	20	54.4	38
IDO669	48	14.5	22	55.4	39
IDO671	42	13.1	20	55.1	37
IDO686	48	13.9	20	56.2	39
IDO687	52	13.6	19	55.7	37
Average Soft White	48	13.8	22	54.7	37
Hard White					
WB-Hartline	55	13.9	54	54.4	35
Lolo	48	14.1	51	55.4	33
OR4201261	44	14.8	72	52.6	32
Average Hard White	49	14	59	54	34
Hard Red					
Cabernet	51	14.3	50	54.5	31
WB-Fuzion	53	14.5	74	54.8	39
Hank	49	13.8	61	53.1	35
Jedd	46	14.1	90	57.0	32
Jefferson	49	14.3	68	54.6	36
Jerome	47	14.0	61	53.4	35
Kelse	46	15.9	68	54.4	37
UI Winchester	49	14.0	51	54.6	34
IDO665	44	15.1	64	52.1	35
IDO667	40	15.3	60	53.6	35
IDO702	48	14.8	70	52.2	37
Average Hard Red	48	14.6	65	54.0	35
Club					
Eden	51	14.1	28	55.8	37
JD	49	14.4	34	56.2	41
Average Club	50	14.3	31	56.0	39
Overall Average	48	14.2	42	54.5	36
LSD (0.05)	5	--	--	2.4	1
CV (%)	8	--	--	3.1	2

Table 11. Spring wheat variety preliminary results at Genesee, direct-seeded, 2010.

Variety or Selection	Seed Yield	Seed Protein	Hardness Score	Test Weight	Plant Height
	bu/acre	%	0-100	lb/bu	inches
Soft White					
Alturas	55	10.9	20	58.6	32
Babe	59	10.6	19	62.0	33
Cataldo	51	10.3	16	59.7	31
Diva	60	10.7	23	61.4	34
Nick	51	10.0	21	59.5	30
Penawawa	49	10.7	15	60.3	31
Whit	56	10.2	21	60.5	33
IDO599	58	10.5	17	59.9	32
IDO644	58	10.7	28	59.5	30
IDO668	56	10.6	12	59.9	33
IDO669	54	10.3	21	60.2	34
IDO671	56	10.5	17	59.5	33
IDO686	54	10.1	15	60.5	36
IDO687	50	11.1	20	60.8	33
Average Soft White	55	10.5	19	60.2	33
Hard White					
WB-Hartline	53	10.8	56	60.0	31
Lolo	47	11.3	64	61.2	33
OR4201261	51	10.6	66	61.4	31
Average Hard White	50	11	62	61	32
Hard Red					
Cabernet	44	11.7	58	62.2	26
WB-Fuzion	49	11.1	72	61.1	34
Hank	44	11.0	62	58.7	31
Jedd	45	10.6	81	60.6	29
Jefferson	53	10.8	67	61.1	33
Jerome	53	11.0	61	60.5	32
Kelse	48	11.5	64	62.0	33
UI Winchester	53	11.4	61	61.3	32
IDO665	45	10.9	63	59.6	31
IDO667	47	10.9	65	62.6	32
IDO702	46	11.4	68	61.4	33
Average Hard Red	48	11.1	66	61.0	31
Club					
Eden	56	10.9	26	61.8	32
JD	55	10.2	26	61.9	32
Average Club	56	10.6	26	61.9	32
Overall Average	52	10.8	41	60.7	32
LSD (0.05)	6	--	--	1.3	2
CV (%)	8	--	--	1.5	5

Table 12. Spring wheat variety performance results at Bonners Ferry, 2010.

Variety or Selection	Seed Yield	Seed Protein	Hardness Score	Test Weight	Plant Height
	bu/acre	%	0-100	lb/bu	inches
Soft White					
Alturas	89	10.3	12	57.5	28
Babe	111	10.4	13	57.7	31
Cataldo	79	11.7	14	56.9	26
Diva	94	10.8	25	58.3	30
Nick	93	11.2	20	58.8	28
Penawawa	103	11.8	16	58.1	30
Whit	111	11.4	21	58.7	29
IDO599	93	10.1	11	57.9	28
IDO644	103	10.8	22	57.3	26
IDO668	92	11.4	12	58.5	29
IDO669	108	10.6	14	58.1	32
IDO671	104	10.7	12	57.6	29
IDO686	104	11.2	14	58.7	30
IDO687	109	11.1	14	59.0	29
Average Soft White	100	11.0	16	58.1	29
Hard White					
WB-Hartline	100	11.7	52	58.0	29
Lolo	91	11.0	66	59.2	30
OR4201261	96	10.9	65	58.0	27
Average Hard White	96	11	61	58	29
Hard Red					
Cabernet	90	12.3	52	57.9	24
WB-Fuzion	80	11.9	69	58.8	30
Hank	77	11.5	61	57.3	26
Jedd	65	12.0	77	57.7	25
Jefferson	103	11.6	69	59.2	28
Jerome	83	11.4	66	59.2	27
Kelse	85	13.1	64	58.5	29
UI Winchester	89	12.8	61	59.0	26
IDO665	88	11.9	63	57.2	28
IDO667	78	12.0	59	58.6	25
IDO702	97	11.7	63	58.1	27
Average Hard Red	85	12.0	64	58.3	27
Club					
Eden	91	11.3	28	58.7	32
JD	105	11.0	25	59.3	32
Average Club	98	11.2	27	59.0	32
Overall Average	94	11.4	39	58.3	28
LSD (0.05)	13	--	--	0.5	2
CV (%)	10	--	--	0.6	5

Table 13. Combined spring wheat performance data for Craigmont, Genesee, and Bonners Ferry, 2010.

Variety or Selection	Seed Yield				Average of 3 sites			
	Craigmont	Genesee	B. Ferry	Average	Seed Protein	Hardness Score	Test Weight	Plant Height
	----------bu/acre----------				%	0-100	lb/bu	inches
Soft White								
Alturas	48	55	89	64	11.2	18	57.2	32
Babe	54	59	111	75	11.6	20	58.7	34
Cataldo	45	51	79	58	11.8	16	56.9	32
Diva	56	60	94	70	11.4	24	58.6	35
Nick	47	51	93	64	11.6	20	57.3	32
Penawawa	43	49	103	65	12.3	17	57.3	32
Whit	45	56	111	71	12.0	20	57.8	32
IDO599	48	58	93	66	12.2	17	57.2	32
IDO644	52	58	103	71	11.7	25	56.3	31
IDO668	49	56	92	66	11.8	15	57.6	33
IDO669	48	54	108	70	11.8	19	57.9	35
IDO671	42	56	104	68	11.4	16	57.4	33
IDO686	48	54	104	69	11.7	16	58.5	35
IDO687	52	50	109	70	11.9	18	58.5	33
Average Soft White	48	55	100	68	11.8	19	57.7	33
Hard White								
WB-Hartline	55	53	100	69	12.1	54	57.5	32
Lolo	48	47	91	62	12.1	60	58.6	32
OR4201261	44	51	96	64	12.1	68	57.4	30
Average Hard White	49	50	96	65	12.1	61	57.8	31
Hard Red								
Cabernet	51	44	90	62	12.8	53	58.2	27
WB-Fuzion	53	49	80	61	12.5	72	58.2	34
Hank	49	44	77	57	12.1	61	56.4	31
Jedd	46	45	65	52	12.2	83	58.4	29
Jefferson	49	53	103	68	12.2	68	58.3	32
Jerome	47	53	83	61	12.1	63	57.7	31
Kelse	46	48	85	60	13.5	65	58.3	33
UI Winchester	49	53	89	64	12.7	58	58.3	31
IDO665	44	45	88	59	12.6	63	56.3	31
IDO667	40	47	78	55	12.7	61	58.3	30
IDO702	48	46	97	64	12.6	67	57.3	32
Average Hard Red	48	48	85	60	12.6	65	57.8	31
Club								
Eden	51	56	91	66	12.1	27	58.8	34
JD	49	55	105	70	11.9	28	59.2	35
Average Club	50	56	98	68	12.0	28	59.0	34
Overall Average	48	52	94	65	12.1	41	57.8	32
LSD (0.05)	5	6	13	5	--	--	0.8	1
CV (%)	8	8	10	--	--	--	--	--

Table 14. Grain yield averages for spring wheat varieties tested for multiple years in northern Idaho

Variety or Selection	2006	2007	2008	2009	2010*	3-Year Average	4-Year Average	5-Year Average
				bu/acre				
Soft White								
Alturas	64	42	34	45	64	48	46	50
Babe		42	35	49	75	53	50	
Cataldo		40	29	44	58	44	43	
Eden (club)	61	48	33	43	66	47	48	50
Nick	71	43	34	44	64	47	46	51
Penawawa	51	42	32	43	65	47	46	47
Whit		50	36	56	71	54	53	
Average Soft White	62	44	33	46	66	49	47	50
Hard White								
Lolo	61	44	32	47	62	47	46	49
OR 4201261		40	32	44	64	47	45	
Average Hard White	61	42	32	45	63	47	45	49
Hard Red								
Cabernet		42	30	36	62	42	42	
Hank	61	43	33	46	57	45	45	48
Jefferson	61	46	34	44	68	49	48	51
Jerome	58	41	30	42	68	47	45	48
Kelse			33	41	60	45		
UI Winchester	65	39	32	40	64	45	44	48
Average Hard Red	61	42	32	41	63	45	45	48
Overall Average	61	43	33	44	64	47	46	49
LSD (0.10, 0.05*)	2	2	2	2	5	--	--	--

* - LSD (0.05) for 2010 crop year.

Spring Barley

Table 15. Spring barley variety performance results at Craigmont, 2010.

Variety or Selection	Seed Yield	Test Weight	Plant Height	Plumps >6/64	Thins <5.5/64	Lodging
	bu/acre	lb/bu	inches	%	%	%
2 Row Barley						
Baronesse	58	47.1	39	21	51	60
Bob	63	45.2	42	31	39	35
Camas	78	47.0	43	24	47	23
Champion	76	46.4	43	26	46	40
Lenetah	88	46.4	41	33	32	20
Radiant	58	41.8	41	15	62	45
Spaulding	76	45.0	43	17	59	5
Tetonia	66	45.4	40	19	52	28
Salute[y]	63	47.2	41	25	37	35
Clearwater[z]	64	44.7	44	34	39	33
01WA-13860.5	61	40.6	42	12	67	28
Harrington[x]	55	40.9	43	9	76	35
AC Metcalfe[x]	63	41.1	42	20	59	53
Merit[x]	55	39.7	42	19	62	20
Conrad[x]	75	45.6	41	33	36	25
2 Row Average	67	44.3	42	23	51	32
6 Row Barley						
Tradition[x]	73	44.6	44	30	44	50
Overall Average	67	44.3	42	23	50	33
LSD (0.05)	9	4.2	3	15	19	31
CV (%)	9	6.6	4	45	26	66

x - malt varieties
y - food varieties
z- hulless, low-phytate line

Table 16. Spring barley variety performance results at Genesee, direct-seeded, 2010.

Variety or Selection	Seed Yield	Test Weight	Plant Height	Plumps >6/64	Thins <5.5/64
	bu/acre	lb/bu	inches	%	%
2 Row Barley					
Baronesse	79	53.5	28	87	3
Bob	75	52.7	28	86	4
Camas	69	53.5	28	86	4
Champion	85	52.4	27	87	4
Lenetah	67	53.7	26	89	3
Radiant	83	53.4	28	80	7
Spaulding	62	53.8	27	83	5
Tetonia	81	52.4	29	75	7
Salute[y]	71	53.0	28	89	3
Clearwater[z]	71	60.7	29	62	13
01WA-13860.5	68	61.6	27	49	16
Harrington[x]	75	52.4	28	74	6
AC Metcalfe[x]	69	52.7	30	90	3
Merit[x]	69	53.5	28	70	7
Conrad[x]	76	52.7	28	90	3
2 Row Average	73	54.1	28	80	6
6 Row Barley					
Tradition[x]	69	51.6	33	86	3
Overall Average	73	54.0	28	80	6
LSD (0.05)	7	2.0	1	6	3
CV (%)	7	2.6	3	6	31

x - malt varieties
y - food varieties
z- hulless, low-phytate line

Table 17. Spring barley variety performance results at Moscow, direct-seeded, 2010.

Variety or Selection	Seed Yield	Test Weight	Plant Height	Plumps >6/64	Thins <5.5/64
	bu/acre	lb/bu	inches	%	%
2 Row Barley					
Baronesse	83	50.7	33	88	2
Bob	70	51.9	34	98	0
Camas	78	51.9	35	82	3
Champion	90	52.8	35	76	5
Lenetah	87	51.1	35	83	3
Radiant	83	50.0	33	67	7
Spaulding	90	52.7	35	86	3
Tetonia	86	50.5	34	74	6
Salute[y]	78	49.9	35	88	3
Clearwater[z]	70	58.3	35	47	14
01WA-13860.5	69	54.4	35	43	18
Harrington[x]	78	49.0	35	80	5
AC Metcalfe[x]	77	49.1	35	83	4
Merit[x]	81	48.2	35	77	6
Conrad[x]	85	50.0	34	86	3
2 Row Average	80	51.4	35	77	5
6 Row Barley					
Tradition[x]	80	48.7	40	67	5
Overall Average	80	51.2	35	77	5
LSD (0.05)	10	1.2	1	10	4
CV (%)	9	1.6	3	9	56

x - malt varieties
y - food varieties
z- hulless, low-phytate line

Table 18. Spring barley variety performance results at Bonners Ferry, 2010.

Variety or Selection	Seed Yield	Test Weight	Plant Height	Plumps >6/64	Thins <5.5/64
	bu/acre	lb/bu	inches	%	%
2 Row Barley					
Baronesse	139	50.6	30	99	0
Bob	133	51.9	32	98	1
Camas	145	51.7	33	98	1
Champion	134	51.5	33	98	0
Lenetah	143	51.3	31	98	0
Radiant	149	51.5	32	97	1
Spaulding	150	50.1	32	98	1
Tetonia	157	52.1	33	98	1
Salute[y]	137	51.6	34	99	0
Clearwater[z]	112	57.8	35	93	1
01WA-13860.5	113	57.8	33	91	1
Harrington[x]	132	50.7	31	95	1
AC Metcalfe[x]	144	52.1	34	98	1
Merit[x]	138	51.3	33	96	1
Conrad[x]	145	51.8	32	98	0
2 Row Average	138	52.2	32	97	1
6 Row Barley					
Tradition[x]	142	49.6	35	97	0
Overall Average	138	52.1	33	97	1
LSD (0.05)	12	1.6	2	1	1
CV (%)	6	2.1	5	1	87

x - malt varieties
y - food varieties
z- hulless, low-phytate line

Table 19. Combined spring barley performance data for Craigmont, Genesee, Moscow and Bonners Ferry, 2010.

Variety or Selection	Seed Yield					Average of 4 sites			
	Craigmont	Genesee	Moscow	B.Ferry	Average	Test Weight	Plant Height	Plumps >6/64	Thins <5.5/64
	----------bu/acre----------					lb/bu	inches	%	%
2 Row Barley									
Baronesse	58	79	83	139	90	50.5	33	74	14
Bob	63	75	70	133	85	50.4	34	78	11
Camas	78	69	78	145	93	51.0	35	73	14
Champion	76	85	90	134	96	50.7	34	72	14
Lenetah	88	67	87	143	96	50.6	33	75	10
Radiant	58	83	83	149	93	49.2	34	65	19
Spaulding	76	62	90	150	94	50.4	34	71	17
Tetonia	66	81	86	157	97	50.1	34	66	16
Salute[y]	63	71	78	137	87	50.4	34	75	11
Clearwater[z]	64	71	70	112	79	55.4	36	59	17
01WA-13860.5	61	68	69	113	78	53.6	34	49	26
Harrington[x]	55	75	78	132	85	48.3	34	65	22
AC Metcalfe[x]	63	69	77	144	88	48.7	35	73	17
Merit[x]	55	69	81	138	86	48.2	34	65	19
Conrad[x]	75	76	85	145	95	50.0	33	77	11
2 Row Average	67	73	80	138	90	50.5	34	69	16
6 Row Barley									
Tradition[x]	73	69	80	142	91	48.6	38	70	13
Overall Average	67	73	80	138	90	50.4	34	69	16
LSD (0.05)	9	7	10	12	5	2.2	2	4	3
CV (%)	9	7	9	6	--	--	--	--	--

x - malt varieties
y - food varieties
z- hulless, low-phytate line

Table 20. Grain yield averages of spring barley varieties tested for multiple years in northern Idaho.

Variety or Selection	2006	2007	2008	2009	2010*	3-Year Average	4-Year Average	5-Year Average
		----------bu/acre----------						
2 Row Barley								
Baronesse	100	74	66	67	90	74	74	79
Camas	102	75	58	65	93	72	73	79
Champion		85	75	72	96	81	82	
Clearwater[z]			45	71	79	65		
Conrad[x]	97	69	61	69	95	75	74	78
Harrington[x]	92	71	53	63	85	67	68	73
Lenetah		76	72	73	96	80	79	
Merit[x]	97	70	52	67	86	68	69	74
AC Metcalfe[x]	96	70	60	66	88	71	71	76
Salute[y]			58	67	87	71		
Spaulding	110	76	62	66	94	74	75	82
Tetonia	106	77	66	73	97	79	78	84
Radiant	99	83	61	73	93	76	78	82
Average	100	75	61	69	91	73	74	79
6 Row Barley								
Tradition[x]	97	69	55	65	91	70	70	75
Overall Average	100	75	60	68	91	73	74	79
LSD (0.10, 0.05*)	5	5	4	6	5	--	--	--

* - LSD (0.05) for 2010 crop year.

Table 21. Green and yellow dry pea variety performance results at Moscow, 2010.

Variety or Selection*	Seed Yield	Seed Weight	Canopy Height	Vine Length	Erect Index+
Green Pea	**lb/acre**	**g/100**	**inches**	**inches**	
Aragorn	1229	17.0	23	27	0.9
Ariel	976	15.6	25	28	0.9
Banner	1301	16.6	21	28	0.8
Banner NST	1143	16.4	20	23	0.9
Columbian	1181	17.4	24	28	0.9
Cruiser	1117	15.9	25	26	1.0
Joel	1169	16.6	24	26	1.0
Karita	1096	16.5	25	31	0.9
Medora	1325	16.7	25	27	0.9
Monarch	1056	16.9	22	25	0.9
Pacifica	1078	16.6	21	25	0.9
Pacifica NST	1003	15.7	20	24	0.8
Pro 081-6118	1014	16.4	21	24	0.9
Pro 083-8739	1263	17.8	22	27	0.8
Pro 5187	1082	16.2	25	24	1.0
PS06100760	1024	16.9	21	27	0.9
PS05100840	1007	15.8	22	29	0.8
PS03101445	1097	16.9	21	26	0.9
Stirling	1158	15.4	26	26	1.0
Stirling NST	1248	16.6	21	27	0.8
Average green	1128	16.5	23	26	0.9
Yellow Pea					
Carousel	1157	16.6	25	26	1.0
Delta	1212	17.6	25	27	0.9
Rex	1085	16.2	22	27	0.8
Rex NST	1100	17.4	22	29	0.8
Shawnee	1135	16.6	23	29	0.8
Universal	1076	16.3	22	28	0.8
PRL 415	1211	15.7	24	29	0.9
PS06101119	943	16.0	25	23	1.0
PS03101822	1124	17.3	26	27	1.0
Average yellow	1116	16.6	24	27	0.9
Overall average	1125	16.5	23	27	0.9
LSD (0.05)	270	1.6	1	<1**	--
CV (%)	17	6.9	18	16	--

* Varieties with "NST" indicate no seed-treatments prior to planting were applied.

** Vine length LSD at 0.05 is less than 1

+ The erect index is a ratio of canopy height vs. vine length; 1.0 = upright

Table 22. Seed yield averages for green and yellow dry pea varieties tested for three years in northern Idaho.

Variety or Selection*	2008	2009	2010**	Average
	----------lb/acre----------			
Green pea				
Aragorn	1501	1579	1229	1436
Banner	1390	2059	1301	1583
Banner NST	1367	1553	1143	1354
Columbian	1100	1140	1181	1140
Cruiser	1437	1764	1117	1439
Joel	1315	1788	1169	1424
Karita	1356	1558	1096	1337
Medora	1411	1721	1325	1486
Monarch	1519	1720	1056	1432
Pacifica	1726	1775	1078	1526
Pacifica NST	1694	1802	1003	1500
PS03101445	1601	1794	1097	1497
Stirling	1492	1396	1158	1349
Stirling NST	1373	1381	1248	1334
Average green	1449	1645	1157	1417
Yellow Pea				
Carousel	1489	1583	1157	1410
Delta	1455	1483	1212	1383
Rex	1632	1592	1085	1436
Shawnee	1180	1292	1135	1202
Universal	1584	1867	1076	1509
Average yellow	1468	1563	1133	1388
LSD (0.1, 0.1, 0.05)	165	227	270	--

* Varieties with "NST" indicate no seed-treatments prior to planting were applied.

** 2010 yield values from Moscow location only.

Table 23. Lentil variety performance results direct-seeded at Craigmont, 2010.

Variety or Selection*	Yield	Seed Weight	Plant Height
	lb/acre	g/100	inches
Brewer	341	5.3	12
Brewer NST	227	5.3	12
Cedar	190	4.1	10
Crimson	233	3.0	10
Eston	260	3.3	10
Merrit	317	6.0	13
Pardina	210	3.7	9
Pardina NST	192	3.6	10
Richlea	451	5.0	12
Riveland	351	7.1	12
Shasta	267	5.0	13
LC07600224YZ	348	5.1	13
LCO2601144P	482	3.5	13
LC06601734L	303	6.2	12
LC06600907P	235	3.6	10
LC06601388L	491	6.5	12
Average	306	4.8	11
LSD (0.5)	149	0.5	2
CV (%)	34	6.9	11

* Varieties with "NST" indicate no seed-treatments prior to planting were applied.

Table 24. Lentil variety performance results direct-seeded at Genesee, 2010.

Variety or Selection	Yield	Seed Weight	Plant Height
	lb/acre	g/100	inches
Brewer	1335	5.6	14
Eston	1005	3.8	15
Merrit	1459	6.3	15
Pardina	1710	4.1	14
Richlea	1479	5.2	15
Riveland	1321	7.2	15
Average	1385	5.4	15
LSD (0.5)	402	0.3	2
CV (%)	21	4.6	9

Table 25. Lentil variety performance results direct-seeded at Craigmont and Genesee, 2010.

Variety or	Seed Yield			Seed Weight			Plant Height		
Selection	Craigmont	Genesee	Average	Craigmont	Genesee	Average	Craigmont	Genesee	Average
	----------lb/acre----------			----------g/100----------			----------inches----------		
Brewer	341	1335	838	5.3	5.6	5.4	12	14	13
Eston	260	1005	632	3.3	3.8	3.5	10	15	12
Merrit	317	1459	888	6.0	6.3	6.1	13	15	14
Pardina	210	1710	960	3.7	4.1	3.9	9	14	12
Richlea	451	1479	965	5.0	5.2	5.1	12	15	14
Riveland	351	1321	836	7.1	7.2	7.1	12	15	13
Average	306	1385	845	4.8	5.4	5.1	11	15	13
LSD (0.5)	149	402	195	0.5	0.3	0.3	2	2	1
CV (%)	34	21	--	6.9	4.6	--	11	9	--

Table 26. Chickpea variety performance results at Moscow, 2010

Variety or Selection	Seed Yield	Seed Weight	Plant Height
	lb/acre	g/100	inches
Dwelley	1147	54.5	19
Dylan	1070	61.4	19
Myles	1453	18.5	18
Sierra	1223	53.1	19
Spanish White	1079	58.6	18
Troy	967	60.3	18
CA0090B347C	1218	47.5	18
CA0469C020C	1295	39.2	17
CA...025C	1378	41.3	18
Average	1233	48.3	18
LSD (.05)	278	2.6	2
CV (%)	21	5.0	8

Table 27. Seed yield averages for lentil and chickpea varieties tested for three years in northern Idaho.

Variety or Selection*	2008	2009	2010	Average
Brewer	981	1030	838	950
Crimson	875	1600	233+	903
Eston	1114	1379	632	1042
Merrit	1131	1304	888	1108
Pardina	1094	1391	960	1148
Richlea	1307	1270	965	1181
Riveland	1347	1480	836	1221
Average	1199	1351	853	1134
LSD (0.1, 0.1, 0.05)	95	278	195	--
Chickpea				
Dwelley	1946	503	1147	1199
Dylan	2622	278	1070	1323
Myles	2712	619	1453	1595
Sierra	2878	784	1223	1628
Spanish White	2201	243	1079	1174
Troy	1932	278	967	1059
CA0090B347C	2909	732	1218	1620
CA0469C020C	2987	621	1295	1634
CA...025C	2989	342	1378	1570
Average	2575	489	1203	1422
LSD (0.1, 0.1, 0.05)	365	218	278	--

+ Crimson yield data from one location.

Table 28. Direct-seeded spring pea performance results at Genesee, 2010.

Variety or Selection	Seed Yield	Seed Weight	Canapy Height	Vine Length	Erect Index+
	lb/acre	g/100	inches	inches	0.0-1.0
Green pea					
Aragorn	2691	22.6	27	34	0.8
Ariel	2841	18.0	30	37	0.8
Banner	3134	19.2	24	38	0.6
Columbian	1574	20.9	17	39	0.4
Cruiser	2641	19.5	30	37	0.8
Monarch	2719	19.4	25	30	0.8
Pacifica	2643	20.5	22	37	0.6
Stirling	2118	20.7	26	35	0.8
Average green	2545	20.1	25	36	0.7
Yellow Pea					
Carousel	2739	22.6	26	33	0.8
Rex	1992	25.1	21	31	0.7
Shawnee	2779	22.4	18	40	0.5
Universal	2755	20.1	27	33	0.8
Average yellow	2566	22.5	23	34	1
Overall average	2552	20.9	25	35	1
LSD (0.05)	539	2.5	4	8	--
CV (%)	14	8.1	12	15	--

+ The erect index is a ratio of canopy height vs. vine length; 1.0 = upright

Table 29. Direct-seeded spring pea performance results at Moscow, 2010.

Variety or Selection	Seed Yield	Seed Weight	Canapy Height	Vine Length	Erect Index+
	lb/acre	g/100	inches	inches	
Green pea					
Aragorn	739	18.3	20	22	0.9
Ariel	569	15.5	18	22	0.8
Banner	639	18.6	18	28	0.7
Columbian	492	15.1	12	33	0.4
Cruiser	303	17.4	19	21	0.9
Monarch	521	16.1	16	18	0.9
Pacifica	633	19.1	19	25	0.8
Stirling	686	17.0	18	19	0.9
Average green	573	17.1	17	24	0.8
Yellow Pea					
Carousel	935	20.3	23	24	1.0
Rex	575	21.5	16	24	0.6
Shawnee	772	18.6	16	33	0.5
Universal	531	18.4	21	25	0.9
Average yellow	703	19.7	19	26	0.7
Overall average	616	18.0	18	25	0.8
LSD (0.05)	178	1.5	3	5	--
CV (%)	20	6.0	14	15	--

+ The erect index is a ratio of canopy height vs. vine length; 1.0 = upright

Table 30. Combined direct-seeded dry pea variety performance results at Genesee and Moscow, 2010.

Variety or Selection	Seed Yield			Seed Weight			Average of Both Sites		
	Moscow	Genesee	Average	Moscow	Genesee	Average	Canopy Height	Vine Length	Erect Index+
	----------lb/acre----------			----------g/100----------			----------inches---------		0.0-1.0
Green pea									
Aragorn	739	2691	1715	18.3	22.6	20.5	23	28	0.8
Ariel	569	2841	1705	15.5	18.0	16.7	24	29	0.8
Banner	639	3134	1886	18.6	19.2	18.9	21	33	0.7
Columbian	492	1574	1033	15.1	20.9	18.0	15	36	0.4
Cruiser	303	2641	1472	17.4	19.5	18.4	25	29	0.9
Monarch	521	2719	1620	16.1	19.4	17.7	20	24	0.8
Pacifica	633	2643	1638	19.1	20.5	19.8	21	31	0.7
Stirling	686	2118	1402	17.0	20.7	18.8	22	27	0.8
Average green	573	2545	1559	17.1	20.1	18.6	21	30	0.7
Yellow Pea									
Carousel	935	2739	1837	20.3	22.6	21.4	24	28	0.9
Rex	575	1992	1284	21.5	25.1	23.3	18	28	0.7
Shawnee	772	2779	1776	18.6	22.4	20.5	17	37	0.5
Universal	531	2755	1643	18.4	20.1	19.2	24	29	0.9
Average yellow	703	2566	1635	19.7	22.5	21.1	21	30	0.7
Overall average	616	2552	1584	18.0	20.9	19.4	21	30	0.7
LSD (0.05)	178	539	254	1.5	2.5	1.4	2	5	--
CV (%)	20	14	--	6.0	8.1	--	--	--	--

+ The erect index is a ratio of canopy height vs. vine length; 1.0 = upright

Table 31. Seed yield and seed weight for direct-seeded dry pea varieties tested for three years in northern Idaho.

Variety or	Seed Yield				Seed Weight			
Selection	2008	2009	2010	Average	2008	2009	2010	Average
	----------lb/acre----------				----------g/100----------			
Green pea								
Aragorn	1339	1731	1715	1595	20.1	16.9	20.5	19.2
Columbian	1405	861	1033	1100	17.5	17.7	18.0	17.7
Cruiser	1326	1157	1472	1318	19.1	15.6	18.4	17.7
Monarch	1519	1002	1620	1380	18.2	16.3	17.7	17.4
Pacifica	1914	1466	1638	1673	22.4	17.7	19.8	20.0
Stirling	1773	1249	1402	1475	19.9	16.7	18.8	18.5
Average green	1546	1244	1559	1450	19.5	16.8	18.9	18.4
Yellow Pea								
Carousel	1345	1538	1837	1573	23.9	19.0	21.4	21.4
Rex	1646	1035	1284	1322	22.5	20.6	23.3	22.1
Shawnee	1422	1021	1776	1406	20.9	18.6	20.5	20.0
Universal	1605	1507	1643	1585	20.6	18.4	19.2	19.4
Average yellow	1505	1275	1635	1472	22.0	19.2	21.1	20.7
Overall average	1529	1257	1584	1457	20.5	17.8	19.8	19.3
LSD (0.05)	212	212	254	--	1.1	1.1	1.4	--