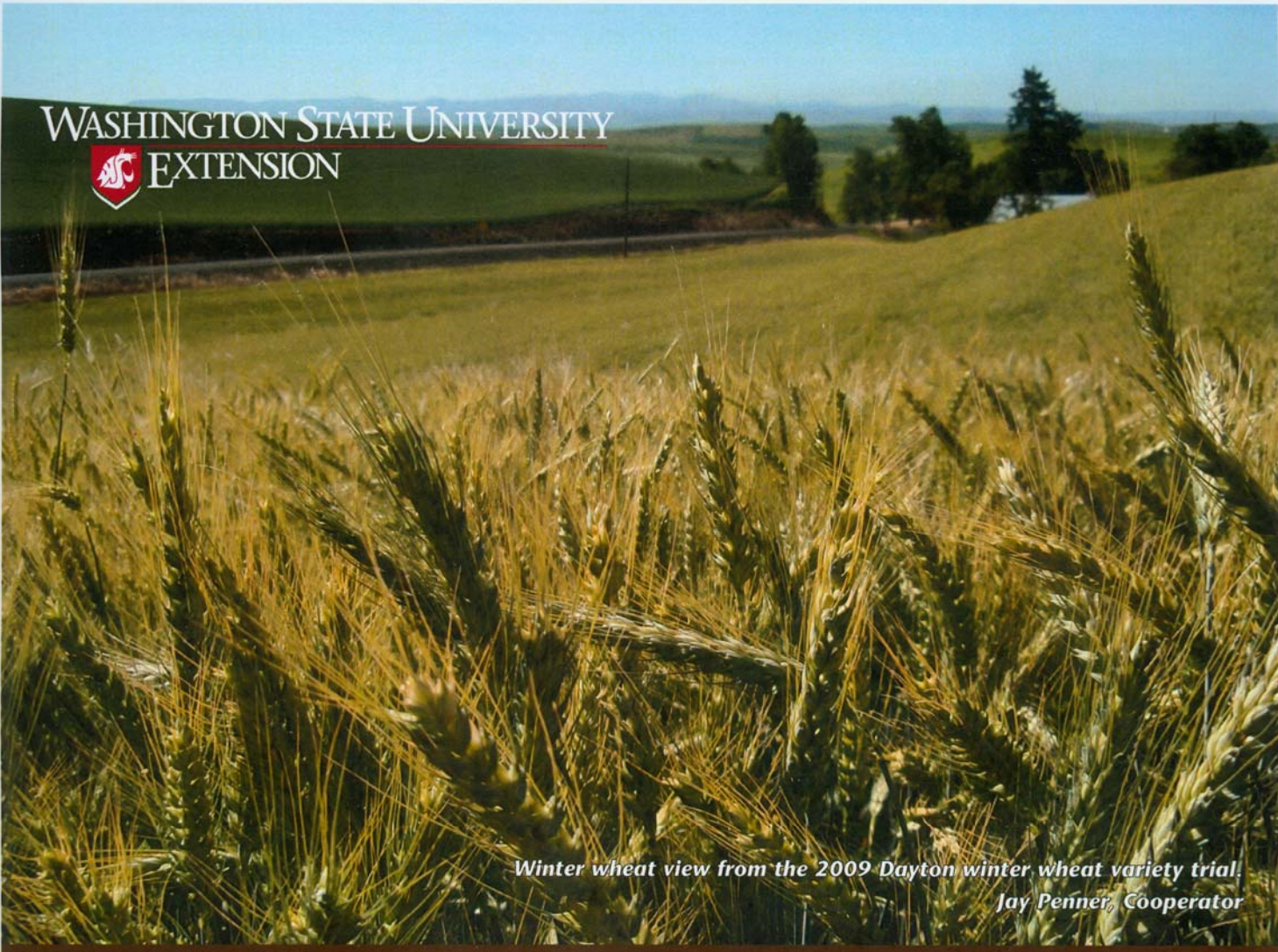
WSU Extension Uniform Cereal Variety Testing Program

Cereal Variety Performance Trials 2009

DEPARTMENT OF CROP AND SOIL SCIENCES • TECHNICAL REPORT 09-3



Winter wheat view from the 2009 Dayton winter wheat variety trial.
Jay Penner, Cooperator

Contributing agencies: Washington State University,
U.S. Department of Agriculture, and Department of Crop and Soil Sciences.

WSU Extension Uniform Cereal Variety Testing Program

Cereal Variety Performance Trials 2009

S.O. Guy, J.S. Kuehner, M.A. Lauver, A. Horton[1]

Department of Crop and Soil Sciences
Washington State University
Pullman, WA 99164-6420

http://variety.wsu.edu/

[1] S.O. Guy, Extension Agronomist, J.S. Kuehner, Scientific Assistant,
M.A. Lauver, Scientific Assistant, A. Horton, Res. Tech.
Dept. of Crop and Soil Sciences, Washington State University, Pullman, WA 99164-6420

December 2009

ACKNOWLEDGEMENTS

This technical bulletin is a summary of results from the 2009 Washington State University Extension Uniform Cereal Variety Testing Program with supporting contributions from Washington State University Extension, Washington State University Department of Crop and Soil Sciences and the Washington Agricultural Research Center.

In addition to funds provided by Washington State University, financial grants were provided by the Washington Wheat Commission and the Washington Barley Commission. Support was also provided by fees paid by individuals, seed companies and research foundations for entering proprietary cultivars into the program trials.

This report represents the collective efforts of many breeding programs and individuals. Specific appreciation is given to the following plant breeders and their support technicians for support in collaboration, establishment and harvest of selected Variety Testing Program trials:

WSU Winter Wheat Program: S. Jones, Winter Wheat Breeder; S. Lyon, K. Balow, M. Gollnick
USDA/ARS Winter Club Wheat Program: K. Campbell, Geneticist/Wheat Breeder; C. Hoagland,
WSU Spring Wheat Program: K. Kidwell, Interim Wheat Breeder; G. Shelton, V. DeMacon, W. Nyongesa, A. Carter
Endowed Chair in Wheat Breeding and Genetics: K. Gill, Geneticist; N. Kumar, P. Reisenauer
WSU Spring Barley Program: S. Ullrich, Barley Breeder; V. Jitkov, M. Wood
WSU Barley Genetics: A. Kleinhofs, Professor; D. vonWettstein, Endowed Chair; N. Ankrah, P. Reisenauer
USDA Wheat Genetics: B. Allan (Collaborator), Winter Wheat Breeder

Maintaining a current website is a critical component of the Variety Testing Program that enables nearly immediate access to all data and information relating to the program. Special appreciation is given to Deb Marsh, Communications Coordinator, Extension / Crop and Soil Sciences, Washington State University for design, maintenance and management of the WSU Extension Uniform Cereal Variety Testing Program website: http://variety.wsu.edu/.

Additional Support Programs and Personnel:

- *WSCIA:* J. Robinson, Manager; K. Olstad, L. Burkhartsmeier
  Foundation Seed Service: R. Whittum, Manager; D. Hilkin, G. Becker, D. Kraus
- *USDA Plant Pathology (Stripe rust), USDA/ARS:* X. Chen, Plant Pathologist; D. Wood
- *USDA Western Wheat Quality Lab (Quality Data), USDA/ARS*: C. Morris, Cereal Chemist, Director; D. Engle, A. Bettge
- *WSU Wheat Quality (Quality Data):* B. Baik, Cereal Chemist; T. Harris
- *Farm Managers, WSU Dept. of Crop and Soil Sciences (Support services)*: B.Sauer (Lind Field Station); R. Davis (Cook/Spillman Agronomy Farms, Pullman)
- *WSU Extension-County Educators (Programs & Tours):* M. Heitstuman (Asotin), P. Carter (Columbia), D. Whaley (Douglas), D. Bragg (Garfield), A. McGuire (Grant), A. Esser (Lincoln/Adams), D. Roberts (Spokane/Lincoln), J. Fouts (Walla Walla), S. VanVleet (Whitman), P. Peterson, (Benton/Franklin), A. McGuire (Grant/Adams)
- *Seasonal personnel (plot maintenance, harvesting, processing):* P. Olson, A. Henderson, P. Awinda

ACKNOWLEDGEMENTS (cont.)

Entry Contributors

Public	Private
WSU Barley Breeding & Genetics – D. von Wettstein	AgriPro – J. Moffatt
WSU Barley Breeding & Genetics – S. Ullrich	Allstar Inc. – R. Cooley
WSU Spring Wheat Breeding & Genetics – K. Kidwell	Busch Ag Resources – B. Cooper
WSU Winter Wheat Breeding – S. Jones	Double J Ranch, Inc. – P. Goldmark
WSU Wheat Breeding & Genetics – K. Gill	Genetic Marketing Group (GMG)
USDA/ARS Wheat Genetics – K. Campbell	Marcus Jacobson
USDA/ARS Wheat Genetics - R. E. Allan	Plant Breeders 1 – W. McProud
OSU Wheat Breeding – J. Peterson	Resource Seeds Inc. – G. Fohner, Craig Walters
UI Wheat Breeding – R. Zemetra	Wagner Seed – T. Wagner
UI Wheat Breeding – J. Chen	WestBred, LLC – D. Clark
UC Davis Wheat Breeding – J. Dubcovsky	Western Ag Seed Innovations – Ken Greer

Farmer Cooperators
Special acknowledgement is given to the numerous farmer cooperators who donated their time, land, field management, and grain yield to make this program successful.

Cooperator	Location	County	Cooperator	Location	County
Dan McKay	Almira	Lincoln	Mike/Dan Schmitt	H. Heaven	Benton
Jeff Johnson	Anatone	Asotin	Gil White	Lamont	Whitman
Steve Matsen	Bickleton	Klickitat	Bruce Sauer	Lind	Adams
Craig Walters	Colfax	Whitman	Roger/Randy Koller	Mayview	Garfield
Art Schultheis	Colton	Whitman	Randee Bergeson	Moses Lake	Grant
Dan Bauermeister	Connell	Franklin	Norm Druffel & Sons	Pullman	Whitman
Jerry Krause	Creston	Lincoln	Ryan Davis	Pullman	Whitman
Jay Penner	Dayton	Columbia	Hal Johnson	Reardan	Lincoln
Bob Morasch	Dusty	Whitman	Ron Jirava	Ritzville	Adams
Mark Richter	Endicott	Whitman	Larry Tanneberg	St. Andrews	Douglas
Al Anderberg	Fairfield	Spokane	Mac Mills	St. John	Whitman
Bruce Nelson	Farmington	Whitman	Jason/Tom Beechinor	Walla Walla	Walla Walla
Mark Kramer	Harrington	Lincoln	Glen Smith	Walla Walla	Walla Walla
Dave Roseberry	H. Heaven	Benton			

TABLE OF CONTENTS

2009 Hard Winter Wheat

2009 Soft White Spring Wheat

2009 Hard Spring Wheat

2009 Spring Barley

INTRODUCTION

The goal of the WSU Extension Uniform Cereal Variety Testing Program is to provide growers and the agribusiness industry with comprehensive information on the adaptation and performance of winter and spring, wheat and barley varieties across the different climatic regions and management practices in eastern Washington. A related goal is to provide WSU and USDA/ARS cereal breeding programs a uniform testing and evaluation program for advanced breeding lines to assist in determinations for variety release recommendations to the Washington Agricultural Research Center. This report summarizes small-grain cultivar performance tested in WSU Extension variety trials in crop year 2009.

When selecting varieties, it is important to review the yield and other variety performance data across as many trial sites with similar climatic and growing conditions as possible. In addition, evaluation of the yield results should rely most heavily on the long term yield averages, when available, since yield performance based on a single year for a given variety can be misleading. Variety testing results vary from year to year and site to site, just as commercial growing conditions vary across years and locations. Data tables included in this report provide current year, 2-year, 3-year and 5-year averages at each location. Yield and other important performance characteristics are also averaged within rainfall zones because of the strong influence of rainfall on agronomic performance.

This report represents research in progress. 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 other varieties.

METHODS

Experimental Materials and Procedures

The data presented in this report were created in uniform cereal variety testing trials conducted in 2009. The total number of varieties and locations for wheat and barley trials was: soft white winter wheat: 60 entries at 21 locations; hard winter wheat: 36 entries at 11 locations; irrigated hard winter wheat: 30 entries at 1 location; soft white spring wheat: 24 entries at 15 locations; hard white spring wheat: 10 entries at 15 locations; hard red spring wheat: 20 entries at 15 locations; and spring barley: 36 entries at 11 locations. There were 5 additional hard red spring wheat entries in the irrigated spring wheat trial at Moses Lake, WA. Tables 1-6 list all entries for the winter and spring trials. An alpha lattice design with three replications was used for all trials. For each crop, the seeding rate was a specific number of seeds planted per square foot. These rates were determined by weighing 1000 seeds (1000 kernel weight) of each cereal cultivar (Tables 7, 8 and 9). Winter wheat was treated with Dividend (2oz/cwt) and Gaucho (1.33 oz/cwt). Spring wheat and spring barley seed were treated with Raxil MD (5oz/cwt), Apron (0.5oz/cwt), and Gaucho (1.33oz/cwt). Entries were planted in small plots using one of four planter drill opener configurations based on the trial location (Tables 10 and 11). For example, a deep furrow drill with split packer openers is necessary in locations where planting depths may exceed 6 inches compared to using a planter with double disc openers that only require placing seed 1-2 inches into moisture. All trials were maintained under grower management conditions specific to each trial location.

Fertility levels were maintained under grower management practices for soft white winter wheat, soft white spring wheat and spring barley. Hard winter wheat trials had additional nitrogen fertilizer applied, if needed, based on February/March 2009 soil tests that estimated total pounds of nitrogen needed to attain a minimum grain protein level of 11.5% for average yield potentials at each location. The calculation estimate used for hard winter wheat was 3.0 pounds of nitrogen X expected bushel yield. Soil samples were also taken in the hard spring wheat trials to determine additional nitrogen applied, if needed, to attain a minimum grain protein level of 14% for hard red spring wheat. The calculation estimate used for hard red spring wheat was 3.7 pounds of nitrogen X expected bushel yield. All additional fertilizer was spring applied as urea ammonium sulfate (40-0-0-6) using a broadcast surface application.

Weed management included spring herbicide applications of commercial herbicides typically used by growers in each region. Clearfield® varieties were not treated with Beyond® herbicide since experiments were designed to compare each entry under uniform conditions. Applying Beyond® to Clearfield® varieties could create bias in the trials since all entries would not be managed the same.

Variety plot tours were conducted at each location to provide growers and agribusiness personnel opportunities to conduct in-field observations of all entries (Figure 1). Immediately prior to each plot tour, nurseries were trimmed to final harvest square foot dimensions using rotary mowers to cut alleyways between ranges.

When reported, stripe rust (*Puccinia striiformis*, West) ratings were measured using expanded scales for recording stripe rust. Dr. X. Chen, Plant Pathologist, USDA/ARS, was provided seed samples of all winter wheat, spring wheat and spring barley varieties that were planted in observation field nurseries at different locations. Winter wheat was also evaluated in the greenhouse. These data were summarized for infection type and percent severity for each entry at each location (Tables 12, 13, 38, 39, 55, 74, and 94).

INFECTION TYPE (IT): A 0-9 scale that is more damaging at higher levels on the scale.

0 = No visible signs or symptoms
1 = Necrotic and/or chlorotic flecks; no sporulation
2 = Necrotic and/or chlorotic blotches or stripes; no sporulation
3 = Necrotic and/or chlorotic blotches or stripes; trace sporulation
4 = Necrotic and/or chlorotic blotches or stripes; light sporulation
5 = Necrotic and/or chlorotic blotches or stripes; intermediate sporulation
6 = Necrotic and /or chlorotic blotches or stripes; moderate sporulation
7 = Necrotic and/or chlorotic blotches or stripes; abundant sporulation
8 = Chlorosis behind sporulating areas; abundant sporulation
9 = No necrosis or chlorosis; abundant sporulation

SEVERITY (%): Severity is a percentage of the plants of a variety that are being infected with stripe rust.

Heading date for each entry was recorded when 50% of the heads were out of the boot and reported as Julian date. Plant height measurements were collected by selecting an average plant in each plot and measuring to the top of the spike (not including awns).

Lodging was reported as a percentage of the plant spikes that were lodged prior to harvest.

Each entry at each location was evaluated for grain yield, test weight and percent grain protein. All entries were harvested from small plots ranging in size from 48 to 80 square feet (Tables 10 and 11). The entire plot was harvested with small plot combines and grain yield was converted to per acre yield. Wheat yield was reported in the standard 60 pounds per bushel. Barley was reported in pounds per acre. Test weight was reported in pounds per bushel. Grain protein percentage was reported for both wheat and barley entries, determined using a near infrared transmittance (NIRT) protein analyzer on a 12% moisture basis.

Within two days after harvest, all processed winter wheat data were analysed, summarized, and sent out via e-mail list serve to anyone who requested being listed on the e-mail list. Winter wheat data had priority in processing to provide growers immediate information to help in making fall planting decisions. Spring data were also sent on the e-mail list serve and all spring data were completed by the second week of September 2009. Data were also posted to the Variety Testing Program web site (http://variety.wsu.edu/) in nearly the same time sequence. E-mail contacts can be added to the list serve by sending a request to sguy@wsu.edu.

Statistical Analysis and Interpretation

Entry means (averages) are shown within the body of the data tables and the overall trial average at the bottom of the tables for yield, test weight and protein. The least significant difference (LSD) and the coefficient of variation (CV) are also listed. The LSD is presented at the 10 percent error level and is an aid in comparing the performance of any two varieties within a given year and location. If the reported value of a variety is greater than another variety by more than the LSD value, then there is at least a 9 out of 10 chance the yields of those varieties are different and not due to chance variation. If the measure values differ by less than the LSD value, the differences may be due to random error rather than actual differences. Yield values are reported from highest to lowest within a table, and some varieties are shown in bolded type that are within the LSD range of the highest yielding variety. This only shows the LSD range of the top yielding varieties and LSD comparisons can be done on any varieties of interest within a table. The coefficient of variation (CV) is given as a general measurement of the precision of each experiment. CV values are listed as a percent and assist in estimating how much variation is not due to variety differences but due to differences in soil variability, soil moisture, diseases, weeds, experimental technique, etc. For yield a CV of 1% to 15% is considered acceptable, while a CV greater than 15% indicates that considerable unaccounted for variation was present. The higher the CV, the more difficult it is to detect differences between varieties.

TABLE 1. Soft White Winter Wheat Name and Identification Number Cross Reference for the 2009 WSU Variety Testing Program Nurseries.

Type	Class	Name/ID	Originator	Variety Number	PI Number
Winter	WHCB	CODA	USDA-ARS/WSU	WA 7752	PI 594372
Winter	WHCB	CHUKAR	USDA-ARS/WSU	WA 7855	PI 628641
Winter	WHCB	CARA	USDA-ARS/WSU	ARS97135-9	PI 643435
Winter	WHCB	BRUEHL	WSU	WA007833	PI 606764
Winter	WHCB	ARS970075-3C	USDA-ARS/WSU	ARS970075-3	
Winter	WHCB	ARS970168-2C	USDA-ARS/WSU	ARS970168-2C	
Winter	WHCB	ARS970071-3C	USDA-ARS/WSU	ARS970071-3C	
Winter	SWH	MADSEN	USDA-ARS/WSU	WA 7163	PI 511673
Winter	SWH	ELTAN	USDA-ARS/WSU	WA 7431	PI 536994
Winter	SWH	ROD	WSU	WA 7662	PI 558510
Winter	SWH	FINCH	USDA-ARS/WSU	WA7853	PI 628640
Winter	SWH	MASAMI	WSU	WA007916	PI 634715
Winter	SWH	XERPHA	WSU	WA007973	PI 645605
Winter	SWH	WA008063	WSU	WA008063	
Winter	SWH	WA008064	WSU	WA008064	
Winter	SWH	WA008065	WSU	WA008065	
Winter	SWH	WA008066	WSU	WA008066	
Winter	SWH	WA008092	WSU	WA008092	
Winter	SWH	WA008093	WSU	WA008093	
Winter	SWH	WA008094	WSU	WA008094	
Winter	SWH	ARS960277L	USDA-ARS/WSU	ARS960277L	
Winter	SWH	ARS970170-2L	USDA-ARS/WSU	ARS970170-2L	
Winter	SWH	LAMBERT	UI	ID85-153	PI 583372
Winter	SWH	BRUNDAGE 96	UI	ID-B-96	PI 631486
Winter	SWH	SIMON	UI	ID91-34302A	
Winter	SWH	BITTERROOT	UI	ID92-22407A	
Winter	SWH	9364901A	UI	9364901A	
Winter	SWH	STEPHENS	OSU	OR 65-116	CItr 17596
Winter	SWH	TUBBS 06	OSU	NEWTUBBS	
Winter	SWH	SKILES	OSU	ORH010085	
Winter	SWH	OR2060324	OSU	OR2060324	
Winter	SWH	OR2050293	OSU	OR2050293	
Winter	SWH	OR2040726	OSU	OR2040726	
Winter	SWH	WB 523	WestBred LLC	BU6W00-523	
Winter	SWH	WB 528	WestBred LLC	BZ-6W98-528	
Winter	SWH	WB 456	WestBred LLC	BU6W99-456	
Winter	SWH	BZ6W02-616	WestBred LLC	BZ6W02-616	
Winter	SWH	GEORGE	Double J Ranch, Inc.	Q1	
Winter	SWH	RJAMES	Double J Ranch, Inc.	Q2	
Winter	SWH	CASHUP	Col. Basin Seeds	WA7521	PI 601237
Winter	SWH	SALUTE	AgriPro	99X1008-02	
Winter	SWH	LEGION	AgriPro	99X1009-23	
Winter	SWH	AP LEGACY	AgriPro	ORF2267-03	
Winter	SWH	CDC PTARMIGAN	U. of Saskatchewan	CDC PTARMIGAN	
Winter	SWH	KCF08001	WSU	KCF08001	
Winter	SWH	KCF08002	WSU	KCF08002	
Winter	SWH	ID990435	UI	ID990435	
Winter	SWH	ID02-859	UI	ID02-859	
Winter	SWH	ORI2060306	OSU	ORI2060306	
Winter	SWH	ORCF-101	OSU	OR210051	
Winter	SWH	ORCF-102	OSU	OR201007	
Winter	SWH	ORCF-103	OSU	ORI2042037	
Winter	SWH	AP 700 CL	AgriPro	OSU POP-28-13	
Winter	SWH	WB 1020M	WestBred LLC	BZ6WM02-1020	
Winter	SWH	WB 1066M	WestBred LLC	BZ6WM04-1066	
Winter	SWH	WB 1070M	WestBred LLC	WB 1070M	
Winter	SWH	MADSEN/ROD		MAD50ROD50	
Winter	SWH	ELTAN/MADSEN		ELT50MAD50	
Winter	SWH	ELTAN/TUBBS		ELT50TUB50	
Winter	SWH	ROD/TUBBS		ROD50TUB50	

TABLE 2. Hard Winter Wheat Name and Identification Number Cross Reference for the 2009 WSU Variety Testing Program DRYLAND Nurseries.

Type	Class	Name/ID	Originator	Variety Number	PI Number
Winter	HRW	FINLEY	WSU	WA 7773	PI 586757
Winter	HRW	HATTON	WSU	WA 6364	CItr 17772
Winter	HRW	BAUERMEISTER	WSU	WA007939	PI 634717
Winter	HRW	WA008098	WSU	WA008098	
Winter	HRW	WA008022	WSU	WA008022	
Winter	HRW	WA008068	WSU	WA008068	
Winter	HRW	WA008070	WSU	WA008070	
Winter	HRW	WA008095	WSU	WA008095	
Winter	HRW	FARNUM	WSU	WA007975	
Winter	HRW	WA008061	WSU	WA008061	
Winter	HRW	BOUNDARY	UI	IDO467	PI 603039
Winter	HRW	IDO683	UI	IDO683	
Winter	HRW	NORWEST 553	OSU	ORN00B553	
Winter	HRW	EDDY	WestBred LLC	BZ9W96-788-E	
Winter	HRW	ACS 52025	WestBred LLC	ACS 52025	
Winter	HRW	ML9W05-2506	WestBred LLC	ML9W052506	
Winter	HRW	NORRIS	WestBred LLC	NORRIS	
Winter	HRW	AGRIPRO PALADIN	AgriPro	W96-355	
Winter	HRW	WHETSTONE	AgriPro	W98-344	
Winter	HRW	BC002-2	AgriPro	BC002-2	
Winter	HRW	DECLO	Sunderman Breeding	215-B	PI 619419
Winter	HRW	PEREGRINE	U. of Saskatchewan	DH99-37-100	
Winter	HRW	ACCIPITER	U. of Saskatchewan	DH00-18-196	
Winter	HRW	ESPERIA	Allstar Inc.	ESPERIA	
Winter	HDWH	MDM	WSU	WA007936	PI 634716
Winter	HDWH	WA008096	WSU	WA008096	
Winter	HDWH	WA008097	WSU	WA008097	
Winter	HDWH	UI DARWIN	UI	IDO604	PI 639953
Winter	HDWH	IDO651	UI	IDO651	
Winter	HDWH	IDO658	UI	IDO658	
Winter	HDWH	ML9W04-2543W	WestBred LLC	ML9W04-2543W	
Winter	HDWH	PALOMINO	AgriPro	W96-359W	
Winter	HDWH	NUDAKOTA	AgriPro	NUDAKOTA	
Winter	HDWH	MOL	Allstar Inc.	MOL	
Winter	HDWH	MIETI	Allstar Inc.	MIETI	
Winter	SWH	ELTAN	USDA-ARS/WSU	WA 7431	PI 536994

TABLE 3. Hard Winter Wheat Name and Identification Number Cross Reference for the 2009 WSU Variety Testing Program IRRIGATED Nursery.

Type	Class	Name/ID	Originator	Variety Number	PI Number
Winter	HRW	BAUERMEISTER	WSU	WA007939	PI 634717
Winter	HRW	BOUNDARY	UI	IDO467	PI 603039
Winter	HRW	IDO653	UI	IDO653	
Winter	HRW	NORWEST 553	OSU	ORN00B553	
Winter	HRW	EDDY	WestBred LLC	BZ9W96-788-E	
Winter	HRW	ACS 52025	WestBred LLC	ACS 52025	
Winter	HRW	ML9W05-2506	WestBred LLC	ML9W05-2506	
Winter	HRW	AGRIPRO PALADIN	AgriPro	W96-355	
Winter	HRW	WHETSTONE	AgriPro	W98-344	
Winter	HRW	BC002-2	AgriPro	BC002-2	
Winter	HRW	DECLO	Sunderman Breeding	215-B	PI 619419
Winter	HRW	PEREGRINE	U. of Saskatchewan	DH99-37-100	
Winter	HRW	ACCIPITER	U. of Saskatchewan	DH00-18-196	
Winter	HRW	ESPERIA	Allstar Inc.	ESPERIA	
Winter	HDWH	UI DARWIN	UI	IDO604	PI 639953
Winter	HDWH	IDO651	UI	IDO651	
Winter	HDWH	PALOMINO	AgriPro	W96-359W	
Winter	HDWH	NUDAKOTA	AgriPro	NUDAKOTA	
Winter	HDWH	MOL	Allstar Inc.	MOL	
Winter	HDWH	MIETI	Allstar Inc.	MIETI	
Winter	SRW	DH99-55-2	U. of Saskatchewan	DH99-55-2	
Winter	SWH	WA008063	WSU	WA008063	
Winter	SWH	WA008064	WSU	WA008064	
Winter	SWH	WA008065	WSU	WA008065	
Winter	SWH	VW-29	WSU	VW-29	
Winter	SWH	VW-30	WSU	VW-30	
Winter	SWH	FE-35	WSU	FE-35	
Winter	SWH	MJ-9	Marcus Jacobson	MJ-9	
Winter	SWH	YIELDSTAR 45	Wagner Seeds	YIELDSTAR 45	
Winter	SWH	STEPHENS	OSU	OR 65-116	CItr 17596

TABLE 4. Soft White Spring Wheat Name and Identification Number Cross Reference for the 2009 WSU Variety Testing Program Nurseries.

Type	Class	Name/ID	Variety Number	Originator	PI Number
Spring	SWH	ALPOWA	WA 7677	WSU	PI 566596
Spring	SWH	ZAK	WA 7850	WSU	PI 607839
Spring	SWH	LOUISE	WA007921	WSU	PI 634865
Spring	SWH	WAKANZ	WA 7183	WSU	PI 506352
Spring	SWH	NICK	BZ698-031	WestBred LLC	
Spring	SWH	BZ604-026	BZ604-026	WestBred LLC	
Spring	SWH	WHIT	WA008008	WSU	PI 653841
Spring	SWH	BABE	WA008039	WSU	PI 656791
Spring	SWH	WA008039HF	WA008039HF	WSU	
Spring	SWH	WA008041	WA008041	WSU	
Spring	SWH	WA008108	S0600164L	WSU	
Spring	SWH	WA008090	WA008090	WSU	
Spring	SWH	WA008089	WA008089	WSU	
Spring	SWH	WA008058	WA008058	WSU	
Spring	SWH	WA008059	WA008059	WSU	
Spring	SWH	WA008104	WA008104	WSU	
Spring	SWH	WA008112	RIL-100	WSU	
Spring	SWH	WA008106	WA008106	WSU	
Spring	SWH	ALTURAS	IDO526	UI	PI 620631
Spring	SWH	CATALDO	IDO642	UI	
Spring	WHCB	EDEN	WA007902	WSU	PI 630983
Spring	WHCB	JD	WA008047	WSU	PI 656790
Spring	WHCB	EDEN (HSR)	WA007902	WSU	PI 630983
Spring	WHCB	JD (HSR)	WA008047	WSU	PI 656790

TABLE 5. Hard Red & Hard White Spring Wheat Name and Identification Number Cross Reference for the 2009 WSU Variety Testing Program Nurseries.

Type	Class	Name/ID	Variety Number	Originator	PI Number
Spring	HRS	SCARLET	WA007802	WSU	PI 601814
Spring	HRS	HOLLIS	WA007859	WSU	PI 632857
Spring	HRS	TARA 2002	WA007824	WSU	PI 617073
Spring	HRS	KELSE	WA007954	WSU	PI 653842
Spring	HRS	WA008027	WA008027	WSU	
Spring	HRS	WA008072	WA008072	WSU	
Spring	HRS	WA008074	WA008074	WSU	
Spring	HRS	WA008075	WA008075	WSU	
Spring	HRS	WA008076	WA008076	WSU	
Spring	HRS	JEFFERSON	IDO462	UI	PI 603040
Spring	HRS	UI WINCHESTER	IDO578	UI	PI 642362
Spring	HRS	WESTBRED 926	WESTBRED 926	WestBred LLC	
Spring	HRS	HANK	BZ 992-322	WestBred LLC	PI 613585
Spring	HRS	JEDD	BZ9M03-1044	WestBred LLC	
Spring	HRS	VOLT	ACS52610	WestBred LLC	
Spring	HRS	NPBHR70	NPBHR70	Resource Seeds, Inc	
Spring	HRS	LASSIK	LASSIK	UC Davis	
Spring	HRS	BUCK PRONTO	T0001052	Buck Semillas S.A.	
Spring	HRS	BULLSEYE	AP-81	AgriPro	
Spring	HRS	OR4990114	OR4990114	OSU	
Spring	HDWH	MACON	WA007899	WSU	PI 617072
Spring	HDWH	OTIS	WA007931	WSU	PI 634866
Spring	HDWH	WA008078	WA008078	WSU	
Spring	HDWH	WA008079	WA008079	WSU	
Spring	HDWH	WA008100	WA008100	WSU	
Spring	HDWH	WA008101	WA008101	WSU	
Spring	HDWH	BLANCA GRANDE	BLANCA GRANDE	Resource Seeds, Inc	PI 631481
Spring	HDWH	RSI10348W	RSI10348W	Resource Seeds, Inc	
Spring	HDWH	CLEAR WHITE	UC 1361	UC Davis	PI 635044
Spring	HDWH	BZ903-445WP	BZ903-445WP	WestBred LLC	
Spring	HRS (irrigated)	SOLANO	DA900-229	WestBred LLC	
Spring	HRS (irrigated)	EXPRESSO	EXPRESSO	WestBred LLC	
Spring	HRS (irrigated)	CABERNET	95WV10616	Resource Seeds, Inc	
Spring	HRS (irrigated)	LARIAT	RSI50076	UC Davis	
Spring	HRS (irrigated)	RSI50603	02W50603	Resource Seeds, Inc	

TABLE 6. Spring Barley Name and Identification Number Cross Reference for the 2009 WSU Variety Testing Program Nurseries.

Type	Class	Name/ID	Originator	Variety Number	PI Number
Spring	2-Row	BOB	WSU	WA8682-96	PI 629288
Spring	2-Row	RADIANT	WSU	98NZ223	PI 633971
Spring	2-Row	BARONESSE	Nord Saat/Westbred	BARONESSE	PI 568246
Spring	2-Row	CHAMPION	WestBred LLC	YU-501-385D	
Spring	2-Row	RWA 1758	WestBred LLC	RWA 1758	
Spring	2-Row	KENT	Lima Grain Advanta	HE-8805	
Spring	2-Row	HARRINGTON	U. of Saskatchewan	WA006783	
Spring	2-Row	AC METCALFE	Ag. Canada	AC METCALFE	
Spring	2-Row	SPAULDING	Plant Breeders 1	PB1-95-2R-522	
Spring	6-Row	LEGACY	Busch Ag Resources	6B93-2978	PI 604645
Spring	2-Row	CDC COPELAND	U. of Saskatchewan	SKTR0150	
Spring	2-Row	LENETAH	UI	LENETAH	PI 652440
Spring	2-Row	HAXBY	MSU	MT950186	
Spring	2-RowN	CLEARWATER	UI	01ID435H	
Spring	2-Row	TETONIA	UI	98Ab11720	
Spring	2-Row	PINNACLE	NDSU	2ND21863	
Spring	2-Row	2004NZ170	WSU	2004NZ170	
Spring	2-Row	2004NZ223	WSU	2004NZ223	
Spring	2-Row	2004NZ052	WSU	2004NZ052	
Spring	2-Row	2004NZ160	WSU	2004NZ160	
Spring	2-Row	05WA-316.K	WSU	05WA-316.K	
Spring	6-Row	05WA-328.8	WSU	05WA-328.8	
Spring	2-Row	05WA-329.49	WSU	05WA-329.49	
Spring	2-Row	05WA-325.18	WSU	05WA-325.18	
Spring	2-Row	05WA-357.14	WSU	05WA-357.14	
Spring	2-Row	05WA-316.99	WSU	05WA-316.99	
Spring	2-Row	05WA-360.24	WSU	05WA-360.24	
Spring	2-Row	04WNZ-286	WSU	04WNZ-286	
Spring	2-Row	04WA-113.22	WSU	04WA-113.22	
Spring	2-Row	04WA-122.9	WSU	04WA-122.9	
Spring	2-Row	04WNZ-124	WSU	04WNZ-124	
Spring	2-Row	04WA-102.49	WSU	04WA-102.49	
Spring	2-RNWx	03WA-204.22H	WSU	03WA-204.22H	
Spring	2-RNWx	01WA-13860.5	WSU	01WA-13860.5	
Spring	2-RNWx	WA 9820-98	WSU	WA 9820-98	
Spring	2-RNWx	MERESSE	WestBred LLC	BZ 594-35	

TABLE 7.

2008-2009 WSU WINTER VARIETY TRIAL SEED WEIGHTS

WINTER WHEAT NURSERY

NAME	1000 Kernel Weight (GRAMS)	Seeds per Pound
Soft White Common		
MADSEN	43.1	10534
ELTAN	45.7	9934
ROD	42.6	10657
FINCH	38.2	11885
MASAMI	43.4	10461
XERPHA	46.5	9763
WA008063	38.8	11701
WA008064	40.3	11266
WA008065	40.2	11294
WA008066	33.9	13392
WA008092	41.9	10835
WA008093	35.1	12934
WA008094	31.8	14277
ARS960277L	32.0	14188
ARS970170-2L	44.2	10271
LAMBERT	38.3	11854
BRUNDAGE 96	32.9	13799
SIMON	33.7	13472
BITTERROOT	31.1	14598
9364901A	34.7	13084
STEPHENS	50.9	8919
TUBBS 06	40.1	11322
SKILES	48.4	9380
OR2060324	37.5	12107
OR2050293	27.2	16691
OR2040726	37.6	12074
WB 523	41.0	11073
WB-528	45.8	9913
WB 456	43.1	10534
BZ6W02-616	38.3	11854
GEORGE	43.6	10413
RJAMES	47.4	9578
CASHUP	36.7	12371
SALUTE	49.7	9135
LEGION	47.6	9538
AP LEGACY	46.1	9848
CDC PTARMIGAN	39.2	11582
KCF08001	42.4	10708
KCF08002	39.2	11582
ID990435	40.7	11155
ID02-859	30.3	14983
OR2060306	36.1	12576
ORCF-101	37.4	12139
ORCF-102	50.8	8937
ORCF-103	50.5	8990
AP 700 CL	45.2	10044
WB 1020M	47.0	9660
WB 1066M	41.4	10966
WB 1070M	41.6	10913
MADSEN/ROD	42.9	10583
ELTAN/MADSEN	44.4	10225
ELTAN/TUBBS06	42.9	10583
ROD/TUBBS06	41.4	10966
Soft White Club		
CODA	31.8	14277
CHUKAR	39.7	11436
CARA	35.8	12682
BRUEHL	38.2	11885
ARS970075-3C	30.3	14983
ARS970168-2C	28.9	15709
ARS970071-3C	40.4	11238

HARD WINTER WHEAT NURSERY

NAME	1000 Kernel Weight (GRAMS)	Seeds per Pound
Hard Red Winter		
FINLEY	42.9	10583
HATTON	36.7	12371
BAUERMEISTER	40.3	11266
WA008098	31.4	14459
WA008022	32.1	14143
WA008068	39.5	11494
WA008095	33.6	13512
WA008070	28.4	15986
FARNUM	39.3	11552
WA008061	37.4	12139
BOUNDARY	30.4	14934
IDO683	30.1	15083
NORWEST 553	40.0	11350
EDDY	40.7	11155
ACS 52025	47.0	9660
ML9W05-2506	40.1	11322
NORRIS	34.3	13236
AGRIPRO PALADIN	43.2	10509
WHETSTONE	32.0	14188
BC002-2	34.6	13121
DECLO	38.3	11854
PEREGRINE	37.5	12107
ACCIPITER	32.4	14012
ESPERIA	39.9	11378
Hard White Winter		
MDM	43.6	10413
WA008096	30.3	14983
WA008097	31.6	14367
UI DARWIN	40.4	11238
IDO651	38.8	11701
IDO658	38.0	11947
ML9W04-2543W	34.6	13121
PALOMINO	35.9	12646
NUDAKOTA	39.4	11523
MIETI	33.2	13675
MOL	29.3	15495
Soft White Common		
ELTAN	45.7	9934

TABLE 8.

2008-2009 WSU IRRIGATED HARD VARIETY TRIAL SEED WEIGHTS

IRRIGATED HARD WINTER WHEAT NURSERY

NAME	1000 Kernel Weight (GRAMS)	Seeds per Pound
Hard Red Winter		
BAUERMEISTER	40.3	11266
BOUNDARY	30.4	14934
IDO653	39.8	11407
NORWEST 553	40.0	11350
EDDY	40.7	11155
ACS 52025	47.0	9660
ML9W05-2506	40.1	11322
AGRIPRO PALADIN	43.2	10509
WHETSTONE	32.0	14188
BC002-2	34.6	13121
DECLO	38.3	11854
PEREGRINE	37.5	12107
ACCIPITER	32.4	14012
ESPERIA	39.9	11378
Hard White Winter		
IDO651	38.8	11701
UI DARWIN	40.4	11238
PALOMINO	35.9	12646
NUDAKOTA	39.4	11523
MOL	29.3	15495
MIETI	33.2	13675
Soft White Common		
WA008063	38.8	11701
WA008064	40.3	11266
WA008065	40.2	11294
VW-29	37.2	12204
VW-30	40.7	11155
FE-35	36.5	12438
YIELDSTAR 45	43.9	10342
MJ-9	33.2	13675
DH99-55-2	30.3	14983
STEPHENS	50.9	8919

TABLE 9.

2009 WSU SPRING VARIETY TRIAL SEED WEIGHTS

SPRING WHEAT NURSERY

NAME	1000 Kernel Weight (GRAMS)	Seeds per Pound
Soft White Common		
ALPOWA	38.7	11731
ZAK	41.4	10966
LOUISE	48.1	9439
WAKANZ	41.4	10966
NICK	39.9	11378
BZ604-002	41.2	11019
WHIT	42.1	10784
BABE	42.5	10682
WA008039HF	46.9	9680
WA008041	32.5	13969
WA008108	37.8	12011
WA008090	44.3	10248
WA008089	45.0	10089
WA008058	39.0	11641
WA008059	40.2	11294
WA008104	35.4	12825
WA008112	37.5	12107
WA008106	42.1	10784
ALTURAS	37.0	12270
CATALDO	37.0	12270
Soft White Club		
EDEN	36.9	12304
JD	38.7	11731
EDEN (HSR)	36.9	12304
JD (HSR)	38.7	11731
Hard Red		
SCARLET	39.0	11641
HOLLIS	47.0	9660
TARA 2002	58.0	7828
KELSE	40.7	11155
WA008027	38.0	11947
WA008072	38.2	11885
WA008074	35.0	12971
WA008075	37.9	11979
WA008076	36.6	12404
JEFFERSON	35.4	12825
UI WINCHESTER	41.7	10887
WESTBRED 926	44.9	10111
HANK	51.3	8850
JEDD	43.0	10558
VOLT	38.2	11885
NPBHR70	39.5	11494
LASSIK	37.6	12074
BUCK PRONTO	48.0	9458
BULLSEYE	35.8	12682
OR4990114	32.5	13969
SOLANO	40.9	11100
EXPRESSO	38.4	11823
CABERNET	43.4	10461
LARIAT	36.9	12304
RSI50603	36.7	12371
Hard White		
MACON	45.4	10000
OTIS	42.5	10682
WA008078	47.4	9578
WA008079	38.5	11792
WA008100	37.6	12074
WA008101	38.3	11854
BLANCA GRANDE	37.7	12042
RSI10348W	39.5	11494
CLEAR WHITE	42.8	10607
BZ903-445WP	52.0	8731

SPRING BARLEY NURSERY

NAME	1000 Kernel Weight (GRAMS)	Seeds per Pound
2-Row		
BOB	52.4	8664
RADIANT	47.2	9619
BARONESSE	42.6	10657
CHAMPION	50.9	8919
RWA 1758	42.0	10810
KENT	47.8	9498
HARRINGTON	47.2	9619
AC METCALFE	40.8	11127
SPAULDING	42.9	10583
CDC COPELAND	44.8	10134
LENETAH	51.7	8781
HAXBY	43.8	10365
TETONIA	42.5	10682
PINNACLE	50.0	9080
2004NZ170	39.0	11641
2004NZ223	40.5	11210
2004NZ052	37.6	12074
2004NZ160	39.2	11582
05WA-316.K	43.6	10413
05WA-329.49	47.6	9538
05WA-325.18	42.3	10733
05WA-357.14	41.8	10861
05WA-316.99	50.2	9044
05WA-360.24	44.0	10318
04WNZ-286	46.2	9827
04WA-113.22	38.0	11947
04WA-122.9	42.7	10632
04WNZ-124	40.6	11182
04WA-102.49	41.5	10940
2-Row Hulless		
CLEARWATER	37.9	11979
2-Row Hulless/Waxy		
03WA-204.22H	47.2	9619
01WA-13860.5	39.7	11436
WA 9820-98	41.0	11073
MERESSE	44.9	10111
6-Row		
LEGACY	39.4	11523
05WA-328.8	36.8	12337

TABLE 10.

Cultural data for 2009 WSU winter wheat variety trial locations.

Average Annual Rainfall (in)	Nursery Location	Previous Crop	lb Base Fertilizer			Hard nursery Additional Fertilizer			Planting				Harvest Area ($ft.^2$)	Crop Year Pptn. (in.)	Harvest Date	Soil Type	Nursery Location	Elevation	Latitude	Longitude
									Date	Seeding Rate (lb/A)	Planter Type*	Row Space (in)								
			N	P	S	N	P	S												
< 12	Connell	Fallow	45	0	15	0	0	0	4-Sep	45	DF	15	66	9.37	21-Jul	Ritzville Silt Loam	Connell	1234	46 36.110	118 44.324
	Harrington	Fallow	60	0	5	- -	- -	- -	9-Sep	45	DF	15	66	11.14	N/A	Renslow Silt Loam	Harrington	2114	47 21.716	118 19.288
	Horse Heaven	Fallow	40	0	0	0	0	0	8-Oct	45	DD	6	48	4.45	20-Jul	Shano Silt Loam	Horse Heaven	1079	46 09.504	119 39.420
	Lind	Fallow	50	0	10	0	0	0	4-Sep	45	DF	15	66	8.13	21-Jul	Ritzville Silt Loam	Lind	1671	47 00.325	118 33.659
	Ritzville	Fallow	60	0	6	0	0	0	9-Sep	45	DF	15	66	11.29	23-Jul	Ritzville Silt Loam	Ritzville	1873	47 08.896	118 28.358
	St. Andrews	Fallow	65	0	8	0	0	0	5-Sep	45	DF	15	66	6.27	29-Jul	Siweeka	St. Andrews	2398	47 38.530	119 26.091
12-16	Almira	Fallow	80	0	10	0	0	0	8-Sep	85	H	9	48	10.29	5-Aug	Bagdad Silt Loam	Almira	2680	47 53.314	118 53.684
	Anatone	Fallow	70	0	12	- -	- -	- -	24-Sep	85	DD	6	48	12.77	28-Jul	Neconda Silt Loam	Anatone	3104	46 11.922	117 06.680
	Creston	Fallow	80	0	10	- -	- -	- -	15-Sep	85	H	9	48	10.94	11-Aug	Bagdad Silt Loam	Creston	2505	47 49.816	118 32.276
	Dusty	Fallow	76	0	6	- -	- -	- -	16-Sep	85	H	9	48	17.09	30-Jul	Onyx Silt Loam	Dusty	1600	46 54.305	117 48.370
	Lamont	Fallow	70	0	10	0	0	0	8-Sep	85	H	9	48	14.91	3-Aug	Athena Silt Loam	Lamont	1853	47 08.025	117 49.548
16-20	Dayton	Fallow	144	10	15	70	0	10	24-Sep	85	DD	6	48	20.23	4-Aug	Mondovi	Dayton	1991	46 23.238	118 03.312
	Mayview	Fallow	80	0	15	- -	- -	- -	14-Oct	85	DD	6	48	26.25	4-Aug	Athena Silt Loam	Mayview	2434	46 37.005	117 24.741
	Reardan	Fallow	85	7	5	0	0	0	25-Sep	85	DD	6	48	13.45	17-Aug	Hanning Silt Loam	Reardan	2536	47 39.928	118 00.772
	St. John	Fallow	90	0	15	- -	- -	- -	16-Sep	85	DD	6	48	21.12	20-Aug	Athena Silt Loam	St. John	2210	47 04.899	117 30.932
	Walla Walla	Fallow	220	15	15	95	0	29	6-Oct	85	DD	6	48	19.82	27-Jul	Walla Walla Silt Loam	Walla Walla	1021	46 10.787	118 17.831
> 20	Colton	Lentils	120	16	16	- -	- -	- -	1-Oct	85	NT	10	60	24.13	18-Aug	Latah Silt Loam	Colton	2637	46 33.392	117 07.911
	Fairfield	Winter Wheat	100	0	15	- -	- -	- -	29-Sep	85	DD	6	48	14.43	18-Aug	Palouse Silt Loam	Fairfield	2565	47 24.857	117 12.973
	Farmington	Lentils	114	20	20	- -	- -	- -	30-Sep	85	NT	10	60	23.13	21-Aug	Thatuna Silt Loam	Farmington	2665	47 04.873	117 03.194
	Pullman	Chickpeas	100	20	30	44	0	7	3-Oct	85	DD	6	48	22.56	18-Aug	Latah Silt Loam	Pullman	2428	46 41.719	117 07.775
Irrigated	Moses Lake	Onions	200	25	0	0	0	0	22-Oct	85	DD	6	48	25"-Irr.	6-Aug	Timmerman Sandy Loam	Moses Lake	1157	47 02.833	119 10.347

* DF = Deep Furrow: DD = Double Disc; H = Hoe openers; NT = No-till Cross Slot

45# = 11.25 Seeds/Ft
57# = 14.25 Seeds/Ft
60# = 15 Seeds/Ft
85# = 21.5 Seeds/Ft

TABLE 11.

Cultural data for the 2009 WSU spring wheat and barley variety evaluation trials

Annual Rainfall (in)	Nursery Location	Previous Crop	lb Base Fertilizer			Hard nursery Additional Fertilizer			Planting					Harvest Area	Precipitation		Harvest Date	Soil Type	Nursery Location	Elevation	Latitude	Longitude
									Seeding Rate (lb/A)			Planter Type*	Row Space		Soil Moisture	Rainfall						
			N	P	S	N	P	S	Date	Wheat	Barley		(in)	($ft.^2$)	(in)	(in)						
< 12	Bickleton	Spring Wheat	30	5	5	25	5	5	21-Apr	60	70	NT	10	80	- -	1.00	24-Aug	Broadax Silt Loam	Bickleton	2828	45 59.298	120 14.447
	Connell	Fallow	45	0	15	0	0	0	18-Mar	60	- -	DD	6	80	4.19	4.45	22-Jul	Ritzville Silt Loam	Connell	1234	46 36.110	118 44.324
	Horse Heaven	Fallow	40	0	0	0	0	0	20-Mar	60	- -	DD	6	64	2.77	1.03	20-Jul	Warden Silt Loam	Horse Heaven	1504	46 07.615	119 49.697
	Lind Fallow	Fallow	50	0	15	0	0	0	19-Mar	60	- -	DD	6	80	5.61	2.42	29-Jul	Ritzville Silt Loam	Lind Fallow	1707	47 00.358	118 33.542
12-16	Almira	Fallow	80	0	10	0	0	0	20-Apr	60	70	DD	6	64	8.84	3.65	11-Aug	Bagdad Silt loam	Almira	2655	47 53.291	118 53.638
	Endicott	Winter Wheat	85	16	16	0	0	0	7-Apr	80	- -	NT	10	80	13.84	4.07	11-Aug	Onyx Silt Loam	Endicott	1974	46 55.107	117 33.950
	Lamont	Winter Wheat	70	0	10	0	0	0	15-Apr	70	80	DD	6	64	12.23	4.88	17-Aug	Athena Silt Loam	Lamont	1946	47 09.145	117 50.433
16-20	Dayton	Winter Wheat	137	10	15	0	0	0	16-Apr	80	90	DD	6	64	8.46	4.55	25-Aug	Athena Silt Loam	Dayton	2045	46 23.660	118 03.307
	Mayview	Winter Wheat	64	0	10	20	0	3	24-Apr	70	80	DD	6	64	9.71	7.66	19-Aug	Athena Silt Loam	Mayview	2449	46 35.357	117 24.048
	Reardan	Winter Wheat	85	4	9	20	3	3	17-Apr	80	90	NT	10	80	10.31	3.19	26-Aug	Hanning Silt Loam	Reardan	2547	47 39.929	118 02.062
	St. John	Winter Wheat	70	0	10	65	0	11	20-Apr	80	90	DD	6	64	10.31	6.30	20-Aug	Athena Silt Loam	St. John	2194	47 04.844	117 31.210
	Walla Walla	Winter Wheat	110	15	15	0	0	0	16-Apr	80	90	DD	6	64	12.81	4.51	19-Aug	Walla Walla Silt Loam	Walla Walla	1666	46 11.765	118 06.665
> 20	Colfax Sp Bly	Winter Wheat	90	16	16	- -	- -	- -	4-May	- -	90	NT	10	80	- -	6.20	1-Sep	Thatuna Silt Loam	Colfax Sp Bly	2594	46 54.207	117 07.285
	Farmington	Winter Wheat	115	0	17	40	0	6	4-May	80	90	DD	6	64	11.16	6.65	10-Sep	Naff Palouse silt loam	Farmington	2603	47 02.300	117 02.814
	Pullman Sp Wht	Peas	45	10	10	64	0	10	21-Apr	80	- -	DD	6	80	10.19	6.42	19-Aug	Palouse Silt Loam	Pullman Sp Wht	2535	46 41.711	117 08.599
	Pullman Sp Bly	Peas	45	10	10	- -	- -	- -	21-Apr	- -	90	DD	6	80	10.19	6.42	18-Aug	Palouse Silt Loam	Pullman Sp Bly	2535	46 41.711	117 08.599
Irrigated	Moses Lake Sp Wht	Beans	220	16	16	50	0	7	27-Mar	90	- -	DD	6	80	- -	24"-Irr.	4-Aug	Timmerman Sandy Loam	Moses Lake Sp Wht	1171	46 46.887	119 01.637

* DD = double disc drill; H = Hoe openers; NT = Cross Slot; DF = Deep Furrow

60# = 15 Seeds/Ft (wheat)/18 Seeds/Ft (barley)
70# = 17.5 Seeds/Ft (wheat)/21 Seeds/Ft (barley)
80# = 20 Seeds/Ft (wheat)/24 Seeds/Ft (barley)
90# = 22.5 Seeds/Ft (wheat)/27 Seeds/Ft (barley)
100# = 25 Seeds/Ft (wheat)/30 Seeds/Ft (barley)

Figure 1.

PNW CROP TOUR SCHEDULE

2009

WSU Uniform Cereal Variety Testing Program, http://variety.wsu.edu

The 2009 growing season will be marked with many opportunities during June and July for viewing field trials and interacting with Washington State University personnel about new and exciting varieties and crop management practices. The list of small grain research tours below provides a guide for wheat and barley tours in Washington and nearby locations. Another list for direct seed cropping systems tours is available at: http://pnwsteep.wsu.edu/comingevents. Please contact the indicated person prior to the tour to verify the time and location, and assure you a place at the table if food is served. We look forward to seeing you in the field!—*Stephen Guy, WSU Extension Agronomist*

Date	*Time*	*Tour*	*Contact Information*
3-Jun	8:00 AM	Horse Heaven	Phil Petersen, 509-545-3511
4-Jun	6:00 PM	Connell	Phil Petersen, 509-545-3511
9-Jun	8:30 AM	Pendleton Field Day	Don Wysocki, 541-278-4396
10-Jun	7:00 AM	Western Whitman County Research Tour	Steve Van Vleet , 509-397-6290
10-Jun	7:30 AM	Moro Field Day	Don Wysocki, 541-278-4396
11-Jun	8:30 AM	Moses Lake-irrigated grain	Andy McGuire, 509-754-2011
11-Jun	5:00 PM	St. Andrews	Dale Whaley, 509-745-8531
16-Jun	8:00 AM	St. John	Steve Van Vleet , 509-397-6290
16-Jun	5:00 PM	Ritzville	Aaron Esser, 509-659-3210
18-Jun	8:30 AM	Lind Field Day	Bill Schillinger, 509-235-1933
18-Jun	4:00 PM	Almira	Diana Roberts, 509-477-2167
19-Jun	12:00 PM	Bickleton	Susan Kerr, 509-773-5817
22-Jun	4:00 PM	Tammany Twilight Crop Tour, Lewiston, ID	Larry Smith, 208-799-3096
23-Jun	7:00 AM	Fairfield	Diana Roberts, 509-477-2167
23-Jun	8:00 AM	Northern Lincoln County/Creston	Aaron Esser, 509-659-3210
24-Jun	7:00 AM	Reardan	Diana Roberts, 509-477-2167
24-Jun	8:00 AM	UI Parker Farm Field Day, Moscow, ID	Donn Thill, 208-885-6214
24-Jun	2:00 PM	Ephrata--high residue irrigated	Andy McGuire, 509-754-2011
25-Jun	7:30 AM	WSU Cook Farm Field Day	Hans Kok, 208-885-5971
25-Jun	8:00 AM	Mayview	Dave Bragg, 509-843-3701
25-Jun	8:00 AM	Walla Walla--WW (legislative tour)	John Fouts, 509-524-2685
25-Jun	2:00 PM	Connell--high residue irrigated	Andy McGuire, 509-754-2011
25-Jun	2:30 PM	Anatone	Mark Heitstuman, 509-243-2009
25-Jun	6:00 PM	Pullman	Steve Van Vleet , 509-397-6290
28-Jun to 2-Jul		Ascochyta 2009 (Pullman international meeting)	Fred Muehlbauer, 509-335-9521
29-Jun	6:00 PM	Walla Walla--WW & SW (variety testing)	John Fouts, 509-524-2685
30-Jun	8:30 AM	Dayton	Paul Carter, 509-382-4741
7-Jul	10:00 AM	Farmington (variety testing)	Steve Van Vleet , 509-397-6290
7-Jul	6:00 PM	Lamont	Steve Van Vleet , 509-397-6290
8-Jul	7:30 AM	Quick Stop Tour of UI Wheat Breeding Trials, Cavendish, ID	Larry Smith, 208-799-3096
8-Jul	6:00 PM	Colton (Genesee/Johnson Union)	Steve Van Vleet , 509-397-6290
9-Jul	7:30 AM	WSU Spillman Farm Field Day	Stephen Guy, 509-335-5831

WASHINGTON STATE UNIVERSITY EXTENSION

World Class. Face to Face.

2009 Soft White Winter Wheat

2009 Soft White Winter Wheat

2009 WSU Soft White Winter Wheat Trial Summary
Precipitation Zone >20"

1. Soft white winter wheat grain yield across five locations and 58 entries in the >20" precipitation zone averaged 129 bu/ac, 7 bu/ac higher than the 2008 average of 122 bu/ac. The CV for the average data was 8%. These trials were designed and analyzed as alpha lattice designs that overall helped to account for within-replication variation and reduced LSD and CV values.
2. Test weight averaged 59.6 lb/bu across locations 1.0 lb/bu higher than last year. Grain protein averaged 10.6%, 1.1% lower than last year's 11.7% value.
3. When evaluating variety performance, consider as many locations and years as possible with similar environments. These summaries by rainfall zone are helpful because of similar environments, but also evaluate variety performance across years that can show variety adaptation. Past performance of a variety across locations and years is the best predictor of future performance.

2009 WSU Soft White Winter Wheat Trial Summary
Precipitation Zone 16"- 20"

1. Soft white winter wheat grain yield across five locations and 58 entries in the 16"-20" precipitation zone averaged 121 bu/ac, 18 bu/ac higher than the 2008 average of 103 bu/ac. The CV for the average data was 7%. These trials were designed and analyzed as alpha lattice designs that overall helped to account for within-replication variation and reduced LSD and CV values.
2. Test weight averaged 60.1 lb/bu across locations, 1.1 lb/bu higher than last year. Grain protein averaged 11.1%, 0.8% lower than last year's 11.9% value.
3. When evaluating variety performance, consider as many locations and years as possible with similar environments. These summaries by rainfall zone are helpful because of similar environments, but also evaluate variety performance across years that can show variety adaptation. Past performance of a variety across locations and years is the best predictor of future performance.

2009 WSU Soft White Winter Wheat Trial Summary
Precipitation Zone 12"- 16"

1. Soft white winter wheat grain yield across five locations and 58 entries in the 12"-16" precipitation zone averaged 95 bu/ac, 11 bu/ac higher than the 2008 average of 84 bu/ac. The CV for the average data was 12% and was higher than desired largely because of high variability at Creston. These trials were designed and analyzed as alpha lattice designs that overall helped to account for within-replication variation and reduced LSD and CV values.
2. Test weight averaged 59.7 lb/bu across locations 1.5 lb/bu higher than last year. Grain protein averaged 10.8% nearly equaling last year's 10.9% value.
3. When evaluating variety performance, consider as many locations and years as possible with similar environments. These summaries by rainfall zone are helpful because of similar environments, but also evaluate variety performance across years that can show variety adaptation. Past performance of a variety across locations and years is the best predictor of future performance.

2009 WSU Soft White Winter Wheat Trial Summary
Precipitation Zone <12"

1. Soft white winter wheat grain yield across five locations and 58 entries in the <12" precipitation zone averaged 32 bu/ac, 2 bu/ac higher than the 2008 average of 30 bu/ac. The CV for the average data was 13% and that was lower than the CV of 18% in 2008. The CVs in these experiments are higher than desired, but the trials still provide useful data. There was a lot of variability in fall establishment in the zone due to dry planting conditions and some of that variability carried through the trials. These trials were designed and all except Lind were analyzed as alpha lattice designs that overall helped to account for within-replication variation and reduced LSD and CV values.
2. Test weight averaged 59.1 lb/bu across locations, 0.4 lb/bu higher than last year. Grain protein averaged 12.8% nearly equaling last year's 12.7% value. Protein was higher than desired for soft white wheat, and hopefully will not adversely affect marketing of the 2009 crop.

TABLE 12:

STRIPE RUST INFECTION TYPE (IT) AND SEVERITY (%) ON CULTIVARS AND LINES IN THE WINTER VARIETY TRIAL NURSERY (EXP02) (COORDINATED BY STEPHEN GUY) AT SPILLMAN FARM (LOC 01), PLANT PATH FARM (LOC 03) AND WHITLOW FARM (LOC 04) NEAR PULLMAN, MT VERNON (LOC 05); WALLA WALLA (LOC 06); AND LIND (LOC 07), WA WHEN RECORDED AT THE INDICATED DATES AND STAGES OF PLANT GROWTH IN 2009 UNDER NATURAL INFECTION**

		Spillman Farm (Pullman)		Plant Path Farm (Pullman)		Whitlow Farm (Pullman)		Mt. Vernon, WA.				Walla Walla	
		LOC 1		LOC 3		LOC 4		LOC 5				LOC 6	
		7/2/09		7/2/09		6/30/09		4/21/09		6/2/09		6/19/09	
		Milk		Milk		Milk		Stem elong		Flowering		S. dough	
CLASS	VARIETY	IT	%	IT	%	IT	%	IT	%	IT	%	IT	%
WC	CODA	2	1	3	1	2	1	2	10	2	1	8	20
WC	CHUKAR	2	1	2	1	2	1	2	10	1	1	0	0
WC	CARA	2	1	2	1	2	1	2	10	1	1	0	0
WC	BRUEHL	2	1	2	1	2	1	2	10	2	1	0	0
WC	ARS970075-3	2	1	2	1	2	1	3	20	2	5	2	2
WC	ARS970168-2C	2	1	2	1	2	1	5	30	1	1	2	2
WC	ARS970071-3C	2	1	2	5	2	1	2	10	2	1	5	5
SWH	MADSEN	2	5	2	1	2	5	8	30	2	5	0	0
SWH	ELTAN	3	1	2	5	3	1	2	10	2	1	2	5
SWH	ROD	2	5	2	1	2	5	8	30	2	5	0,8	0,10
SWH	FINCH	3	1	2	5	3	10	8	30	2	5	2	2
SWH	MASAMI	5	10	2	1	8	20	8	30	3	80	2	2
SWH	XERPHA	2	10	3	5	3	20	5	20	2	10	0	0
SWH	WA008063	3	5	2	5	3	30	8	30	2	20	2	5
SWH	WA008064	3	20	5	10	5	30	5	50	2	20	2	5
SWH	WA008065	2	1	3	1	2	1	5	30	2	5	2	2
SWH	WA008066	2	5	2	1	2	1	5	30	2	10	2	2
SWH	WA008092	2	1	2	1	2	5	2	10	1	1	0	0
SWH	WA008093	2,8	5	2	1	2	10	5	40	2	30	2	5
SWH	WA008094	2	10	2	5	3	10	8	60	2	20	2	5
	PS 279 (S CHECK)	**8**	**100**	**8**	**100**	**8**	**90**	**8**	**60**	**8**	**100**	**8**	**90**
SWH	ARS960277L	2	10	2	1	2	1	5	30	2	5	2	5
SWH	ARS970170-2L	2	1	2	1	2	1	5	30	2	5	2	5
SWH	LAMBERT	2	2	3	1	8	10	2	30	2	1	2	5
SWH	BRUNDAGE 96	3	5	3	1	3	1	8	40	2	5	3	5
SWH	SIMON	2	5	2	1	2	1	8	30	2	5	2,8	2,10
SWH	BITTERROOT	2	1	2	1	2	1	8	30	2	20	2	2
SWH	9364901A	2	1	2	1	2	1	8	30	3	30	2	2
SWH	STEPHENS	2	1	2	5	2	1	2	20	2	5	2	5
SWH	TUBBS 06	2	10	2	1	8	20	5	30	2	20	2	5
SWH	SKILES	2	1	2	1	2	1	2	30	2	1	2	2
SWH	OR2060324	2	1	2	1	2	1	8	30	2	5	2	2
SWH	OR2050293	3	1	5	1	5	10	2	20	2	5	0,8	0,5
SWH	OR2040726	2	1	2	1	2	1	8	10	2	10	3	5
SWH	WB 523	2	1	2	1	2	1	5	20	2	1	2	2
SWH	WB-528	2	1	2	1	2	1	8	30	3	30	0	0
SWH	WB 456	2	1	2	1	2	1	8	30	5	30	2	2
SWH	BZ6W02-616	2	1	2	5	2	2	8	60	8	70	2	5
SWH	GEORGE	2	1	2	1	2	1	5	30	2	20	2	5
SWH	RJAMES	2	1	2	1	2	1	5	30	2	20	2	5
	PS 279 (S CHECK)	**8**	**80**	**8**	**100**	**8**	**100**	**8**	**60**	**8**	**100**	**8**	**80**
SWH	CASHUP	2	5	3	5	3	10	5	60	2	1	2	2
SWH	SALUTE	2	5	3	2	2	1	2	20	3	20	0	0
SWH	LEGION	2	1	2	1	2	1	2	20	2	5	0	0
SWH	AP LEGACY	2	1	2	1	3	5	8	60	5	70	2	5
SWH	CDC PTARMIGAN	5	10	5	20	8	70	8	50	3	50	8	30
SWHI	KCF08001	8	10	8	60	8	80	8	50	4	50	8	30
SWHI	KCF08002	8	50	8	30	8	90	5	30	5	50	8	30
SWHI	ID990435	2	1	3	2	7	40	3	20	2	1	3	10
SWHI	ID02-859	2	1	2	5	2	20	8	30	2	10	3	15
SWHI	OR2060306	2	1	2	1	2	1	5	20	2	5	0	0
SWHI	ORCF-101	2	1	2	1	3	5	8	10	2	10	8	10
SWHI	ORCF-102	2	1	3	2	2	1	8	30	2	20	8	10
SWHI	ORCF-103	2	1	2	5	3	10	8	20	2	1	5	15
SWHI	AP 700 CL	2	1	2	1	2	1	5	10	2	1	0	0
SWHI	WB 1020M	2	1	2	1	2	1	8	20	2	1	0	0
SWHI	WB 1066M	2	5	2	5	2	1	2	20	2	1	0	0
SWHI	WB 1070M	2	1	2	1	2	1	2	20	2	5	0	0
SWH	MADSEN/ROD	2	1	2	1	8	1	5	20	2	5	0	0
SWH	ELTAN/MADSEN	2	1	2	5	2	5	5	20	2	5	3	15
	PS 279 (S CHECK)	**8**	**70**	**8**	**100**	**8**	**100**	**8**	**60**	**8**	**100**	**8**	**80**
SWH	ELTAN/TUBBS06	2	5	3	10	5	30	8	40	2	10	2	10
SWH	ROD/TUBBS06	2	1	3	5	8	50	8	30	2	10	8	10

* Infection Type (IT) was recorded based on the 0-9 scale with ITs 8 and 9 combined as 8 (the most susceptible reaction) in field data. Generally IT 0-3 are considered resistant, 4-6 intermediate, and 7-9 susceptible. Heterogenous reactions of an entry were indicated by two or more ITs separated by "," for most plants with the first IT and few plants with the second IT or connected with "-" for entries containing plants with continuous ITs. Entries with a high IT in the first note, but a low IT in the second note may indicate that they have high-temperature, adult-plant (HTAP) resistance.

** No rust occurred in the winter nurseries at the Lind (LOC 7) location.

TABLE 13:

STRIPE RUST INFECTION TYPE (IT) ON ENTRIES IN 2009 WINTER EXTENSION DISEASE (VARIETAL TRIAL) NURSERY (EXP02) (COORDINATED BY STEPHEN GUY) TESTED WITH SELECTED STRIPE RUST RACES IN CONTROLLED GREENHOUSE TESTS FOR SEEDLING TESTS, DIURNAL TEMPERATURES GRADUALLY CHANGING FROM 4°C AT 2:00AM TO 20°C AT 2:00PM WERE USED AND IT WAS FOR 10-17 PLANTS, AND FOR ADULT-PLANT TESTS, DIURNAL TEMPERATURES GRADUALLY CHANGING FROM 10°C AT 2:00AM TO 35°C AT 2:00PM WERE USED AND IT WAS FOR INDIVIDUAL PLANTS.

		Infection type[a]																
		Seedling test (4-20°C)[b]					Adult-plant test (10-30°C)[b]											
		PST-37	PST-45	PST-100	PST-116	PST-127	PST-100			PST-116			PST-127			Slow[c]	HTAP[d]	Seed[e]
CLASS	VARIETY						Rep 1	Rep 2	Rep3	Rep 1	Rep 2	Rep3	Rep 1	Rep 2	Rep3	rusting	resistan	treated
WC	**CODA**	2	2	2	2	2	1,1,1	1,1,1	1,1,1	2,2,2	2,1,1	2,2,2	ND	1,1,1	1,1,1			
WC	**CHUKAR**	2	2	2	2	2	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	ND	1,1,1	1,1,1			
WC	**CARA**	1	2	1	1	2	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	ND	1,1,1	1,1,1			
WC	**BRUEHL**	2	2	5	3	2	2,2,2	2,2,2	2,2,2	1,1,1	1,1,1	1,1,1	ND	1,1,1	1,1,1		YES	
WC	**ARS970075-3**	2	2	2	2	2	2,2,2	2,2,2	1,1,1	1,1,1	1,1,1	1,1,1	ND	1,1,2	1,1,2			
WC	**ARS970168-2C**	1	2	2	2	0	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	ND	1,1,1	1,1,1			
WC	**ARS970071-3C (NEW)**	1	2	2	5	2	1,1,1	2,2,2	1,1,1	2,3,3	3,3,3	2,2,3	ND	1,1,1	1,1,1		YES	Y
SWH	**MADSEN**	5	2(13),8(4)	7	2	8	1,1,1	1,1,1	1,,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1		YES	
SWH	**ELTAN**	8	8	7	8	9	3,3,3	3,3,3	2,2,2	2,2,2	2,2,2	2,2,2	3,3,3	3,3,3	3,3,3		YES	
SWH	**ROD**	8	5	8	8	8	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	7,7,3	1,1,1	1,1,5		YES	
SWH	**FINCH**	8	8	8	8	9	2,2,2	2,2,2	1,1,1	1,1,1	1,1,1	1,1,1	2,2,2	2,2,2	2,2,2		YES	
SWH	**MASAMI**	8	8	8	8	8	3,3,3	2,2,2	2,2,2	2,2,2	2,2,3	2,2,2	3,3,3	3,3,3	2,2,2		YES	
SWH	**XERPHA**	8	7	8	5	9	3,3,3	3,3,3	3,3,3	3,3,3	2,3,3	3,3,3	4,4,4	3,3,3	3,3,3		MODERATE	
SWH	**WA008063**	8	2(6),3(6)	8	8	8	2,2,2	2,2,2	2,2,2	2,2,2	2,2,2	2,2,3	3,3,3	3,3,4	3,3,3		YES	Y
SWH	**WA008064**	1	7	7	5	8	3,3,3	3,3,3	3,3,3	2,2,2	2,2,2	2,2,2	4,4,4	3,3,4	4,4,4		MODER	Y
SWH	**WA008065**	1	2(9),8(2)	8	8	9	3,3,3	3,3,3	3,3,3	2,2,3	3,3,3	3,3,3	3,3,3	3,3,3	3,3,3		YES	
SWH	**WA008066**	8	8	8	5	8	2,2,2	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,2	1,1,1	1,1,2		YES	
SWH	**WA008092 (NEW)**	1	2	7	2	9	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1		YES	Y
SWH	**WA008093 (NEW)**	8	7	5	5	8	2,2,2	2,2,2	2,2	1,1,1	1,1,1	1,1,1	3,3,3	2,2,3	2,2,3		YES	Y
SWH	**WA008094 (NEW)**	1	2(8),7(9)	8	2	8	3,3,3	2,2,2	2,3,3	2,2,2	2,2,2	2,2,2	3,3,3	3,3,3	3,3,3		YES	Y
	PS 279 (S CHECK)	**8**	**8**	**8**	**9**	**9**	**9,9,9**	**9,9,9**	**8,8,8**	**9,9,9**	**8,8,8**	**9,9,9**	**9,9,9**	**9,9,9**	**9,9,9**		**NO**	
SWH	**ARS960277L**	1	2	2	2	2	2,2,2	2,2,2	2,2,2	1,1,1	1,1,1	1,1,1	ND	1,1,2	1,1,2			
SWH	**ARS970170-2L (NEW)**	7	7	8	8	8	2,2,2	2,2,2	2,2,2	1,1,1	1,1,1	1,1,1	2,2,2	2,2,2	1,1,1			
SWH	**LAMBERT**	8	8	8	8	9	3,3,3	1,2,2	2,2,2	2,2,2	2,2,2	2,2,2	4,3,3	2,2,2	3,3,3		YES	
SWH	**BRUNDAGE 96**	8	2(6),8(6)	8	3	8	1,1,3	1,1,3	1,1,3	1,1	1,1,1	1,1,2	3,3,3	1,1,4	1,1,2		YES	
SWH	**SIMON**	8	8	8	2	8	1,1,2	1,1,2	1,1,1	1,1,1	1,1,1	1,1,1	1,2,1	1,1,1	1,1,1		YES	
SWH	**BITTERROOT**	1	2(8),8(4)	8	2	2,8(1)	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1		YES	Y
SWH	**9364901A**	8	2	5	2	8	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1		YES	Y
SWH	**STEPHENS**	8	2	8	8	9	2,2,2	2,2,2	1,1,1	1,1,1	1,1,1	1,1,1	2,2,2	2,2,2	2,2		YES	
SWH	**TUBBS 06**	8	8	9	8	9	3,4,4	5,5,5	5,5,5	3,3	1,1,1	2,2,2	5,5,5	3,3,3	3,3,3	yes	LOW	
SWH	**SKILES**	8	8	8	7	8	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	2,2,2	1,1,1	1,1,1		YES	Y
SWH	**OR2060324 (NEW)**	8	7	8	8	8	3,3,3	3,3,3	2,2,2	1,1,1	3,3,3	3,3,3	3,3,3	3,3,3	3,3,3		YES	Y
SWH	**OR2050293 (NEW)**	8	2	8	5	9	2,2,3	2,2,2	3,3,3	2,2,3	2,3,3	3,3,3	5,5,5	3,3,3	5,5,5		LOW	Y
SWH	**OR2040726 (NEW)**	8	2	8	5	8	4,4,4	4,4,4	3,3,4	3,3,3	3,3,3	3,3,3	3,2,2	2,3,3	3,3,4		MODER	Y
SWH	**WB 523**	8	8	8	5	8	2,2,2	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	3,3,2	1,1,1	1,1,1		YES	Y
SWH	**WB-528**	8	3(8),8(3)	8	2	8	1,1,1	1,1,1	1,1,1	1,1	1,1,1	1,1,1	3,2,2	1,1,1	1,1,1		YES	
SWH	**WB 456**	2	5	5	2	8	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	2,2,2	1,1,1	1,1,1		YES	
SWH	**BZ6W02-616 (NEW)**	8	2	2	3	8	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,2	3,3,3	1,1,1	3,3,3		YES	Y
SWH	**GEORGE**	8	7	7	5	8	2,2,2	2,2,2	2,2,2	1,1,1	1,1,1	1,1,1	NT	2,2,2	2,2,2		YES	
SWH	**RJAMES**	2	2	8	8	9	2,2,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	2,2,2	1,1,1	2,2,2		YES	
	PS 279 (S CHECK)	**8**	**8**	**8**	**9**	**9**	**9,9,9**	**8,8,8**	**9,9,9**	**8,8,8**	**8,8,8**	**9,9,9**	**9,9,9**	**9,9,9**	**8,8,8**		**NO**	
SWH	**CASHUP**	8	8	8	8	8	4,4,4	3,3,3	3,3,3	2,2,3	2,3,3	3,3,3	4,4,4	3,3,3	3,3,3		MODERATE	
SWH	**SALUTE**	8	8	8	8	9	1,1,2	1,1,1	1,1,2	1,1,1	3,1,1	3,1,1	4,3,4	2,2,2	3,3,4		MODERATE	
SWH	**LEGION**	8	2(3),8(6)	8	8	8	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1		YES	Y
SWH	**ORF2267-03**	8	2	8	2	8	4,4,4	4,4,4	1,1,1	2,2,2	1,1,1	2,2,2	ND	4,4,4	4,4,4		MODERATE	
SWH	**CDC PTARMIGAN (NEW)**	8	8	9	8	8	7,7,7	7,7,7	7,7,7	7,7,7	7,7,7	7,7,7	7,7,7	7,7,7	7,7,7	yes	LOW	Y
SWHI	**KCF08001 (New)**	8	8	8	8	9	6,6,7	3,3,7	7,7,7	3,3,3	1,1,3	3,3,3	6,6,7	6,6,7	5,5,7		LOW	Y
SWHI	**KCF08002 (New)**	8	8	8	8	8	5,5,5	5,5,5	7,7,7	5,5,5	7,7,7	5,5,5	8,8,8	8,8,8	8,8,8		NO	Y
SWHI	**ID990435**	8	5	8	3	8	2,2,2	2,2,2	2,2,2	1,1,2	2,2,2	2,2,2	3,3,3	3,3,3	2,2,2		YES	
SWHI	**ID02-859**	8	2(6),7(10)	8	8	8	2,3,3	2,2,3	2,2,2	2,2,2	2,2,2	2,2,2	3,3,3	3,3,3	3,3,3		YES	
SWHI	**OR2060306 (NEW)**	8	5	3	2	8	1,1,2	1,1,2	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1		YES	Y
SWHI	**ORCF-101**	8	8	8	8	8	2,2,	3,3,3	2,2,2	1,1,2	1,1,2	1,1,2	3,3,3	3,3,3	2,2,3		YES	
SWHI	**ORCF-102**	8	8	8	3	8	2,2,1	2,2,2	2,2,2	1,1,1	1,1,1	1,1,1	ND	2,2,2	2,2,2		YES	
SWHI	**ORCF-103**	8	9	9	8	8	2,2,2	3,3,3	3,3,3	2,2,2	2,2,2	2,2,2	5,5,5	3,3,3	3,3,3		LOW	
SWHI	**AP 700 CL**	8	8	9	8	9	2,2,2	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1		YES	
SWHI	**WB 1020M**	8	5	8	5	5	2,2,2	2,2,2	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1		YES	
SWHI	**BZ6WM04-1066**	8	2	5	5	5	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1		YES	Y
SWHI	**WB 1070M (NEW)**	2	9	8	7	5	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1		YES	Y
SWH	**MADSEN/ROD**	2,8(3)	2(7),8(3)	2/8	2	8	3,3,1	1,1,1	3,3,3	1,1,1	1,1,1	1,1,1	2,5,6	2,2,6	2,2,6		YES	
SWH	**ELTAN/MADSEN**	2,8(4)	2(7),8(6)	2/8	2	8	3,3,3	3,3,3	3,3,3	1,1	1,1,1	1,1,1	3,3,3	3,3,3	3,3,3		YES	
	PS 279 (S CHECK)	**8**	**9**	**8**	**8**	**9**	**8,8,8**	**8,8,8**	**8,8,8**	**8,8,8**	**8,8,8**	**8,8,8**	**8,8,8**	**8,8,8**	**9,9,9**		**NO**	
SWH	**ELTAN/TUBBS06**	8	9	8	8	9	3,3,3	3,3,3	2,2,2	2,2,2	2,2,2	2,2,2	2,3,3	4,4,4	3,3,3		YES	
SWH	**ROD/TUBBS06**	8	8	8	8	8	2,2,3	2,2,2	3,3,3	3,3,2	3,3,3	2,2,2	5,7,7	5,7,7	1,7,7		MODERATE	

[a] Infection Type (IT) was recorded based on the 0-9 scale with ITs 8 and 9 combined as 8 (the most susceptible reaction) in field data. Generally IT 0-3 are considered resistant, 4-6 intermediate, and 7-9 susceptible. Heterogenous reactions of an entry were indicated by two or more ITs separated by "," for most plants with the first IT and few plants with the second IT and the number of plants for each IT is indicated in "( )". For adult-plant tests, if the flag leaf has a IT different from the leaf below, the ITs are separated by"/" with the flag leaf IT first.

[b] The seedling tests were conducted in December 2008 to January 2009 for each race without replications. For adult-plant tests, seeds were planted in late November and seedlings of about 3-5 cm were vernalized at 2-4°C for 6 to 9 weeks and then transplanted into big pots and grown in the greenhouse (10 to 25°C diurnal temperature cycle, 16h light) from January to May. Plants at boot to flowering stages were inoculated with a mixture of urediniospores of a particular race with talc powder at about 1:20 ratio, incubated for 20 to 24 h in a dew chamber (dark, 10° C) and then grown in a greenhouse growth chamber at the 10-30°C diurnal temperature cycle with 16 h light. IT was recorded for each plant 18 to 20 days after inoculation. The three reps for each race test were done in different time period.

[c] Although the ITs are high, rust severities were obviously lower than those of the susceptible check, indicating low infection efficiency, a component of slow-rusting. No attempt was taken to record severity because the infection was just one cycle and we did not attempt to control the amount of spores on a leaf area.

[d] Entries with a high IT in the seedling low-temperature test but with a low IT in the adult-plant tests under high temperatures have possibly high-temperature adult-plant (HTAP) resistance.

[e] Treatment of seeds with chemicals may affect the seedling reaction (reducing IT). The treated seeds were washed before planting for the seedling tests to reduce the chemical effect. The wash appearred to work to some extent. Thus, it is still possible that chemical-treated seeds might produce false resistant reactions in the seedling tests.

TABLE 14:

2009 WSU SOFT WHITE WINTER WHEAT TRIAL SUMMARY
Precipitation Zone= >20"

VARIETY NAME *(SWH Club in italics)*	COLTON	FAIRFIELD	FARMINGTON	MOSES LAKE *(irrigated)*	PULLMAN	AVERAGE YIELD	COLTON	FAIRFIELD	FARMINGTON	MOSES LAKE *(irrigated)*	PULLMAN	AVERAGE TEST WEIGHT	COLTON	FAIRFIELD	FARMINGTON	MOSES LAKE *(irrigated)*	PULLMAN	AVERAGE PROTEIN
	YIELD (BU/A)						TEST WEIGHT (LBS/BU)						PROTEIN (%)					
XERPHA	128	111	143	194	147	**145**	58.8	59.7	58.7	58.9	60.5	59.3	7.7	10.9	12.1	11.8	9.5	10.4
LEGION	121	111	136	186	148	**140**	58.8	59.2	58.0	59.0	60.1	59.0	7.4	11.1	11.9	11.6	9.0	10.2
ORCF-102	113	98	150	191	141	138	59.8	60.2	60.9	60.6	60.3	60.4	8.3	11.3	11.8	11.5	9.7	10.5
AP LEGACY	133	93	144	180	140	138	60.0	60.3	60.5	58.6	61.0	60.1	7.9	11.1	11.6	11.6	9.2	10.3
9364901A	135	96	140	180	134	137	59.2	60.4	60.6	60.4	60.2	60.2	7.6	10.8	11.6	11.1	9.1	**10.0**
OR2040726	113	94	145	193	136	136	59.7	59.2	60.0	59.7	60.0	59.7	8.1	10.9	11.9	12.0	8.9	10.4
WB 523	115	96	142	181	136	134	59.5	60.5	60.1	60.2	60.3	60.1	8.2	11.2	11.9	11.8	9.3	10.5
ROD	119	92	141	167	148	133	59.2	58.7	58.0	58.0	60.0	58.8	7.6	10.9	11.5	12.2	8.8	10.2
AP 700 CL	105	91	144	186	139	133	60.4	60.2	58.2	59.4	61.0	59.8	8.3	10.9	12.2	11.9	9.5	10.6
MASAMI	123	98	127	162	150	132	59.2	59.2	58.1	57.5	59.9	58.8	7.2	10.7	11.6	11.5	8.8	**10.0**
ROD/TUBBS06	112	95	137	172	144	132	59.0	58.6	58.4	58.1	60.1	58.8	7.7	11.5	11.6	11.8	8.9	10.3
ELTAN/TUBBS06	117	99	129	169	144	132	59.8	59.3	58.3	59.4	60.8	59.5	7.8	11.2	12.0	12.0	9.2	10.4
OR2050293	101	86	144	192	136	132	58.3	59.5	57.9	58.0	60.1	58.8	7.8	11.2	12.4	11.7	9.1	10.4
BRUEHL	115	88	139	180	134	131	58.0	59.5	58.0	57.3	59.1	58.4	7.9	11.2	12.2	12.5	9.3	10.6
STEPHENS	111	87	141	187	129	131	58.9	60.0	59.0	58.7	59.6	59.2	8.5	11.0	11.4	11.6	9.3	10.4
ELTAN/MADSEN	116	94	131	179	135	131	59.7	59.8	59.6	59.6	60.5	59.8	7.8	11.9	12.1	11.9	9.3	10.6
SALUTE	116	89	140	172	139	131	59.0	58.8	58.0	57.7	59.7	58.6	8.3	11.0	12.2	12.1	9.4	10.6
ID990435	113	81	136	187	136	131	58.9	59.5	57.8	58.7	60.1	59.0	7.9	11.1	12.7	12.1	9.2	10.6
WB-528	99	90	138	191	135	131	61.0	60.7	61.4	61.7	61.3	61.2	8.3	11.1	12.2	11.8	9.7	10.6
LAMBERT	109	88	139	193	125	130	59.7	60.4	59.7	59.5	60.3	59.9	7.9	11.0	11.4	12.0	9.3	10.3
TUBBS 06	110	84	137	177	144	130	59.3	59.4	58.3	58.5	60.1	59.1	7.8	10.8	11.9	12.0	9.0	10.3
MADSEN/ROD	112	87	142	167	142	130	59.3	59.5	58.7	58.8	60.2	59.3	7.4	11.3	12.2	11.8	9.0	10.3
WA008063	110	87	138	176	139	130	60.1	60.6	58.1	59.6	60.7	59.8	8.0	11.0	12.4	11.9	9.4	10.5
ARS970170-2L	110	103	117	169	151	130	60.0	59.7	58.1	58.3	61.2	59.5	7.5	11.5	12.2	12.5	9.0	10.5
ORCF-103	109	98	123	169	150	130	58.8	60.1	57.3	59.5	60.0	59.1	7.9	11.5	12.3	12.0	9.3	10.6
WB 1066M	110	94	137	183	126	130	61.5	61.5	62.5	62.7	62.0	**62.0**	8.8	11.5	12.6	12.6	10.0	11.1
CHUKAR	103	98	135	160	151	130	57.7	58.4	57.7	57.6	59.4	58.2	7.3	11.0	12.1	12.8	8.7	10.4
ELTAN	111	101	122	172	142	129	60.0	60.6	58.6	59.6	60.9	59.9	7.5	10.9	12.4	12.2	9.2	10.4
OR2060324	119	102	140	146	137	129	57.1	57.9	56.9	55.7	57.9	57.1	8.0	10.5	11.2	11.9	9.1	10.1
SIMON	122	86	135	177	123	129	59.7	60.1	60.6	59.5	60.6	60.1	8.4	11.3	12.0	11.8	9.7	10.6
CASHUP	112	93	141	171	125	129	59.5	59.9	59.2	59.6	60.6	59.8	8.1	10.9	11.5	12.0	9.3	10.4
WA008065	106	90	132	185	130	128	61.7	60.6	59.5	60.2	61.7	60.7	8.2	11.4	12.8	12.5	9.6	10.9
WA008093	116	88	140	168	128	128	58.6	59.7	57.5	58.5	59.7	58.8	8.1	11.4	12.3	11.9	9.5	10.6
WB 456	96	92	135	187	130	128	61.6	61.2	61.5	62.4	61.8	61.7	8.6	11.8	12.9	11.9	10.1	11.1
BRUNDAGE 96	108	91	126	179	133	128	58.6	58.7	59.1	59.1	59.5	59.0	8.0	11.1	12.0	11.6	9.2	10.4
ORI2060306	105	87	150	158	135	127	59.1	60.0	59.4	57.8	60.2	59.3	8.3	11.4	13.0	12.8	9.6	11.0
ID02-859	110	91	131	161	140	127	58.2	59.1	57.8	58.4	59.6	58.6	7.6	11.5	11.8	12.2	8.9	10.4
KCF08002	112	77	119	189	135	126	60.5	60.0	58.1	60.3	60.9	60.0	8.6	11.4	12.1	12.0	9.7	10.8
BITTERROOT	103	92	134	171	133	126	59.2	60.2	60.7	59.7	60.1	60.0	7.6	11.7	12.0	11.4	9.3	10.4
WB 1020M	108	91	129	169	134	126	59.6	61.3	57.7	58.4	60.6	59.5	8.1	10.5	12.3	11.9	9.8	10.5
SKILES	108	91	133	164	133	126	60.5	59.5	60.0	58.3	60.9	59.8	8.7	12.1	12.5	12.3	10.4	11.2
ORCF-101	100	92	146	160	131	126	59.0	59.4	59.3	58.2	60.2	59.2	8.2	11.3	12.6	12.5	9.9	10.9
BZ6W02-616	97	76	124	206	126	126	60.2	61.0	59.5	62.2	60.5	60.7	8.5	11.4	12.1	11.1	9.2	10.5
FINCH	111	98	136	145	137	125	60.5	60.6	60.0	57.9	61.7	60.1	7.6	11.4	11.9	12.5	9.0	10.5
WA008064	108	97	124	164	133	125	60.2	59.4	59.1	59.7	60.9	59.9	8.3	11.7	12.5	12.0	9.5	10.8
WA008066	109	86	135	159	135	125	60.6	60.9	60.7	58.8	62.1	60.6	7.7	11.4	11.8	12.3	9.1	10.5
WB 1070M	99	76	135	184	129	124	61.8	61.5	61.6	63.1	61.7	**61.9**	9.4	12.5	12.8	12.3	10.0	11.4
CDC PTARMIGAN	127	91	103	178	123	124	58.4	59.7	57.8	59.5	59.3	58.9	7.7	10.5	11.6	11.3	8.4	**9.9**
CARA	103	90	144	144	137	123	57.1	59.1	58.0	56.7	59.2	58.0	7.5	10.9	12.1	13.3	9.3	10.6
MADSEN	107	86	122	167	134	123	59.7	60.2	59.2	59.2	60.0	59.7	8.4	11.3	12.6	12.1	9.7	10.8
RJAMES	107	80	128	158	136	122	58.7	59.1	56.0	56.6	59.5	58.0	7.7	11.2	11.8	11.6	9.1	10.3
GEORGE	112	92	119	135	150	122	59.1	59.0	57.7	56.4	60.2	58.5	7.6	11.6	12.0	12.1	9.4	10.5
KCF08001	95	88	119	172	133	121	60.3	59.8	58.2	58.8	61.0	59.6	8.2	11.7	12.2	12.3	9.7	10.8
ARS970071-3C	102	86	127	164	124	121	59.6	60.5	57.6	60.2	60.4	59.7	7.9	11.0	12.8	12.7	9.8	10.8
WA008092	106	88	122	157	130	120	60.0	60.4	57.6	57.5	60.5	59.2	8.2	11.3	12.7	12.0	9.5	10.7
WA008094	111	86	116	157	129	120	60.9	59.2	58.6	59.3	61.4	59.9	8.0	11.8	12.7	12.3	9.4	10.8
CODA	115	77	115	155	130	118	60.6	61.3	58.8	60.3	61.1	60.4	8.3	11.5	12.9	12.8	9.3	11.0
ARS970168-2C	98	84	120	158	111	114	60.3	61.9	60.0	60.9	61.4	60.9	8.4	11.5	12.2	11.6	9.8	10.7
	STATISTICS						STATISTICS						STATISTICS					
CV (%)	9	12	8	7	5	8	0.6	1.2	1.3	1.5	0.4	1.1	3.8	4.1	3.3	2.8	1.7	3.3
LSD (0.10)	13	14	14	16	9	6	0.5	0.9	1.0	1.2	0.3	0.4	0.4	0.6	0.5	0.5	0.2	0.2
Average	111	91	133	172	136	129	59.6	59.9	58.9	59.1	60.4	59.6	8.0	11.3	12.1	12.0	9.4	10.6
Highest	135	111	150	206	151	145	61.8	61.9	62.5	63.1	62.1	62.1	9.4	12.5	13.0	13.3	10.4	11.4
Lowest	95	76	103	135	111	114	57.1	57.9	56.0	55.7	57.9	57.1	7.2	10.5	11.2	11.1	8.4	9.9

TABLE 15:

2009 WSU SOFT WHITE WINTER WHEAT TRIAL SUMMARY
Precipitation Zone= 16"- 20"

VARIETY NAME *(SWH Club in italics)*	YIELD (BU/A)						TEST WEIGHT (LBS/BU)						PROTEIN (%)					
	DAYTON	MAYVIEW	REARDAN	ST. JOHN	WALLA WALLA	AVERAGE YIELD	DAYTON	MAYVIEW	REARDAN	ST. JOHN	WALLA WALLA	AVERAGE TEST WEIGHT	DAYTON	MAYVIEW	REARDAN	ST. JOHN	WALLA WALLA	AVERAGE PROTEIN
TUBBS 06	155	92	105	170	144	**133**	59.3	60.7	58.9	59.5	58.9	59.5	11.5	10.4	10.5	9.3	11.8	10.7
XERPHA	142	102	102	161	151	**131**	59.3	61.1	60.1	58.5	59.7	59.7	12.0	10.6	11.2	9.8	11.9	11.1
AP LEGACY	160	94	96	163	143	**131**	60.3	61.4	60.6	60.1	60.3	60.5	11.0	10.4	11.2	9.6	11.0	10.6
CHUKAR	139	99	89	178	145	**130**	59.7	60.0	58.8	58.4	60.0	59.4	11.1	9.9	10.8	8.8	10.9	**10.3**
CARA	146	88	97	170	144	**129**	59.2	59.8	59.4	57.8	59.1	59.1	11.0	10.2	11.0	9.4	10.6	**10.4**
ORCF-102	152	87	106	156	140	128	61.4	61.7	60.2	60.9	61.1	61.1	12.0	11.1	11.0	10.6	11.8	11.3
ARS970170-2L	139	102	95	164	141	128	59.4	61.7	60.6	60.0	60.0	60.3	12.3	10.5	10.6	9.7	11.7	11.0
OR2060324	137	101	95	163	144	128	57.5	58.3	56.8	57.6	57.3	57.5	11.0	9.9	10.8	10.1	11.1	10.6
LEGION	143	99	99	152	146	128	58.4	60.8	58.7	58.1	58.2	58.8	12.0	10.4	11.4	10.1	11.5	11.1
WB 523	152	88	97	159	142	128	61.7	61.8	60.7	59.6	61.4	61.0	10.9	10.7	11.4	9.1	11.6	10.7
FINCH	154	94	101	148	142	127	61.4	62.6	61.7	60.8	61.4	61.6	11.9	10.3	11.2	9.9	11.3	10.9
ROD/TUBBS06	147	98	95	154	143	127	59.1	60.8	59.1	58.8	58.8	59.3	11.6	10.6	10.8	9.7	11.2	10.8
OR2040726	140	89	94	166	146	127	61.0	61.5	60.2	60.4	60.9	60.8	11.9	10.2	11.4	10.6	11.5	11.1
OR2050293	144	89	93	159	143	125	60.3	60.6	59.2	58.6	58.7	59.5	10.5	10.7	11.5	9.7	11.5	10.8
SKILES	135	99	94	153	144	125	60.8	61.7	59.6	59.5	61.4	60.6	12.4	11.8	11.8	10.4	11.8	11.6
WB-528	152	90	84	151	146	125	61.7	62.3	61.2	59.8	62.0	61.4	11.9	11.0	11.6	10.3	11.4	11.2
RJAMES	144	88	102	155	133	124	57.5	60.5	59.1	56.4	58.5	58.4	11.4	10.2	10.9	9.3	11.9	10.7
WA008066	140	93	107	144	137	124	61.7	62.3	62.0	60.9	61.7	61.7	12.0	10.5	11.3	9.8	11.1	10.9
ORCF-103	140	95	98	152	135	124	60.1	61.0	60.0	57.2	60.5	59.8	12.0	10.7	11.1	10.6	11.6	11.2
MADSEN/ROD	146	90	100	146	137	124	59.4	60.8	59.7	58.4	59.4	59.5	12.2	10.7	11.2	9.7	11.4	11.0
ELTAN/TUBBS06	140	94	90	155	139	124	59.9	61.0	60.3	58.7	59.8	59.9	11.6	10.7	11.0	10.3	11.9	11.1
ID990435	143	84	95	154	141	123	59.6	60.5	59.4	58.7	59.9	59.6	10.9	10.1	11.0	9.9	12.0	10.8
AP 700 CL	144	85	95	153	140	123	59.4	62.1	59.3	59.2	59.8	60.0	12.2	10.6	11.5	10.3	11.7	11.3
ARS970071-3C	142	91	88	155	139	123	61.8	61.7	59.9	59.3	61.0	60.7	11.7	10.7	11.5	10.0	12.2	11.2
WA008065	140	95	90	142	143	122	60.8	62.8	60.7	59.4	60.7	60.9	12.3	10.8	11.9	10.0	12.1	11.4
ROD	146	96	82	147	137	122	59.3	60.7	59.3	55.6	58.5	58.7	11.5	10.3	10.2	9.0	11.2	**10.4**
9364901A	137	90	85	153	139	121	61.2	61.6	60.1	59.6	60.8	60.7	11.2	10.4	10.8	9.6	10.8	10.6
STEPHENS	139	95	84	147	140	121	59.0	60.8	59.1	57.8	59.6	59.3	12.0	10.3	11.3	11.2	12.0	11.4
ELTAN	138	89	103	142	131	121	60.4	61.4	61.1	57.5	60.4	60.2	11.9	11.0	11.8	9.4	11.7	11.2
BZ6W02-616	154	72	80	152	144	120	61.3	62.6	60.9	58.8	62.3	61.2	11.2	10.4	11.3	9.8	11.7	10.9
ID02-859	128	89	101	150	130	119	59.7	60.4	58.7	59.1	59.9	59.6	12.6	10.1	10.9	10.4	11.7	11.1
MADSEN	142	90	89	149	126	119	60.4	61.2	59.7	60.4	59.6	60.3	12.7	11.2	11.2	10.3	11.9	11.5
SALUTE	149	89	82	138	137	119	58.6	60.0	58.7	57.1	58.6	58.6	11.8	10.2	11.1	10.3	11.9	11.1
WA008064	138	92	85	142	138	119	59.8	61.9	61.1	57.4	60.1	60.1	11.5	11.0	11.5	10.2	11.4	11.1
WB 456	141	73	83	157	141	119	61.8	62.8	61.1	61.4	62.7	62.0	12.8	11.1	11.6	11.1	12.2	11.8
BRUNDAGE 96	135	85	89	153	133	119	60.3	60.4	58.5	58.8	59.7	59.5	11.9	10.3	10.7	11.0	11.6	11.1
SIMON	139	80	91	155	129	119	61.2	60.3	59.9	60.1	59.7	60.2	11.5	11.2	11.3	10.3	11.6	11.2
KCF08001	133	88	85	147	139	118	58.7	61.4	60.2	58.9	60.3	59.9	12.0	11.1	11.7	10.1	11.6	11.3
ELTAN/MADSEN	120	85	106	154	127	118	60.3	61.3	60.3	59.6	60.5	60.4	12.3	11.0	10.4	9.8	11.7	11.0
ORI2060306	136	83	94	148	130	118	60.4	61.4	60.2	59.6	60.3	60.4	12.5	11.2	12.2	10.8	12.2	11.8
ORCF-101	138	92	87	149	125	118	60.3	60.7	59.3	58.7	59.9	59.8	12.5	11.2	11.6	11.1	12.1	11.7
LAMBERT	126	81	85	157	142	118	58.2	60.9	59.9	58.8	60.8	59.7	11.7	10.1	11.3	10.0	10.5	10.7
MASAMI	123	94	95	145	131	118	58.6	60.2	59.1	57.8	58.8	58.9	12.0	10.1	10.7	9.9	11.3	10.8
WB 1070M	150	87	72	139	141	118	62.9	63.1	62.1	61.5	63.4	**62.6**	12.3	11.1	13.1	11.0	11.8	11.9
BRUEHL	116	90	99	144	138	117	57.8	59.5	59.8	55.3	58.8	58.2	12.4	10.9	11.1	9.7	12.0	11.2
WA008063	130	94	89	138	136	117	59.1	61.9	60.9	57.0	59.5	59.7	11.8	11.3	12.1	10.2	11.8	11.4
CODA	145	83	82	137	135	116	61.8	62.2	61.2	59.6	62.0	61.4	12.0	10.5	11.7	10.9	11.9	11.4
WB 1066M	139	75	83	149	133	116	63.0	61.8	61.1	61.9	63.1	62.2	12.7	11.8	11.7	11.3	12.6	12.0
WB 1020M	123	84	97	147	128	116	59.7	61.4	60.3	59.3	59.7	60.1	12.5	10.3	11.1	10.0	11.9	11.2
GEORGE	120	92	102	139	122	115	58.7	61.0	59.3	58.0	59.6	59.3	12.8	11.1	11.1	10.4	12.0	11.5
CASHUP	130	80	99	137	129	115	61.0	61.4	60.6	58.3	60.5	60.4	11.0	10.2	10.9	9.7	11.0	10.6
KCF08002	139	78	86	136	136	115	59.0	61.0	59.6	57.9	60.5	59.6	11.8	11.4	11.3	10.7	11.5	11.3
BITTERROOT	137	82	86	135	133	115	61.4	61.4	60.4	59.7	61.1	60.8	11.3	11.4	11.0	9.9	11.2	11.0
ARS970168-2C	131	76	91	142	129	114	62.4	62.3	62.3	61.4	62.6	62.2	11.6	10.4	11.7	10.6	11.5	11.2
WA008093	127	78	87	140	134	113	59.3	61.4	59.2	57.5	58.6	59.2	11.7	10.8	11.4	10.5	11.8	11.2
WA008094	114	82	95	134	126	110	60.2	62.2	61.1	59.6	61.0	60.8	12.4	10.9	11.8	10.0	11.8	11.4
WA008092	111	80	93	146	120	110	58.8	60.9	60.3	59.2	59.0	59.6	12.7	11.0	11.5	10.2	12.6	11.6
CDC PTARMIGAN	115	77	106	126	116	108	58.9	60.0	59.1	57.6	59.2	59.0	11.4	10.0	10.4	10.0	10.7	**10.5**
	STATISTICS						STATISTICS						STATISTICS					
CV (%)	6	7	11	6	4	7	1.0	0.4	0.9	1.3	0.7	0.9	5.0	3.0	5.5	5.9	4.6	4.9
LSD (0.10)	12	8	14	13	7	5	0.8	0.3	0.7	1.0	0.6	0.3	0.8	0.4	0.8	0.8	0.7	0.3
Average	138	88	93	150	137	121	60.1	61.2	60.0	58.9	60.2	60.1	11.9	10.7	11.3	10.1	11.6	11.1
Highest	160	102	107	178	151	133	63.0	63.1	62.3	61.9	63.4	62.6	12.8	11.8	13.1	11.3	12.6	12.0
Lowest	111	72	72	126	116	108	57.5	58.3	56.8	55.3	57.3	57.5	10.5	9.9	10.2	8.8	10.5	10.3

TABLE 16:

2009 WSU SOFT WHITE WINTER WHEAT TRIAL SUMMARY
Precipitation Zone= 12"- 16"

VARIETY NAME *(SWH Club in italics)*	YIELD (BU/A)						TEST WEIGHT (LBS/BU)						PROTEIN (%)					
	ALMIRA	ANATONE	CRESTON	DUSTY	LAMONT	AVERAGE YIELD	ALMIRA	ANATONE	CRESTON	DUSTY	LAMONT	AVERAGE TEST WEIGHT	ALMIRA	ANATONE	CRESTON	DUSTY	LAMONT	AVERAGE PROTEIN
XERPHA	121	96	137	105	106	**113**	59.4	60.4	59.3	59.0	60.2	59.7	9.9	9.9	9.6	9.7	11.2	**10.1**
AP LEGACY	116	89	123	106	102	**107**	60.3	59.3	59.7	59.7	59.8	59.8	10.0	10.2	9.8	9.7	12.2	**10.4**
GEORGE	120	80	141	110	79	106	58.0	59.0	58.6	60.0	59.8	59.1	10.9	11.1	9.2	10.8	12.3	10.9
FINCH	117	86	138	89	100	106	61.4	61.4	60.4	60.8	61.7	61.1	10.1	10.5	9.2	9.8	12.1	**10.3**
RJAMES	127	92	127	96	81	104	58.4	57.7	58.0	58.3	59.8	58.4	9.0	10.0	9.6	9.7	12.9	**10.2**
WA008092	109	80	150	98	84	104	59.9	59.7	58.1	60.4	60.8	59.8	10.8	10.9	10.2	10.1	13.3	11.1
ELTAN/TUBBS06	116	84	149	89	80	104	59.8	60.4	59.1	59.8	59.5	59.7	10.0	10.8	9.4	11.1	11.9	10.6
ARS970170-2L	108	82	140	96	89	103	59.9	60.2	59.6	59.7	60.2	59.9	10.2	10.9	9.6	11.0	11.5	10.6
ARS970071-3C	102	75	126	94	115	103	60.0	60.1	59.0	59.9	61.2	60.0	10.3	11.3	10.6	10.6	12.7	11.1
WA008063	114	87	114	95	101	102	60.0	59.9	60.4	59.9	61.4	60.3	10.2	10.9	10.3	10.5	12.3	10.8
MASAMI	117	83	136	84	86	101	59.3	58.1	58.7	59.1	59.3	58.9	10.1	11.0	9.2	9.2	11.4	**10.2**
ELTAN	112	81	127	91	94	101	59.2	60.6	59.2	60.1	61.4	60.1	10.5	10.5	9.6	9.6	12.2	10.5
OR2060324	116	87	121	81	99	101	57.0	57.4	56.0	56.3	57.9	56.9	10.1	9.9	9.5	10.0	11.5	**10.2**
ORCF-103	107	91	112	104	87	100	59.2	59.7	57.3	60.0	60.3	59.3	10.0	10.7	9.9	10.7	12.4	10.7
ROD/TUBBS06	116	87	129	83	83	100	59.2	58.5	58.9	58.3	59.1	58.8	9.9	10.4	9.9	9.8	10.7	**10.1**
SALUTE	116	83	119	93	85	99	58.7	57.7	57.9	58.5	59.7	58.5	9.9	10.6	10.2	10.2	11.7	10.5
ROD	106	77	130	92	89	99	58.2	57.8	58.4	58.3	58.9	58.3	10.5	10.9	9.3	9.5	11.1	**10.3**
WA008064	106	82	117	100	90	99	59.9	60.5	60.4	60.3	60.9	60.4	10.2	10.5	10.3	10.7	12.3	10.8
9364901A	126	78	134	85	70	99	61.0	60.7	59.2	59.4	60.8	60.2	10.1	10.1	9.2	10.3	13.1	10.6
WA008066	109	84	123	83	94	99	60.9	61.6	60.5	61.2	61.2	61.1	10.3	10.8	9.5	10.5	11.7	10.6
ELTAN/MADSEN	115	71	140	79	86	98	60.3	60.4	59.6	59.3	59.8	59.9	10.0	11.8	10.3	9.8	12.9	11.0
TUBBS 06	110	83	133	82	80	98	59.1	59.4	59.0	58.6	59.9	59.2	9.7	10.7	10.1	10.9	12.6	10.8
ID02-859	103	82	127	89	85	97	58.8	59.4	58.5	58.5	59.6	59.0	11.1	10.4	9.5	10.8	12.6	10.9
SKILES	113	80	102	97	93	97	59.8	60.2	57.9	60.2	60.4	59.7	10.5	12.1	10.9	11.5	12.8	11.6
WB 523	121	85	115	81	83	97	60.3	60.1	59.7	59.7	61.6	60.3	10.3	10.6	10.2	9.9	12.0	10.6
OR2040726	113	86	116	74	93	96	60.4	59.7	58.9	59.1	60.3	59.7	10.6	10.6	9.5	10.4	11.5	10.5
MADSEN/ROD	105	80	127	86	83	96	59.2	59.5	58.2	59.0	59.5	59.1	10.1	10.8	10.5	10.1	12.6	10.8
BRUNDAGE 96	117	86	130	73	72	96	59.6	59.6	58.5	58.3	59.6	59.1	10.3	10.7	10.0	10.6	11.8	10.7
ORCF-102	108	87	105	94	84	96	60.4	60.6	59.5	59.9	60.6	60.2	10.1	10.7	9.5	11.0	12.1	10.7
CHUKAR	97	73	103	98	108	96	57.5	58.6	56.0	58.6	60.6	58.3	10.1	10.8	10.0	9.5	11.1	**10.3**
CARA	105	70	96	96	110	96	56.7	57.3	56.3	58.2	58.9	57.5	9.7	10.9	9.5	9.6	11.4	**10.2**
BRUEHL	107	71	124	92	81	95	58.2	59.9	58.9	59.5	59.7	59.2	9.7	11.1	10.6	10.5	12.6	10.9
CDC PTARMIGAN	107	77	139	73	79	95	58.8	59.0	58.1	58.0	60.3	58.8	9.9	10.3	9.6	9.3	11.4	**10.1**
WA008093	107	85	119	84	79	95	59.9	59.4	58.5	59.2	60.5	59.5	11.2	10.5	9.7	10.4	13.1	11.0
AP 700 CL	117	92	124	70	71	95	60.2	59.7	59.2	58.6	59.8	59.5	9.7	10.9	10.8	10.9	12.8	11.0
WA008094	104	77	127	84	81	94	60.6	61.3	59.7	60.9	61.2	60.7	11.4	10.9	10.2	10.6	11.9	11.0
LEGION	123	81	110	83	71	93	58.7	58.5	58.5	58.6	59.6	58.8	9.7	10.9	10.0	10.9	11.2	10.5
WB 456	107	92	113	78	74	93	62.0	62.2	61.1	61.0	61.4	**61.5**	11.1	11.1	11.0	11.7	13.9	11.8
MADSEN	112	81	120	79	68	92	60.3	60.3	59.3	59.1	59.5	59.7	10.4	11.1	10.9	11.0	11.6	11.0
KCF08002	115	87	91	79	87	91	60.4	60.7	59.0	59.6	60.6	60.1	10.4	10.5	10.4	10.8	12.4	10.9
CODA	99	81	113	78	86	91	60.7	61.1	60.8	60.7	61.4	60.9	10.1	10.6	10.1	10.2	11.7	10.5
WA008065	112	79	92	79	91	91	61.1	61.6	60.6	60.4	62.5	61.2	10.7	11.0	10.9	9.7	13.2	11.1
ID990435	105	73	127	75	74	91	58.8	58.9	59.1	59.0	60.5	59.3	11.0	11.1	10.7	10.3	12.3	11.1
ORI2060306	110	83	93	79	86	90	60.6	59.9	58.3	59.6	60.5	59.8	11.1	11.3	10.8	10.6	12.9	11.3
ARS970168-2C	104	75	103	77	90	90	62.3	62.1	58.2	61.0	62.4	61.2	10.4	10.8	10.9	10.7	12.2	11.0
WB 1020M	113	71	124	69	69	89	59.6	60.6	59.2	59.3	60.3	59.8	10.4	10.7	9.9	10.2	12.3	10.7
OR2050293	113	80	93	72	88	89	58.1	58.4	58.2	57.4	59.4	58.3	10.2	11.3	10.3	10.3	12.9	11.0
STEPHENS	110	79	113	71	66	88	58.6	58.5	58.6	58.3	59.6	58.7	11.0	11.1	10.1	10.5	12.4	11.0
BZ6W02-616	114	79	105	66	74	88	60.6	61.3	60.2	59.8	60.7	60.5	10.0	10.6	10.5	11.1	12.0	10.8
LAMBERT	104	78	111	75	70	88	59.8	59.6	59.0	59.4	60.7	59.7	10.4	10.4	9.8	10.2	12.0	10.6
KCF08001	115	79	90	81	74	88	60.8	59.7	58.8	60.0	60.6	60.0	9.8	10.9	11.1	10.8	12.2	11.0
WB 1066M	114	86	101	71	65	87	61.7	62.5	60.3	60.6	61.6	61.3	10.7	11.1	10.7	11.5	12.3	11.3
WB-528	112	77	106	65	68	86	61.1	61.3	60.0	60.2	61.5	60.8	10.9	10.4	10.2	11.0	12.6	11.0
BITTERROOT	103	71	119	65	68	85	60.6	60.5	57.8	59.6	60.7	59.8	10.9	11.1	10.0	10.6	13.8	11.3
CASHUP	93	60	102	82	80	83	60.3	60.0	59.4	59.5	61.5	60.1	11.1	10.7	9.5	9.7	12.5	10.7
ORCF-101	102	76	58	86	81	81	59.4	59.8	57.4	58.8	59.3	58.9	10.7	12.1	11.5	11.0	12.4	11.5
SIMON	104	70	92	60	69	79	60.6	60.3	57.4	58.5	59.9	59.3	10.0	11.4	10.6	10.7	13.5	11.2
WB 1070M	102	80	87	53	54	75	61.9	62.3	61.5	61.1	61.6	**61.7**	11.7	10.9	11.6	11.6	13.7	11.9
	STATISTICS						STATISTICS						STATISTICS					
CV (%)	7	8	17	10	13	12	0.8	1.1	1.5	0.7	1.0	1.1	8.0	4.6	5.7	5.5	6.1	6.1
LSD (0.10)	10	9	28	12	15	7	0.7	0.9	1.2	0.6	0.9	0.4	1.1	0.7	0.8	0.8	1.0	0.4
Average	111	81	117	84	83	95	59.8	59.9	58.9	59.4	60.4	59.7	10.4	10.8	10.1	10.4	12.3	10.8
Highest	127	96	150	110	115	113	62.3	62.5	61.5	61.2	62.5	61.7	11.7	12.1	11.6	11.7	13.9	11.9
Lowest	93	60	58	53	54	75	56.7	57.3	56.0	56.3	57.9	56.9	9.0	9.9	9.2	9.2	10.7	10.1

TABLE 17:

2009 WSU SOFT WHITE WINTER WHEAT TRIAL SUMMARY
Precipitation Zone= <12"

VARIETY NAME *(SWH Club in italics)*	CONNELL	HORSE HEAVEN	LIND	RITZVILLE	ST. ANDREWS	AVERAGE YIELD	CONNELL	HORSE HEAVEN	LIND	RITZVILLE	ST. ANDREWS	AVERAGE TEST WEIGHT	CONNELL	HORSE HEAVEN	LIND	RITZVILLE	ST. ANDREWS	AVERAGE PROTEIN
	YIELD (BU/A)						TEST WEIGHT (LBS/BU)						PROTEIN (%)					
ELTAN	52	15	35	64	29	**39**	58.9	58.5	60.9	61.0	59.6	59.8	13.2	14.9	12.4	9.9	9.7	**12.0**
XERPHA	50	15	28	60	37	**38**	59.2	60.4	58.6	59.9	58.7	59.4	13.1	15.2	12.7	9.8	9.2	**12.0**
ARS970071-3C	47	12	29	56	42	**37**	58.5	59.2	59.9	60.0	59.0	59.3	13.9	15.8	13.6	10.6	11.0	13.0
ORCF-103	53	13	35	54	29	**37**	59.4	59.2	60.3	60.7	59.0	59.7	14.4	15.9	12.6	11.1	9.6	12.7
AP LEGACY	50	13	36	56	29	**37**	58.7	58.9	59.5	59.4	58.9	59.1	12.1	14.8	12.8	10.4	10.1	**12.0**
ELTAN/MADSEN	52	13	32	61	26	**37**	59.1	58.9	60.9	60.7	59.1	59.7	13.6	15.6	12.1	10.3	10.2	12.4
GEORGE	49	10	34	60	30	**37**	58.0	58.6	59.3	59.6	58.3	58.8	14.1	15.5	12.6	10.2	10.0	12.5
ELTAN/TUBBS06	51	14	33	56	28	36	58.7	58.4	60.9	60.7	58.6	59.5	13.7	15.2	12.5	10.0	10.5	12.4
LEGION	59	14	23	56	28	36	58.4	58.7	58.2	58.8	59.3	58.7	12.8	16.2	12.9	10.0	10.6	12.5
MASAMI	49	13	31	58	30	36	57.8	58.4	59.3	59.5	58.5	58.7	14.0	15.7	12.2	10.1	10.2	12.4
ARS970170-2L	49	13	35	53	30	36	58.6	58.8	59.4	60.2	59.0	59.2	15.2	15.6	12.9	10.2	10.7	12.9
SKILES	56	14	32	47	30	36	58.7	58.6	59.7	60.6	59.1	59.3	14.0	15.4	14.4	11.6	10.6	13.2
FINCH	54	9	32	53	30	36	60.4	59.9	59.3	60.4	60.0	60.0	12.8	14.8	12.8	10.9	10.0	12.3
RJAMES	53	12	29	56	26	35	56.4	56.1	58.4	58.8	57.6	57.5	13.1	15.5	12.1	10.1	10.0	12.2
WA008066	48	12	38	51	27	35	59.7	59.3	59.7	60.5	60.1	59.9	13.1	15.0	12.3	10.9	10.0	12.3
ARS970168-2C	47	13	28	54	33	35	60.9	58.8	60.6	61.2	60.4	60.4	13.5	15.0	12.6	10.8	10.9	12.6
BRUEHL	47	11	29	57	29	35	58.1	60.5	58.3	60.8	59.2	59.4	14.7	15.1	12.7	10.6	10.8	12.8
WB-528	52	15	25	46	35	35	61.1	59.8	59.6	61.0	60.0	60.3	12.9	15.1	13.9	10.9	10.7	12.7
WB 1020M	44	13	26	52	38	34	59.7	60.7	60.6	60.4	59.6	60.2	14.0	15.1	12.9	10.6	9.4	12.4
WA008092	46	12	34	54	26	34	58.8	60.5	58.8	60.7	58.8	59.5	13.7	15.0	12.3	10.8	10.7	12.5
WA008094	48	11	33	53	26	34	59.4	59.7	58.5	61.0	60.0	59.7	14.4	15.3	12.2	10.8	9.6	12.5
OR2060324	45	11	--	41	35	33	56.3	57.4	--	56.0	54.7	56.1	12.1	14.6	--	11.0	9.7	**11.9**
ORCF-102	49	13	23	51	28	32	59.8	60.0	58.2	60.6	59.6	59.6	13.8	16.1	13.4	11.4	10.3	13.0
WB 1066M	47	14	21	52	27	32	61.5	59.5	60.1	61.1	60.0	60.4	14.0	15.7	13.7	11.2	11.0	13.1
WA008065	47	13	25	49	28	32	59.2	59.4	59.6	61.0	60.4	59.9	14.3	16.3	13.5	11.8	11.8	13.5
ID02-859	43	12	23	50	34	32	57.9	57.9	58.7	58.8	58.1	58.3	14.0	16.1	13.1	11.0	10.2	12.9
WB 523	45	11	25	55	23	32	60.3	60.4	59.6	61.2	59.6	60.2	13.7	15.8	13.6	11.2	10.7	13.0
CARA	40	9	24	50	37	32	57.0	58.3	58.5	58.4	57.4	57.9	14.6	16.4	13.0	10.7	11.1	13.2
ROD/TUBBS06	51	10	20	48	31	32	58.0	58.2	57.1	58.8	58.3	58.1	12.9	15.7	13.2	10.9	10.7	12.7
OR2040726	47	12	22	49	29	32	59.7	57.7	56.8	59.4	58.3	58.4	13.2	16.1	13.3	11.2	10.4	12.8
CHUKAR	47	11	19	40	43	32	58.7	59.3	55.1	58.4	57.7	57.8	14.3	16.1	13.1	11.0	10.0	12.9
CDC PTARMIGAN	38	14	23	54	29	32	57.5	59.1	58.1	58.7	58.1	58.3	13.5	15.2	12.2	10.5	10.5	12.4
BRUNDAGE 96	46	12	23	48	29	32	58.6	57.8	59.3	59.1	57.6	58.5	13.3	15.9	13.0	10.9	10.5	12.7
WA008063	47	12	28	53	20	32	58.4	58.6	60.3	60.1	59.1	59.3	14.5	15.8	13.8	11.0	12.5	13.5
TUBBS 06	50	13	24	45	26	32	57.8	57.8	58.4	59.1	58.3	58.3	13.7	15.6	13.0	11.6	10.1	12.8
MADSEN/ROD	48	12	14	50	31	31	58.9	59.0	56.6	59.9	58.2	58.5	14.1	15.8	13.4	10.7	10.5	12.9
WA008064	51	11	24	44	26	31	58.6	59.1	60.4	60.1	59.9	59.6	14.5	16.3	13.7	11.6	11.6	13.5
CODA	48	8	20	45	34	31	60.6	60.9	60.3	61.0	60.0	60.6	13.1	16.4	13.1	12.0	10.1	12.9
WA008093	47	10	25	53	21	31	59.1	61.2	60.5	60.7	59.4	60.2	14.2	15.7	13.2	10.8	11.4	13.1
ROD	52	11	21	44	27	31	58.3	57.7	56.6	58.2	58.0	57.8	13.4	15.1	12.8	11.2	10.9	12.7
BITTERROOT	46	13	20	50	25	31	60.4	61.3	58.0	61.0	59.6	60.1	13.1	15.3	13.5	10.5	10.7	12.6
BZ6W02-616	46	14	19	54	21	31	60.5	59.0	60.6	60.9	61.1	60.4	13.5	15.2	13.6	10.5	11.2	12.8
9364901A	41	12	17	54	30	31	60.1	58.8	57.9	60.2	59.5	59.3	12.7	14.3	13.4	11.0	10.4	12.4
MADSEN	46	11	17	49	28	30	59.1	59.9	58.5	60.0	58.9	59.3	14.0	16.3	13.8	10.9	10.8	13.2
SALUTE	39	11	28	44	27	30	57.3	57.3	57.4	58.4	55.7	57.2	13.9	15.7	13.2	11.2	10.7	12.9
AP 700 CL	46	11	20	47	25	30	58.9	58.5	59.3	59.6	58.5	59.0	13.1	16.1	13.9	11.5	11.5	13.2
ORI2060306	44	12	19	44	28	29	58.9	58.4	57.0	60.0	59.6	58.8	14.8	16.7	13.8	12.1	11.1	13.7
STEPHENS	48	13	21	41	25	29	58.6	57.4	57.8	58.6	58.7	58.2	13.3	15.7	13.1	11.9	11.1	13.0
LAMBERT	47	12	15	44	28	29	59.7	58.3	58.8	60.0	58.4	59.0	13.2	15.9	12.5	11.3	9.4	12.5
SIMON	44	13	18	44	26	29	59.4	58.8	56.9	60.0	59.2	58.9	13.8	15.1	13.4	12.2	10.5	13.0
CASHUP	39	11	24	44	25	29	59.3	60.3	60.2	60.9	58.6	59.9	13.3	15.4	13.0	11.3	10.7	12.7
ORCF-101	46	11	18	40	28	29	59.2	58.5	57.0	58.7	58.7	58.4	13.7	16.2	14.0	12.2	10.6	13.3
OR2050293	47	13	19	42	22	28	57.4	55.3	58.1	56.7	56.4	56.8	12.9	15.5	13.0	12.2	11.1	12.9
KCF08001	39	12	20	40	29	28	59.3	59.7	58.2	59.9	59.0	59.2	13.9	14.8	14.0	11.6	10.6	13.0
WB 456	39	15	20	46	20	28	59.4	58.9	60.5	61.4	60.8	60.2	15.9	16.3	14.5	12.1	11.5	14.1
ID990435	44	13	13	44	25	28	59.3	58.4	58.4	59.1	58.5	58.7	13.6	15.1	13.4	11.6	9.9	12.7
KCF08002	40	12	11	45	28	27	59.5	59.6	57.2	60.1	58.2	58.9	13.8	14.9	14.0	11.6	11.3	13.1
WB 1070M	45	13	13	33	22	25	62.4	60.9	59.6	61.7	61.2	**61.2**	14.5	15.7	14.8	12.8	13.8	14.3
	STATISTICS						STATISTICS						STATISTICS					
CV (%)	9	13	24	8	15	13	1.0	--	2.3	0.8	1.1	1.5	5.2	3.2	4.1	5.5	7.0	4.9
LSD (0.10)	6	2	8	6	6	3	0.8	--	1.8	0.6	0.9	0.6	1.0	0.7	0.7	0.8	1.0	0.4
Average	47	12	24	50	29	32	59.0	59.0	58.9	59.9	58.9	59.1	13.7	15.6	13.2	11.1	10.6	12.8
Highest	59	15	38	64	43	39	62.4	61.3	60.9	61.7	61.2	61.2	15.9	16.7	14.8	12.8	13.8	14.3
Lowest	38	8	11	33	20	25	56.3	55.3	55.1	56.0	54.7	56.1	12.1	14.3	12.1	9.8	9.2	11.8

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT ALMIRA, WA.

TABLE 18:

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
RJAMES	118	109	107	**127**	58.4	9.0	8	33	157
9364901A		111	102	**126**	61.0	10.1	0	35	157
LEGION			106	**123**	58.7	9.7	0	39	157
XERPHA	126	117	107	**121**	59.4	9.9	0	36	158
WB 523		104	94	**121**	60.3	10.3	0	35	156
GEORGE	109	102	108	**120**	58.0	10.9	20	35	159
FINCH	110	101	99	117	61.4	10.1	0	35	159
MASAMI	113	101	102	117	59.3	10.1	0	36	159
BRUNDAGE 96	112	107	99	117	59.6	10.3	0	33	156
AP 700 CL		108	98	117	60.2	9.7	0	38	155
SALUTE		110	102	116	58.7	9.9	0	34	155
AP LEGACY			101	116	60.3	10.0	0	36	157
ELTAN/TUBBS06			104	116	59.8	10.0	0	36	158
ROD/TUBBS06			100	116	59.2	9.9	0	36	158
OR2060324				116	57.0	10.1	0	32	159
ELTAN/MADSEN		97	98	115	60.3	10.0	0	38	159
KCF08001				115	60.8	9.8	0	33	150
KCF08002				115	60.4	10.4	0	34	151
WA008063			100	114	60.0	10.2	0	32	152
WB 1066M			97	114	**61.7**	10.7	0	40	153
BZ6W02-616				114	60.6	10.0	0	36	153
WB 1020M		100	96	113	59.6	10.4	0	32	159
SKILES			97	113	59.8	10.5	0	35	157
OR2050293				113	58.1	10.2	0	34	156
OR2040726				113	60.4	10.6	0	31	154
MADSEN	107	102	94	112	60.3	10.4	0	35	159
ELTAN	109	99	99	112	59.2	10.5	47	35	158
WB-528	114	107	95	112	61.1	10.9	0	34	151
WA008065			99	112	61.1	10.7	0	35	156
STEPHENS	108	100	93	110	58.6	11.0	0	33	153
TUBBS 06		105	99	110	59.1	9.7	0	38	158
ORI2060306				110	60.6	11.1	0	34	155
WA008066			90	109	60.9	10.3	0	35	159
WA008092				109	59.9	10.8	0	36	159
ORCF-102	110	102	100	108	60.4	10.1	0	38	158
ARS970170-2L				108	59.9	10.2	0	36	158
BRUEHL	111	100	99	107	58.2	9.7	0	37	159
WB 456		106	91	107	**62.0**	11.1	0	34	151
ORCF-103		97	96	107	59.2	10.0	0	34	159
CDC PTARMIGAN				107	58.8	9.9	68	38	158
WA008093				107	59.9	11.2	0	33	156
ROD	118	106	99	106	58.2	10.5	0	33	158
WA008064			97	106	59.9	10.2	0	33	154
CARA	110	101	89	105	56.7	9.7	0	32	158
ID990435		103	89	105	58.8	11.0	0	38	155
MADSEN/ROD		102	95	105	59.2	10.1	0	35	158
LAMBERT	115	108	94	104	59.8	10.4	0	37	154
SIMON	108	101	92	104	60.6	10.0	0	37	156
ARS970168-2C			91	104	**62.3**	10.4	0	34	158
WA008094				104	60.6	11.4	7	34	158
BITTERROOT		94	85	103	60.6	10.9	0	37	159
ID02-859		102	97	103	58.8	11.1	0	33	157
ORCF-101	105	99	89	102	59.4	10.7	0	34	155
ARS970071-3C				102	60.0	10.3	0	35	157

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT ALMIRA, WA.

TABLE 18 (cont):

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
WB 1070M				102	**61.9**	11.7	0	34	151
CODA	103	93	87	99	60.7	10.1	3	35	159
CHUKAR	107	95	83	97	57.5	10.1	0	33	158
CASHUP	104	92	84	93	60.3	11.1	0	31	157
C.V. %	8	9	8	7	0.8	8.0	294	5	1
LSD '@ .10'	5	6	7	10	0.7	1.1	10	2	1
Average	111	103	96	111	59.8	10.4	3	35	156
Highest	126	117	108	127	62.3	11.7	68	40	159
Lowest	103	92	83	93	56.7	9.0	0	31	150

1. Grain yield in the Almira soft white winter wheat trial averaged 111 bu/ac, equal to the 5-year average at this site. The Almira nursery was located about 10 miles north of Almira, WA (Dan McKay, cooperator).
2. This nursery was seeded on 8 September, 2008 following summer fallow. Seed was placed at an 85#/acre seeding rate using a hoe plot drill set on 9-inch spacing. Base fertilizer was 80#N, and 10#S applied in the fall. Seeding conditions produced good stands that overwintered well. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 38% compared to previously used designs.
3. Yields ranged from 93 bu/ac to 127 bu/ac, with a CV of 7%. Yield values within the LSD range of the highest yield are shown in bold and included eight cultivars. Club variety names are designated by italicized print.
4. Test weights averaged 59.8 lb/bu and ranged from 56.7 lb/bu to 62.3 lb/bu. Grain protein was good for soft white wheat and averaged 10.4% with a range of 9.0 to 11.7%. The average plant height was 35 inches.

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT ANATONE, WA.

TABLE 19:

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
XERPHA	94	88	93	**96**	60.4	9.9	0	34	156
WB 456		77	81	**92**	**62.2**	11.1	0	30	150
AP 700 CL		76	78	**92**	59.7	10.9	0	31	152
RJAMES	87	75	77	**91**	57.7	10.0	0	31	156
ORCF-103		75	78	**91**	59.7	10.7	0	31	158
AP LEGACY			85	**89**	59.3	10.2	0	30	155
ORCF-102	88	79	80	87	60.6	10.7	0	34	155
WA008063			76	87	59.9	10.9	0	31	150
ROD/TUBBS06			78	87	58.5	10.4	0	32	155
OR2060324				87	57.4	9.9	0	30	156
KCF08002				87	60.7	10.5	0	32	150
FINCH	83	75	78	86	61.4	10.5	0	33	158
BRUNDAGE 96	82	73	79	86	59.6	10.7	0	31	154
WB 1066M			82	86	**62.5**	11.1	0	34	150
WB 523		75	78	85	60.1	10.6	0	31	153
WA008093				85	59.4	10.5	0	30	153
OR2040726				85	59.7	10.6	0	30	152
WA008066			74	84	61.6	10.8	0	32	158
ELTAN/TUBBS06			77	84	60.4	10.8	0	32	155
MASAMI	82	72	71	83	58.1	11.0	0	33	158
TUBBS 06		70	74	83	59.4	10.7	0	35	154
SALUTE		74	74	83	57.7	10.6	0	34	155
ORI2060306				83	59.9	11.3	0	30	153
ID02-859		77	83	82	59.4	10.4	0	30	154
WA008064			74	82	60.5	10.5	0	29	150
ARS970170-2L				82	60.2	10.9	0	34	157
CODA	84	75	75	81	61.1	10.6	0	30	157
MADSEN	84	75	80	81	60.3	11.1	0	31	157
ELTAN	83	78	81	81	60.6	10.5	0	32	159
LEGION			71	81	58.5	10.9	0	33	155
GEORGE	83	75	81	80	59.0	11.1	0	34	159
MADSEN/ROD		69	73	80	59.5	10.8	0	31	157
SKILES			73	80	60.2	12.1	0	30	156
OR2050293				80	58.4	11.3	0	30	153
WB 1070M				80	**62.3**	10.9	0	31	150
STEPHENS	78	70	72	79	58.5	11.1	0	30	152
WA008065			74	79	61.6	11.0	0	30	155
WA008092				79	59.7	10.9	0	33	159
BZ6W02-616				79	61.3	10.6	0	28	150
KCF08001				79	59.7	10.9	0	29	151
LAMBERT	82	72	77	78	59.6	10.4	0	33	152
9364901A		69	70	78	60.7	10.1	0	33	156
ROD	86	77	74	77	57.8	10.9	0	29	156
WB-528	81	67	69	77	61.3	10.4	0	31	151
WA008094				77	61.3	10.9	0	33	158
CDC PTARMIGAN				76	59.0	10.3	0	34	156
ORCF-101	80	68	66	75	59.8	12.1	0	30	154
ARS970168-2C			74	75	**62.1**	10.8	0	30	157
ARS970071-3C				75	60.1	11.3	0	30	156
CHUKAR	74	67	70	73	58.6	10.8	0	28	156
ID990435		68	66	73	58.9	11.1	0	33	154
BRUEHL	80	68	72	71	59.9	11.1	0	32	158
BITTERROOT		69	70	71	60.5	11.1	0	32	157
WB 1020M		71	72	71	60.6	10.7	0	26	157

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT ANATONE, WA.

TABLE 19 (cont):

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
ELTAN/MADSEN		72	72	71	60.4	11.8	0	30	157
CARA	71	65	66	70	57.3	10.9	0	28	156
SIMON	79	66	66	70	60.3	11.4	0	30	156
CASHUP	75	63	64	60	60.0	10.7	0	27	156
C.V. %	10	10	10	8	1.1	4.6	- -	6	1
LSD '@ .10'	4	5	7	9	0.9	0.7	- -	3	1
Average	82	72	75	81	59.9	10.8	0	31	155
Highest	94	88	93	96	62.5	12.1	0	35	159
Lowest	71	63	64	60	57.3	9.9	0	26	150

1. Grain yield in the Anatone soft white winter wheat trial averaged 81 bu/ac, which was very close to the 5-year average yield of 82 bu/ac for this location. The Anatone nursery was located about 4 miles north of Anatone, WA (Jeff Johnson, cooperator).
2. This nursery was seeded on 24 September, 2008 following summer fallow. Seed was placed at an 85#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was 70#N, and 12#S applied in the fall. Seeding conditions produced good stands that overwintered well. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 34% compared to previously used designs.
3. Yields ranged from 60 bu/ac to 96 bu/ac, with a CV of 8%. Yield values within the LSD range of the highest yield are shown in bold and included six varieties. Club variety names are designated by italicized print.
4. Test weights were good with an average of 59.9 lb/bu. Grain protein averaged 10.8% with a range of 9.9 to 12.1%. The average plant height was 31 inches.

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT COLTON, WA.

TABLE 20:

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
9364901A		132	135	**135**	59.2	7.6	0	37	161
AP LEGACY			132	**133**	60.0	7.9	0	38	160
XERPHA	134	124	129	**128**	58.8	7.7	0	37	161
CDC PTARMIGAN				**127**	58.4	7.7	30	43	160
MASAMI	123	115	117	**123**	59.2	7.2	0	40	162
SIMON	120	116	120	122	59.7	8.4	0	38	159
LEGION			127	121	58.8	7.4	0	40	159
ROD	128	120	121	119	59.2	7.6	0	36	162
OR2060324				119	57.1	8.0	0	34	162
ELTAN/TUBBS06			124	117	59.8	7.8	0	40	161
SALUTE		120	122	116	59.0	8.3	0	39	159
ELTAN/MADSEN		116	119	116	59.7	7.8	0	40	162
WA008093				116	58.6	8.1	0	37	159
CODA	123	117	119	115	60.6	8.3	0	38	162
BRUEHL	123	117	119	115	58.0	7.9	0	40	164
WB 523		112	118	115	59.5	8.2	0	34	159
ID990435		121	129	113	58.9	7.9	0	40	157
OR2040726				113	59.7	8.1	0	34	157
ORCF-102	134	122	125	112	59.8	8.3	0	39	161
GEORGE	123	118	122	112	59.1	7.6	0	40	163
CASHUP	116	105	105	112	59.5	8.1	0	35	162
MADSEN/ROD		116	117	112	59.3	7.4	0	37	161
ROD/TUBBS06			120	112	59.0	7.7	0	38	160
KCF08002				112	60.5	8.6	0	38	156
ELTAN	130	124	126	111	60.0	7.5	0	41	163
FINCH	121	113	119	111	60.5	7.6	0	37	162
STEPHENS	124	118	120	111	58.9	8.5	0	36	156
WA008094				111	60.9	8.0	0	42	162
TUBBS 06		116	118	110	59.3	7.8	0	38	160
ID02-859		114	119	110	58.2	7.6	0	35	160
WA008063			110	110	60.1	8.0	0	35	155
WB 1066M			116	110	**61.5**	8.8	0	40	155
ARS970170-2L				110	60.0	7.5	0	38	162
LAMBERT	123	113	118	109	59.7	7.9	0	40	157
ORCF-103		121	124	109	58.8	7.9	0	38	163
WA008066			119	109	60.6	7.7	0	37	163
BRUNDAGE 96	119	114	114	108	58.6	8.0	0	34	159
WB 1020M		109	115	108	59.6	8.1	0	34	162
WA008064			110	108	60.2	8.3	0	34	155
SKILES			105	108	60.5	8.7	0	36	161
MADSEN	117	106	108	107	59.7	8.4	0	36	161
RJAMES	122	113	112	107	58.7	7.7	0	34	161
WA008065			113	106	**61.7**	8.2	0	36	159
WA008092				106	60.0	8.2	0	41	164
AP 700 CL		113	118	105	60.4	8.3	0	37	159
ORI2060306				105	59.1	8.3	0	36	160
CHUKAR	119	106	105	103	57.7	7.3	0	35	162
BITTERROOT		108	108	103	59.2	7.6	0	38	162
CARA	114	103	103	102	57.1	7.5	0	33	162
ARS970071-3C				102	59.6	7.9	0	39	161
OR2050293				101	58.3	7.8	0	33	158
ORCF-101	122	111	114	100	59.0	8.2	0	35	160
WB-528	120	114	114	99	61.0	8.3	0	35	155
WB 1070M				99	**61.8**	9.4	0	34	153

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT COLTON, WA.

TABLE 20 (cont):

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
ARS970168-2C			102	98	60.3	8.4	0	35	162
WB 456		101	99	96	**61.6**	8.6	0	33	155
BZ6W02-616				96	60.2	8.5	0	36	155
KCF08001				95	60.3	8.2	0	37	156
C.V. %	7	8	9	8	0.6	3.8	1342	4	1
LSD '@ .10'	5	6	9	13	0.5	0.4	9	2	1
Average	123	115	117	111	59.6	8.0	1	37	160
Highest	134	132	135	135	61.8	9.4	30	43	164
Lowest	114	101	99	95	57.1	7.2	0	33	153

1. Grain yield in the Colton soft white winter wheat trial averaged 111 bu/ac, 12 bu/ac lower than the 5-year average yield at this location. The Colton nursery was located about 1 mile south of Colton, WA (Art Schultheis, cooperator).
2. This nursery was seeded on 1 October, 2008 following lentils. Seed was placed at an 85#/acre seeding rate using a no-till drill using Cross-slot openers set on 10-inch spacing. Base fertilizer was 120#N, 16#P, 16#K, and 16#S (all per acre) applied in the fall. Seeding conditions produced good stands that overwintered well. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 25% compared to previously used designs.
3. Yields ranged from 95 bu/ac to 135 bu/ac, with a CV of 8%. Yield values within the LSD range of the highest yield are shown in bold and included five cultivars. Club variety names are designated by italicized print.
4. Test weights averaged 59.6 lb/bu. Grain protein averaged 8.0% with a range of 7.2 to 9.4%. The average plant height was 37 inches.

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT CONNELL, WA.

TABLE 21:

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
LEGION	- -	- -	51	**59**	58.4	12.8	0	34	143
SKILES	- -	- -	49	**56**	58.7	14.0	0	28	146
FINCH	- -	- -	49	**54**	60.4	12.8	0	32	149
RJAMES	- -	- -	40	53	56.4	13.1	0	30	146
ORCF-103	- -	- -	52	53	59.4	14.4	0	29	148
ELTAN	- -	- -	45	52	58.9	13.2	0	33	149
ROD	- -	- -	48	52	58.3	13.4	0	30	148
WB-528	- -	- -	49	52	61.1	12.9	0	32	142
ELTAN/MADSEN	- -	- -	45	52	59.1	13.6	0	31	148
WA008064	- -	- -	45	51	58.6	14.5	0	32	142
ELTAN/TUBBS06	- -	- -	44	51	58.7	13.7	0	33	145
ROD/TUBBS06	- -	- -	48	51	58.0	12.9	0	33	144
XERPHA	- -	- -	49	50	59.2	13.1	0	32	147
TUBBS 06	- -	- -	47	50	57.8	13.7	0	33	144
AP LEGACY	- -	- -	47	50	58.7	12.1	0	31	144
MASAMI	- -	- -	47	49	57.8	14.0	0	30	149
ORCF-102	- -	- -	49	49	59.8	13.8	0	32	146
GEORGE	- -	- -	43	49	58.0	14.1	0	33	149
ARS970170-2L	- -	- -		49	58.6	15.2	0	30	148
CODA	- -	- -	42	48	60.6	13.1	0	32	148
STEPHENS	- -	- -	45	48	58.6	13.3	0	31	142
MADSEN/ROD	- -	- -	46	48	58.9	14.1	0	32	147
WA008066	- -	- -	43	48	59.7	13.1	0	31	150
WA008094	- -	- -		48	59.4	14.4	0	33	148
BRUEHL	- -	- -	37	47	58.1	14.7	0	29	149
CHUKAR	- -	- -	45	47	58.7	14.3	0	31	148
LAMBERT	- -	- -	43	47	59.7	13.2	0	32	142
ARS970168-2C	- -	- -	47	47	60.9	13.5	0	31	146
WA008065	- -	- -	43	47	59.2	14.3	0	30	146
WB 1066M	- -	- -	41	47	61.5	14.0	0	34	143
ARS970071-3C	- -	- -		47	58.5	13.9	0	31	148
WA008093	- -	- -		47	59.1	14.2	0	30	145
OR2050293	- -	- -		47	57.4	12.9	0	29	144
OR2040726	- -	- -		47	59.7	13.2	0	31	144
MADSEN	- -	- -	43	46	59.1	14.0	0	31	148
BRUNDAGE 96	- -	- -	43	46	58.6	13.3	0	31	144
BITTERROOT	- -	- -	39	46	60.4	13.1	0	31	148
ORCF-101	- -	- -	41	46	59.2	13.7	0	32	144
AP 700 CL	- -	- -	46	46	58.9	13.1	0	32	143
WA008063	- -	- -	40	46	58.4	14.5	0	29	143
WA008092	- -	- -		46	58.8	13.7	0	33	150
BZ6W02-616	- -	- -		46	60.5	13.5	0	31	140
WB 523	- -	- -	42	45	60.3	13.7	0	31	145
OR2060324	- -	- -		45	56.3	12.1	0	27	148
WB 1070M	- -	- -		45	**62.4**	14.5	0	31	141
SIMON	- -	- -	43	44	59.4	13.8	0	31	146
ID990435	- -	- -	40	44	59.3	13.6	0	32	144
WB 1020M	- -	- -	43	44	59.7	14.0	0	28	149
ORI2060306	- -	- -		44	58.9	14.8	0	33	144
ID02-859	- -	- -	47	43	57.9	14.0	0	29	146
9364901A	- -	- -	41	41	60.1	12.7	0	30	147
CARA	- -	- -	37	40	57.0	14.6	0	29	148
WB 456	- -	- -	37	39	59.4	15.9	0	29	143
CASHUP	- -	- -	36	39	59.3	13.3	0	28	148

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT CONNELL, WA.

TABLE 21 (cont):

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
SALUTE	- -	- -	37	39	57.3	13.9	0	29	146
KCF08001	- -	- -		39	59.3	13.9	0	31	144
KCF08002	- -	- -		39	59.5	13.8	0	32	144
CDC PTARMIGAN	- -	- -		38	57.5	13.5	0	28	148
C.V. %	- -	- -	13	9	1.0	5.2	- -	5	1
LSD '@ .10'	- -	- -	5	6	0.8	1.0	- -	2	1
Average	- -	- -	44	47	59.0	13.7	0	31	146
Highest	- -	- -	52	59	62.4	15.9	0	34	150
Lowest	- -	- -	36	38	56.3	12.1	0	27	140

1. Grain yield in the Connell soft white winter wheat trial averaged 47 bu/ac, 3 bu/ac higher than the 2-year average. The Connell nursery was located about 5 miles east of Connell, WA (D. Bauermeister farm).
2. This nursery was seeded on 4 September, 2008 following summer fallow. Seed was placed at a 45#/acre seeding rate using a deep furrow plot drill with split packer openers set on 15-inch spacing. Base fertilizer was 45#N and 15#S. Fall seeding conditions were dry and occasional poor emergence and excess soil coverage due to deep planting with the plot drill caused some gaps in individual plots. When appropriate, gaps were subtracted from the plot areas to maintain equivalent comparisons. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 8% compared to previously used designs.
3. Yields ranged from 38 bu/ac to 59 bu/ac, with a CV of 9%. Yield values within the LSD range of the highest yield are shown in bold. Club variety names are designated by italicized print.
4. Test weights were good with an average of 59.0 lb/bu. There was favorable spring precipitation and temperatures that supported a good grain filling period and high test weights.
5. Grain protein averaged 13.7% with a range of 12.1 to 15.9%. High protein can occur with a high amount of spring growth and N uptake that was supported by the weather conditions, and was reflected in the 31 inch average plant height.

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT CRESTON, WA.

TABLE 22:

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
WA008092				**150**	58.1	10.2	0	37	169
ELTAN/TUBBS06			129	**149**	59.1	9.4	0	39	167
GEORGE	123	128	125	**141**	58.6	9.2	0	39	168
ELTAN/MADSEN		128	126	**140**	59.6	10.3	0	39	168
ARS970170-2L				**140**	59.6	9.6	0	37	168
FINCH	120	123	119	**138**	**60.4**	9.2	0	35	168
CDC PTARMIGAN				**138**	58.1	9.6	47	41	166
XERPHA	129	136	129	**137**	59.3	9.6	0	35	167
MASAMI	121	125	121	**136**	58.7	9.2	0	33	168
9364901A		128	120	**134**	59.2	9.2	0	32	166
TUBBS 06		124	118	**133**	59.0	10.1	0	37	166
ROD	120	127	120	**130**	58.4	9.3	0	33	167
BRUNDAGE 96	123	133		**130**	58.5	10.0	0	33	164
ROD/TUBBS06			126	**129**	58.9	9.9	0	38	167
ELTAN	116	122	120	**127**	59.2	9.6	0	38	167
ID990435		123	116	**127**	59.1	10.7	0	38	163
RJAMES	119	124	115	**127**	58.0	9.6	0	31	166
MADSEN/ROD		123	118	**127**	58.2	10.5	0	34	167
ID02-859		132		**127**	58.5	9.5	0	33	164
WA008094				**127**	59.7	10.2	0	38	168
ARS970071-3C				**126**	59.0	10.6	0	37	166
BRUEHL	116	123	115	**124**	58.9	10.6	0	36	168
WB 1020M		118	114	**124**	59.2	9.9	0	32	167
AP 700 CL		119	113	**124**	59.2	10.8	0	36	164
WA008066			113	**123**	**60.5**	9.5	0	35	168
AP LEGACY			114	**123**	59.7	9.8	0	36	165
OR2060324				121	56.0	9.5	0	33	168
MADSEN	113	118	115	120	59.3	10.9	0	35	167
BITTERROOT		117	108	119	57.8	10.0	0	36	168
SALUTE		124	113	119	57.9	10.2	0	34	164
WA008093				118	58.5	9.7	0	35	164
WA008064			109	117	**60.4**	10.3	0	32	162
OR2040726				116	58.9	9.5	0	30	163
WB 523		116	108	115	59.7	10.2	0	33	164
WA008063			106	114	**60.4**	10.3	0	31	161
CODA	110	113	103	113	**60.8**	10.1	0	36	167
STEPHENS	106	113	102	113	58.6	10.1	0	33	162
WB 456		109	102	113	**61.1**	11.0	0	31	160
ORCF-103		118	108	112	57.3	9.9	0	34	167
LAMBERT	113	115	101	111	59.0	9.8	0	36	163
LEGION			110	110	58.5	10.0	0	37	165
WB-528	111	113	101	106	60.0	10.2	0	33	161
ORCF-102	114	116	108	105	59.5	9.5	0	36	165
BZ6W02-616				105	60.2	10.5	0	33	161
CHUKAR	118	116		103	56.0	10.0	0	33	167
ARS970168-2C			102	103	58.2	10.9	0	29	167
SKILES			105	102	57.9	10.9	0	32	166
CASHUP	105	103	94	101	59.4	9.5	0	33	166
WB 1066M			92	101	60.3	10.7	0	35	162
CARA	116	117		96	56.3	9.5	0	29	167
ORI2060306				93	58.3	10.8	0	33	163
SIMON	111	108	98	92	57.4	10.6	0	32	166
WA008065			100	92	**60.6**	10.9	0	31	164
OR2050293				92	58.2	10.3	0	30	165

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT CRESTON, WA.

TABLE 22 (cont):

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
KCF08002				91	59.0	10.4	0	34	161
KCF08001				90	58.8	11.1	0	33	160
WB 1070M				87	**61.5**	11.6	0	31	160
ORCF-101	98	94	80	58	57.4	11.5	0	31	164
C.V. %	11	12	14	17	1.5	5.7	748	6	0
LSD '@ .10'	7	10	14	28	1.2	0.8	8	3	1
Average	115	120	111	117	58.9	10.1	1	34	165
Highest	129	136	129	150	61.5	11.6	47	41	169
Lowest	98	94	80	58	56.0	9.2	0	29	160

1. Grain yield in the Creston soft white winter wheat trial averaged 117 bu/ac, slightly higher than the 5-year average at this site. The Creston nursery was located about 5 miles north of Creston, WA (Jerry Krause, cooperator).
2. This nursery was seeded on 15 September, 2008 following summer fallow. Seed was placed at an 85#/acre seeding rate using a hoe plot drill set on 9-inch spacing. Base fertilizer was 80#N and 10#S applied in the fall. Seeding conditions produced good stands that overwintered well for varieties with adequate winter hardiness.
3. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 37% compared to previously used designs. However, there was a lot of variability within replications at this site. A lower area near the center of the trial resulted in poor crop performance, and is presumed to be related to high water saturation during spring growth. The high variability produced a 17% C.V. This C.V. is high enough to urge caution when interpreting yield results from this trial.
4. Yields ranged widely for this trial, from a low of 58 bu/ac to a high of 150 bu/ac. Yields within the LSD range of the highest yield are shown in bold and included 26 of the 60 cultivars in the trial. Club variety names are designated by italicized print.
5. Test weights averaged 58.9 lb/bu and ranged from 56.0 lb/bu to 61.5 lb/bu. Grain protein was good for soft white wheat and averaged 10.1% with a range of 9.2 to 11.6%. The average plant height was 34 inches.

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT DAYTON, WA.

TABLE 23:

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
AP LEGACY			139	**160**	60.3	11.0	0	38	152
TUBBS 06		126	130	**155**	59.3	11.5	0	39	152
FINCH	125	124	133	**154**	61.4	11.9	0	38	155
BZ6W02-616				**154**	61.3	11.2	0	35	147
ORCF-102	135	130	136	**152**	61.4	12.0	0	37	153
WB-528	134	127	135	**152**	61.7	11.9	0	34	148
WB 523		121	131	**152**	61.7	10.9	0	36	152
WB 1070M				**150**	**62.9**	12.3	0	34	147
SALUTE		130	133	**149**	58.6	11.8	0	39	152
CARA	124	120	126	146	59.2	11.0	0	36	153
ROD	131	129	132	146	59.3	11.5	0	34	154
MADSEN/ROD		126	132	146	59.4	12.2	0	36	154
ROD/TUBBS06			132	146	59.1	11.6	0	37	153
CODA	124	123	126	144	61.8	12.0	10	38	155
RJAMES	126	126	129	144	57.5	11.4	53	34	153
AP 700 CL		118	126	144	59.4	12.2	0	37	152
OR2050293				144	60.3	10.5	0	35	150
ID990435		119	122	143	59.6	10.9	0	39	151
LEGION			131	143	58.4	12.0	10	39	154
MADSEN	123	118	122	142	60.4	12.7	0	36	154
XERPHA	128	132	137	142	59.3	12.0	20	38	154
ARS970071-3C				142	61.8	11.7	3	41	154
WB 456		121	126	141	61.8	12.8	0	33	148
ORCF-103		120	123	140	60.1	12.0	50	36	155
WA008065			124	140	60.8	12.3	0	36	152
WA008066			123	140	61.7	12.0	0	38	156
ELTAN/TUBBS06			124	140	59.9	11.6	7	38	152
OR2040726				140	61.0	11.9	0	32	150
CHUKAR	124	118	123	139	59.7	11.1	0	37	153
SIMON	126	122	122	139	61.2	11.5	0	36	152
WB 1066M			121	139	**63.0**	12.7	0	42	147
ARS970170-2L				139	59.4	12.3	7	40	154
KCF08002				139	59.0	11.8	0	37	148
ELTAN	118	121	123	138	60.4	11.9	50	37	157
STEPHENS	126	121	123	138	59.0	12.0	0	35	150
ORCF-101	122	124	129	138	60.3	12.5	3	36	151
WA008064			126	138	59.8	11.5	0	35	150
BITTERROOT		112	118	137	61.4	11.3	0	39	154
9364901A		119	120	137	61.2	11.2	0	36	153
OR2060324				137	57.5	11.0	0	34	155
ORI2060306				136	60.4	12.5	0	34	152
SKILES			123	135	60.8	12.4	0	34	154
BRUNDAGE 96	125	124	125	134	60.3	11.9	0	35	153
KCF08001				133	58.7	12.0	0	36	149
ARS970168-2C			113	131	**62.4**	11.6	0	36	154
CASHUP	114	107	114	130	61.0	11.0	0	34	154
WA008063			122	130	59.1	11.8	0	33	150
ID02-859		118	120	128	59.7	12.6	0	35	153
WA008093				127	59.3	11.7	0	35	152
LAMBERT	122	118	119	126	58.2	11.7	0	38	151
MASAMI	118	117	117	123	58.6	12.0	13	38	156
WB 1020M		108	111	123	59.7	12.5	0	34	155
GEORGE	108	112	112	120	58.7	12.8	80	38	156
ELTAN/MADSEN		115	113	120	60.3	12.3	17	38	154

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT DAYTON, WA.

TABLE 23 (cont):

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
BRUEHL	116	114	115	116	57.8	12.4	37	38	155
CDC PTARMIGAN				115	58.9	11.4	20	40	153
WA008094				114	60.2	12.4	13	40	155
WA008092				111	58.8	12.7	17	37	157
C.V. %	7	7	6	6	1.0	5.0	145	4	1
LSD '@ .10'	4	6	6	12	0.8	0.8	13	2	1
Average	123	121	125	138	60.1	11.9	7	37	153
Highest	135	132	139	160	63.0	12.8	80	42	157
Lowest	108	107	111	111	57.5	10.5	0	32	147

1. Grain yield in the Dayton soft white winter wheat trial averaged 138 bu/ac, 12% higher than the 5-year average for this site. The Dayton nursery was located about 6 miles north of Dayton, WA (Jay Penner, cooperator).
2. This nursery was seeded on 24 September, 2008 following summer fallow. Seed was placed at an 85#/acre seeding rate using a double disc drill set on 6-inch spacing. Base fertilizer was 144#N, 10#P, 15#S, and 10#Cl applied in the fall. Seeding conditions produced good stands that overwintered well. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 28% compared to previously used designs. At this site a significant stripe rust infestation was observed in the middle of June. Susceptible cultivars, and some cultivars with high-temperature adult plant resistance (HTAP) were showing extensive leaf cover by stripe rust. The cool temperatures of early June had not allowed the HTAP to ‘kick in’, but later warmer temperatures the last week of June allowed expression of HTAP resistance. Dr. Chen rated the nursery for stripe rust. Susceptible varieties should have expressed yield loss from stripe rust.
3. Yields ranged from 111 bu/ac to 160 bu/ac, with a CV of 6%. Yield values within the LSD range of the highest yield are shown in bold and included nine cultivars. Club variety names are designated by italicized print.
4. Test weights were good with an average of 60.1 lb/bu. Grain protein averaged 11.9% with a range of 10.5 to 12.8%. The average plant height was 37 inches.

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT DUSTY, WA.

TABLE 24:

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
GEORGE	--	--	--	**110**	60.0	10.8	0	37	154
AP LEGACY	--	--	--	**106**	59.7	9.7	0	34	150
XERPHA	--	--	--	**105**	59.0	9.7	0	34	153
ORCF-103	--	--	--	**104**	60.0	10.7	0	32	152
WA008064	--	--	--	**100**	60.3	10.7	0	30	147
CHUKAR	--	--	--	98	58.6	9.5	0	33	153
WA008092	--	--	--	98	60.4	10.1	0	34	156
SKILES	--	--	--	97	60.2	11.5	0	31	150
CARA	--	--	--	96	58.2	9.6	0	30	153
ARS970170-2L	--	--	--	96	59.7	11.0	0	33	153
RJAMES	--	--	--	95	58.3	9.7	0	29	152
WA008063	--	--	--	95	59.9	10.5	0	30	148
ORCF-102	--	--	--	94	59.9	11.0	0	33	150
ARS970071-3C	--	--	--	94	59.9	10.6	0	33	151
SALUTE	--	--	--	93	58.5	10.2	0	33	150
BRUEHL	--	--	--	92	59.5	10.5	0	35	154
ROD	--	--	--	92	58.3	9.5	0	30	151
ELTAN	--	--	--	91	60.1	9.6	0	36	154
FINCH	--	--	--	89	**60.8**	9.8	0	31	154
ID02-859	--	--	--	89	58.5	10.8	0	30	149
ELTAN/TUBBS06	--	--	--	89	59.8	11.1	0	33	151
ORCF-101	--	--	--	86	58.8	11.0	0	32	149
MADSEN/ROD	--	--	--	86	59.0	10.1	0	32	151
9364901A	--	--	--	85	59.4	10.3	0	30	150
MASAMI	--	--	--	84	59.1	9.2	0	31	154
WA008093	--	--	--	84	59.2	10.4	0	30	149
WA008094	--	--	--	84	**60.9**	10.6	0	34	154
WA008066	--	--	--	83	**61.2**	10.5	0	31	155
LEGION	--	--	--	83	58.6	10.9	0	32	150
ROD/TUBBS06	--	--	--	83	58.3	9.8	0	31	150
TUBBS 06	--	--	--	82	58.6	10.9	0	33	150
CASHUP	--	--	--	82	59.5	9.7	0	31	151
WB 523	--	--	--	81	59.7	9.9	0	28	149
OR2060324	--	--	--	81	56.3	10.0	0	27	153
KCF08001	--	--	--	81	60.0	10.8	0	33	149
MADSEN	--	--	--	79	59.1	11.0	0	29	152
ELTAN/MADSEN	--	--	--	79	59.3	9.8	0	33	152
WA008065	--	--	--	79	60.4	9.7	0	32	150
ORI2060306	--	--	--	79	59.6	10.6	0	31	148
CODA	--	--	--	78	**60.7**	10.2	0	32	153
WB 456	--	--	--	78	**61.0**	11.7	0	28	149
KCF08002	--	--	--	78	59.6	10.8	0	34	148
ARS970168-2C	--	--	--	77	**61.0**	10.7	0	30	152
LAMBERT	--	--	--	75	59.4	10.2	0	32	148
ID990435	--	--	--	75	59.0	10.3	0	33	148
OR2040726	--	--	--	74	59.1	10.4	0	29	149
BRUNDAGE 96	--	--	--	73	58.3	10.6	0	30	149
CDC PTARMIGAN	--	--	--	73	58.0	9.3	0	34	149
OR2050293	--	--	--	72	57.4	10.3	0	29	150
STEPHENS	--	--	--	71	58.3	10.5	0	29	148
WB 1066M	--	--	--	71	60.6	11.5	0	32	149
AP 700 CL	--	--	--	70	58.6	10.9	0	30	149
WB 1020M	--	--	--	69	59.3	10.2	0	29	153
BZ6W02-616	--	--	--	66	59.8	11.1	0	28	147

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT DUSTY, WA.

TABLE 24 (cont):

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
BITTERROOT	- -	- -	- -	65	59.6	10.6	0	31	152
WB-528	- -	- -	- -	65	60.2	11.0	0	28	149
SIMON	- -	- -	- -	60	58.5	10.7	0	30	151
WB 1070M	- -	- -	- -	52	**61.1**	11.6	0	26	148
C.V. %	- -	- -	- -	10	0.7	5.5	- -	4	1
LSD '@ .10'	- -	- -	- -	12	0.6	0.8	- -	2	1
Average	- -	- -	- -	84	59.4	10.4	0	31	151
Highest	- -	- -	- -	110	61.2	11.7	0	37	156
Lowest	- -	- -	- -	52	56.3	9.2	0	26	147

1. Grain yield in the Dusty soft white winter wheat trial averaged 84 bu/ac. The Dusty nursery was located about 6 miles west of Endicott, WA (Bob Morasch, cooperator).
2. This nursery was seeded on 16 September, 2008 following summer fallow. Seed was placed at an 85#/acre seeding rate using a hoe plot drill set on 9-inch spacing. Base fertilizer was 76#N, and 6#S applied in the fall. Seeding conditions produced good stands that overwintered well. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 57% compared to previously used designs.
3. Yields ranged from 52 bu/ac to 110 bu/ac, with a CV of 10%. Yield values within the LSD range of the highest yield are shown in bold and included six cultivars. Club variety names are designated by italicized print.
4. Test weights were good with an average of 59.4 lb/bu. Grain protein averaged 10.4% with a range of 9.2 to 11.7%. The average plant height was 31 inches.

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT FAIRFIELD, WA.

TABLE 25:

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
XERPHA	115	101	94	**111**	59.7	10.9	0	32	162
LEGION			98	**111**	59.2	11.1	0	35	161
ARS970170-2L				**103**	59.7	11.5	0	33	162
OR2060324				**102**	57.9	10.5	0	28	162
ELTAN	111	100	97	**100**	60.6	10.9	0	34	162
ELTAN/TUBBS06			91	**99**	59.3	11.2	0	35	162
CHUKAR	103	87	81	**98**	58.4	11.0	0	29	161
FINCH	101	87	82	**98**	60.6	11.4	0	32	163
MASAMI	106	92	86	**98**	59.2	10.7	0	33	163
ORCF-103		103	98	**98**	60.1	11.5	0	32	163
ORCF-102	119	105	100	97	60.2	11.3	0	32	160
WA008064			83	97	59.4	11.7	0	29	157
WB 523		95	88	96	60.5	11.2	0	30	158
9364901A		94	84	96	60.4	10.8	0	32	161
ROD/TUBBS06			85	95	58.6	11.5	0	33	161
ELTAN/MADSEN		91	85	94	59.8	11.9	0	33	162
WB 1066M			84	94	**61.5**	11.5	0	33	157
OR2040726				94	59.2	10.9	0	29	157
CASHUP	104	87	83	93	59.9	10.9	0	28	160
AP LEGACY			90	93	60.3	11.1	0	31	160
ROD	106	89	80	92	58.7	10.9	0	30	161
BITTERROOT		87	78	92	60.2	11.7	0	33	162
ORCF-101	112	97	91	92	59.4	11.3	0	32	160
WB 456		87	79	92	**61.2**	11.8	0	31	155
GEORGE	110	95	90	92	59.0	11.6	0	35	163
BRUNDAGE 96	110	93	86	91	58.7	11.1	0	31	160
WB 1020M		97	95	91	**61.3**	10.5	0	30	161
AP 700 CL		98	93	91	60.2	10.9	0	31	159
ID02-859		94	87	91	59.1	11.5	0	29	161
SKILES			84	91	59.5	12.1	0	32	161
CDC PTARMIGAN				91	59.7	10.5	0	36	160
CARA	102	82	76	90	59.1	10.9	0	27	161
WB-528	104	90	81	90	60.7	11.1	0	31	155
WA008065			84	90	60.6	11.4	0	31	159
BRUEHL	105	89	83	88	59.5	11.2	0	32	163
LAMBERT	107	91	84	88	60.4	11.0	0	33	156
SALUTE		90	82	88	58.8	11.0	0	31	159
WA008092				88	60.4	11.3	0	31	163
WA008093				88	59.7	11.4	0	29	159
KCF08001				88	59.8	11.7	0	30	156
STEPHENS	104	86	78	87	60.0	11.0	0	29	156
MADSEN/ROD		92	84	87	59.5	11.3	0	31	162
WA008063			80	87	60.6	11.0	0	27	156
ORI2060306				87	60.0	11.4	0	30	161
MADSEN	102	86	78	86	60.2	11.3	0	30	162
SIMON	102	86	73	86	60.1	11.3	0	31	159
WA008066			74	86	60.9	11.4	0	30	163
ARS970071-3C				86	60.5	11.0	0	31	161
WA008094				86	59.2	11.8	0	32	162
OR2050293				86	59.5	11.2	0	29	160
TUBBS 06		87	79	84	59.4	10.8	0	33	161
ARS970168-2C			80	84	**61.9**	11.5	0	30	162
ID990435		91	83	81	59.5	11.1	0	35	158
RJAMES	108	89	80	80	59.1	11.2	0	30	161

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT FAIRFIELD, WA.

TABLE 25 (cont):

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
CODA	101	85	75	77	**61.3**	11.5	0	29	162
KCF08002				77	60.0	11.4	0	29	156
BZ6W02-616				76	61.0	11.4	0	31	156
WB 1070M				76	**61.5**	12.5	0	29	155
C.V. %	10	10	12	11	1.2	4.1	- -	6	1
LSD '@ .10'	5	7	9	14	0.9	0.6	- -	3	2
Average	107	92	85	91	59.9	11.3	0	31	160
Highest	119	105	100	111	61.9	12.5	0	36	163
Lowest	101	82	73	76	57.9	10.5	0	27	155

1. Grain yield in the Fairfield soft white winter wheat trial averaged 91 bu/ac, 16 bu/ac lower than the 5-year average yield at this location. The Fairfield nursery was located about 3 miles northwest of Fairfield, WA (Al Anderberg, cooperator).
2. In previous years, the trial at this location followed a grain legume crop. Previous work shows that wheat after wheat does not perform as well as wheat following a legume crop, and this helps explain the lower than average yield for this trial. Also at this location, previous results show that Clearfield varieties out-performed other varieties and no Beyond was applied. This indicates that there could be carryover herbicide from previous crop(s). We did not want that complication for the trial and thus the wheat after wheat crop sequence for this trial.
3. This nursery was seeded on 29 September, 2008 following winter wheat. Seed was placed at an 85#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was 100#N and 15#S (per acre) applied in the fall. Seeding conditions produced good stands that overwintered well. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 41% compared to previously used designs.
4. Yields ranged from 76 bu/ac to 111 bu/ac, with a CV of 11%. Yield values within the LSD range of the highest yield are shown in bold and included 11 cultivars and blends. Club variety names are designated by italicized print.
5. Test weights were good with an average of 59.9 lb/bu. Grain protein averaged 11.3% with a range of 10.5 to 12.5%. The average plant height was 31 inches.

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT FARMINGTON, WA.

TABLE 26:

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
ORCF-102	139	136	137	**150**	60.9	11.8	10	43	162
ORI2060306				**150**	59.4	13.0	0	40	162
ORCF-101	129	124	130	**146**	59.3	12.6	7	41	161
OR2040726				**145**	60.0	11.9	3	38	160
CARA	116	107	110	**144**	58.0	12.1	0	38	163
AP 700 CL		131	131	**144**	58.2	12.2	8	41	161
AP LEGACY			129	**144**	60.5	11.6	5	43	162
OR2050293				**144**	57.9	12.4	3	37	162
XERPHA	134	129	136	**143**	58.7	12.1	25	41	163
WB 523		122	122	**142**	60.1	11.9	35	39	161
MADSEN/ROD		117	123	**142**	58.7	12.2	0	42	163
ROD	126	119	117	**141**	58.0	11.5	12	41	162
STEPHENS	119	115	117	**141**	59.0	11.4	13	39	159
CASHUP	125	118	122	**141**	59.2	11.5	30	40	163
9364901A		120	122	**140**	60.6	11.6	0	40	161
SALUTE		122	123	**140**	58.0	12.2	77	43	161
WA008093				**140**	57.5	12.3	0	40	161
OR2060324				**140**	56.9	11.2	0	37	163
BRUEHL	122	113	122	**139**	58.0	12.2	18	42	164
LAMBERT	130	125	130	**139**	59.7	11.4	37	43	160
WB-528	128	117	118	**138**	61.4	12.2	0	40	157
WA008063			114	**138**	58.1	12.4	0	38	158
TUBBS 06		111	114	**137**	58.3	11.9	32	43	161
WB 1066M			120	**137**	**62.5**	12.6	35	46	158
ROD/TUBBS06			124	**137**	58.4	11.6	12	42	162
FINCH	126	122	126	136	60.0	11.9	23	41	165
ID990435		128	126	136	57.8	12.7	65	45	160
LEGION			127	136	58.0	11.9	87	42	163
CHUKAR	118	106	108	135	57.7	12.1	27	41	162
SIMON	124	115	114	135	60.6	12.0	3	42	161
WB 456		115	113	135	61.5	12.9	0	40	158
WA008066			119	135	60.7	11.8	0	42	163
WB 1070M				135	**61.6**	12.8	0	39	155
BITTERROOT		110	114	134	60.7	12.0	37	43	163
SKILES			116	133	60.0	12.5	3	37	162
WA008065			120	132	59.5	12.8	32	40	161
ID02-859		117	125	131	57.8	11.8	20	41	162
ELTAN/MADSEN		119	118	131	59.6	12.1	27	42	163
WB 1020M		116	118	129	57.7	12.3	63	40	163
ELTAN/TUBBS06			118	129	58.3	12.0	68	42	162
RJAMES	113	109	116	128	56.0	11.8	70	36	161
MASAMI	111	114	117	127	58.1	11.6	5	42	164
ARS970071-3C				127	57.6	12.8	92	41	162
BRUNDAGE 96	120	115	117	126	59.1	12.0	0	39	161
WA008064			109	124	59.1	12.5	0	37	158
BZ6W02-616				124	59.5	12.1	53	40	156
ORCF-103		112	119	123	57.3	12.3	83	40	163
MADSEN	116	105	106	122	59.2	12.6	13	42	163
ELTAN	105	101	109	122	58.6	12.4	83	40	164
WA008092				122	57.6	12.7	70	39	165
ARS970168-2C			107	120	60.0	12.2	23	39	163
GEORGE	110	105	114	119	57.7	12.0	65	41	164
KCF08001				119	58.2	12.2	65	41	160
KCF08002				119	58.1	12.1	75	40	159

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT FARMINGTON, WA.

TABLE 26 (cont):

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
ARS970170-2L				117	58.1	12.2	73	40	163
WA008094				116	58.6	12.7	68	42	164
CODA	113	104	99	115	58.8	12.9	93	40	164
CDC PTARMIGAN				103	57.8	11.6	99	44	162
C.V. %	9	11	8	8	1.3	3.3	70	3	1
LSD '@ .10'	6	9	9	14	1.0	0.5	30	2	1
Average	121	116	119	133	58.9	12.1	32	41	162
Highest	139	136	137	150	62.5	13.0	99	46	165
Lowest	105	101	99	103	56.0	11.2	0	36	155

1. Grain yield in the Farmington soft white winter wheat trial averaged 133 bu/ac, 12 bu/ac higher than the 5-year average yield at this location. The Farmington nursery was located about 1 mile south of Farmington, WA (Bruce Nelson, cooperator).
2. This nursery was seeded on 30 September, 2008 following lentils. Seed was placed at an 85#/acre seeding rate using a no-till drill using Cross-slot openers set on 10-inch spacing. Base fertilizer was 106#N, 20#P, and 20#S (all per acre) applied in the fall. Seeding moisture conditions were rated 5 out of 10, but produced good stands that overwintered well. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by only 2% compared to previously used designs, indicating low variability within replication.
3. Yields ranged from 103 bu/ac to 150 bu/ac, with a CV of 8%. Yield values within the LSD range of the highest yield are shown in bold and included 26 of the 58 cultivars listed. Club variety names are designated by italicized print.
4. Test weights averaged 58.9 lb/bu. Grain protein averaged 12.1% with a range of 11.2 to 13.0%. The average plant height was 41 inches. When the average plant height is over 40 inches and the average yield is over 120 bu/ac, there will be lodging in a variety trial. In this trial, lodging averaged 32% but ranged from 0 to 99% providing a good differential indication of lodging potential across cultivars.

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT HORSE HEAVEN, WA.

TABLE 27:

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT* (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
ELTAN	--	--	--	**15**	58.5	14.9	0	19	150
WB-528	--	--	--	**15**	59.8	15.1	0	21	145
WB 456	--	--	--	**15**	58.9	16.3	0	19	146
XERPHA	--	--	--	**14**	60.4	15.2	0	21	150
SKILES	--	--	--	**14**	58.6	15.4	0	18	148
LEGION	--	--	--	**14**	58.7	16.2	0	21	148
WB 1066M	--	--	--	**14**	59.5	15.7	0	22	146
ELTAN/TUBBS06	--	--	--	**14**	58.4	15.2	0	20	150
CDC PTARMIGAN	--	--	--	**14**	59.1	15.2	0	20	148
BZ6W02-616	--	--	--	**14**	59.0	15.2	0	20	146
MASAMI	--	--	--	13	58.4	15.7	0	18	151
SIMON	--	--	--	13	58.8	15.1	0	20	149
BITTERROOT	--	--	--	13	61.3	15.3	0	20	149
ID990435	--	--	--	13	58.4	15.1	0	22	147
STEPHENS	--	--	--	13	57.4	15.7	0	19	148
ORCF-102	--	--	--	13	60.0	16.1	0	20	148
TUBBS 06	--	--	--	13	57.8	15.6	0	21	149
WB 1020M	--	--	--	13	60.7	15.1	0	18	151
ORCF-103	--	--	--	13	59.2	15.9	0	18	150
ELTAN/MADSEN	--	--	--	13	58.9	15.6	0	18	152
ARS970168-2C	--	--	--	13	58.8	15.0	0	16	150
WA008065	--	--	--	13	59.4	16.3	0	20	150
AP LEGACY	--	--	--	13	58.9	14.8	0	19	148
ARS970170-2L	--	--	--	13	58.8	15.6	0	20	150
OR2050293	--	--	--	13	55.3	15.5	0	20	149
WB 1070M	--	--	--	13	60.9	15.7	0	19	145
LAMBERT	--	--	--	12	58.3	15.9	0	21	147
BRUNDAGE 96	--	--	--	12	57.8	15.9	0	17	148
RJAMES	--	--	--	12	56.1	15.5	0	17	151
MADSEN/ROD	--	--	--	12	59.0	15.8	0	18	151
9364901A	--	--	--	12	58.8	14.3	0	18	149
ID02-859	--	--	--	12	57.9	16.1	0	17	149
WA008063	--	--	--	12	58.6	15.8	0	18	146
WA008066	--	--	--	12	59.3	15.0	0	19	151
ARS970071-3C	--	--	--	12	59.2	15.8	0	17	149
OR2040726	--	--	--	12	57.7	16.1	0	19	146
KCF08001	--	--	--	12	59.7	14.8	0	21	146
KCF08002	--	--	--	12	59.6	14.9	0	20	147
ORI2060306	--	--	--	12	58.4	16.7	0	18	149
BRUEHL	--	--	--	11	60.5	15.1	0	19	151
MADSEN	--	--	--	11	59.9	16.3	0	18	151
ROD	--	--	--	11	57.7	15.1	0	17	151
ORCF-101	--	--	--	11	58.5	16.2	0	20	149
WB 523	--	--	--	11	60.4	15.8	0	20	148
CASHUP	--	--	--	11	60.3	15.4	0	17	150
SALUTE	--	--	--	11	57.3	15.7	0	20	148
AP 700 CL	--	--	--	11	58.5	16.1	0	20	148
WA008064	--	--	--	11	59.1	16.3	0	18	147
WA008092	--	--	--	11	60.5	15.0	0	19	151
WA008094	--	--	--	11	59.7	15.3	0	19	150
OR2060324	--	--	--	11	57.4	14.6	0	18	149
CHUKAR	--	--	--	10	59.3	16.1	0	15	151
GEORGE	--	--	--	10	58.6	15.5	0	19	151
ROD/TUBBS06	--	--	--	10	58.2	15.7	0	20	150

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT HORSE HEAVEN, WA.

TABLE 27 (cont):

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT* (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
WA008093	- -	- -	- -	10	61.2	15.7	0	19	149
CARA	- -	- -	- -	9	58.3	16.4	0	15	151
CODA	- -	- -	- -	8	60.9	16.4	0	16	151
FINCH	- -	- -	- -	8	59.9	14.8	0	17	150
C.V. %	- -	- -	- -	13		3.2	- -	6	1
LSD '@ .10'	- -	- -	- -	2		0.7	- -	2	1
Average	- -	- -	- -	12	59.0	15.6	0	19	149
Highest	- -	- -	- -	15	61.3	16.7	0	22	152
Lowest	- -	- -	- -	8	55.3	14.3	0	15	145

***Test Weight data are from bulked samples across replications.**

1. Grain yield in the Horse Heaven soft white winter wheat trial averaged 12 bu/ac. The Horse Heaven nursery was located about 5 miles east of Prosser, WA (D. Roseberry farm).
2. This nursery was seeded on 8 October, 2008 following summer fallow. Seed was placed at a 45#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was 40#N. Fall seeding conditions were dry and occasional poor emergence caused some gaps in individual plots. When appropriate, gaps were subtracted from the plot areas to maintain equivalent comparisons. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 36% compared to previously used designs.
3. Yields ranged from 8 bu/ac to 15 bu/ac, with a CV of 13%. All yield values within the LSD range of the highest yield are shown in bold. Club variety names are designated by italicized print.
4. Test weights were good with an average of 59.0 lb/bu. Test weight values were obtained by bulking the replications together to have enough grain for analysis, and this does not then allow statistical analysis of these results.
5. Grain protein averaged 15.6% with a range of 14.3 to 16.7%. High protein could have been influenced by the low yields that reflected dry conditions during much of the growing season. Low yield and dry conditions are also related to 19 inch average plant height.

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT LAMONT, WA.

TABLE 28:

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
ARS970071-3C				**115**	61.2	12.7	0	36	155
CARA	101	96	94	**110**	58.9	11.4	0	32	156
CHUKAR	99	94	93	**108**	60.6	11.1	0	29	156
XERPHA	97	100	98	**106**	60.2	11.2	0	33	156
AP LEGACY			98	**102**	59.8	12.2	0	31	154
WA008063			91	**101**	61.4	12.3	0	30	149
FINCH	105	95	95	100	**61.7**	12.1	0	31	158
OR2060324				99	57.9	11.5	0	27	157
ELTAN	91	94	92	94	61.4	12.2	10	33	158
WA008066			87	94	61.2	11.7	0	30	159
SKILES			91	93	60.4	12.8	0	29	155
OR2040726				93	60.3	11.5	0	28	151
WA008065			92	91	**62.5**	13.2	0	31	153
ARS970168-2C			83	90	**62.4**	12.2	0	30	156
WA008064			86	90	60.9	12.3	0	30	150
ROD	95	94	89	89	58.9	11.1	7	30	156
ARS970170-2L				89	60.2	11.5	0	34	158
ORCF-103		87	81	87	60.3	12.4	0	31	156
OR2050293				87	59.4	12.9	0	27	153
KCF08002				87	60.6	12.4	0	30	150
CODA	93	88	86	86	61.4	11.7	0	33	156
MASAMI	104	92	86	86	59.3	11.4	0	32	158
ELTAN/MADSEN		87	86	86	59.8	12.9	0	30	156
ORI2060306				86	60.5	12.9	0	28	151
SALUTE		91	88	85	59.7	11.7	0	32	153
ID02-859		91	85	85	59.6	12.6	0	27	152
ORCF-102	97	91	87	84	60.6	12.1	0	33	153
WA008092				84	60.8	13.3	0	32	159
WB 523		84	82	83	61.6	12.0	0	30	152
MADSEN/ROD		87	83	83	59.5	12.6	0	31	156
ROD/TUBBS06			80	83	59.1	10.7	0	30	155
BRUEHL	89	86	81	81	59.7	12.6	0	31	158
ORCF-101	89	85	83	81	59.3	12.4	0	29	152
RJAMES	93	88	84	81	59.8	12.9	0	29	155
WA008094				81	61.2	11.9	0	31	158
TUBBS 06		91	83	80	59.9	12.6	0	33	154
CASHUP	86	79	79	80	61.5	12.5	0	28	155
ELTAN/TUBBS06			85	80	59.5	11.9	0	30	156
GEORGE	95	95	89	79	59.8	12.3	0	32	158
CDC PTARMIGAN				79	60.3	11.4	23	33	154
WA008093				79	60.5	13.1	0	31	153
ID990435		85	78	74	60.5	12.3	0	32	153
WB 456		85	80	74	61.4	13.9	0	26	151
BZ6W02-616				74	60.7	12.0	0	28	150
KCF08001				74	60.6	12.2	0	30	150
BRUNDAGE 96	97	88	80	72	59.6	11.8	0	25	153
AP 700 CL		82	79	71	59.8	12.8	0	29	152
LEGION			81	71	59.6	11.2	0	30	154
LAMBERT	92	84	81	70	60.7	12.0	0	32	152
9364901A		81	76	70	60.8	13.1	0	27	154
SIMON	89	77	77	69	59.9	13.5	0	31	155
WB 1020M		76	75	69	60.3	12.3	0	29	156
MADSEN	90	78	72	68	59.5	11.6	0	28	156
BITTERROOT		72	70	68	60.7	13.8	0	28	157

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT LAMONT, WA.

TABLE 28 (cont):

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
WB-528	80	80	77	68	61.5	12.6	0	28	151
STEPHENS	89	79	73	66	59.6	12.4	0	29	151
WB 1066M			72	65	61.6	12.3	0	30	151
WB 1070M				54	61.6	13.7	0	28	149
C.V. %	11	11	11	13	1.0	6.1	883	8	1
LSD '@ .10'	5	7	9	15	0.9	1.0	8	3	1
Average	94	87	84	83	60.4	12.3	1	30	154
Highest	105	100	98	115	62.5	13.9	23	36	159
Lowest	80	72	70	54	57.9	10.7	0	25	149

1. Grain yield in the Lamont soft white winter wheat trial averaged 83 bu/ac, 11 bu/ac lower than the 5-year average yield. The Lamont nursery was located about 6 miles southeast of Lamont, WA (Gil White, cooperator).
2. This nursery was seeded on 8 September, 2008 following summer fallow. Seed was placed at an 85#/acre seeding rate using a hoe plot drill set on 9-inch spacing. Base fertilizer was 70#N, and 10#S applied in the fall. Seeding conditions produced good stands that overwintered well. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 77% compared to previously used designs. This site was highly variable and much of it was accounted for by the lattice design, but the CV of 13% is still higher than desired. This also makes the LSD value of 15 bu/ac higher than desired and reflects the variability.
3. Yields ranged from 54 bu/ac to 115 bu/ac. Yield values within the LSD range of the highest yield are shown in bold and included six cultivars. Club variety names are designated by italicized print and club varieties performed well with three club cultivars as the top yielders.
4. Test weights were good with an average of 60.4 lb/bu. Grain protein averaged 12.3% with a range of 10.7 to 13.9%. These protein values are higher than desired and reflect the high fertility level at the site. The average plant height was 30 inches.

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT LIND, WA.

TABLE 29:

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
WA008066	- -		28	**38**	**59.7**	12.3	0	26	151
AP LEGACY	- -		28	**36**	**59.5**	12.8	0	27	150
ELTAN	- -	37	30	**35**	**60.9**	12.4	0	26	150
ORCF-103	- -	35	28	**35**	**60.3**	12.6	0	24	151
GEORGE	- -	38	30	**34**	**59.3**	12.6	0	25	151
WA008092	- -			**34**	58.8	12.3	0	26	151
ARS970170-2L	- -			**34**	**59.4**	12.9	0	25	151
ELTAN/TUBBS06	- -		27	**33**	**60.9**	12.5	0	27	151
WA008094	- -			**33**	58.5	12.2	0	26	151
FINCH	- -	32	25	**32**	**59.3**	12.8	0	24	151
ELTAN/MADSEN	- -	33	26	**32**	**60.9**	12.1	0	26	151
SKILES	- -		28	**32**	**59.7**	14.4	0	26	149
MASAMI	- -	33	25	**31**	**59.3**	12.2	0	27	151
BRUEHL	- -	34	26	29	58.3	12.7	0	26	151
RJAMES	- -	30	23	29	58.4	12.1	0	25	150
ARS970071-3C	- -			29	**59.9**	13.6	0	24	151
XERPHA	- -	37	27	28	58.6	12.7	0	25	151
SALUTE	- -	33	24	28	57.4	13.2	0	25	150
ARS970168-2C	- -		24	28	**60.6**	12.6	0	23	150
WA008063	- -		23	28	**60.3**	13.8	0	25	148
WB 1020M	- -	30	25	26	**60.6**	12.9	0	24	151
WB-528	- -	28	21	25	**59.6**	13.9	0	23	149
WB 523	- -	26	20	25	**59.6**	13.6	0	24	149
WA008065	- -		22	25	**59.6**	13.5	0	25	150
WA008093	- -			25	**60.5**	13.2	0	25	149
CARA	- -	26	21	24	58.5	13.0	0	22	151
TUBBS 06	- -	30	22	24	58.4	13.0	0	26	150
CASHUP	- -	30	23	24	**60.2**	13.0	0	25	151
WA008064	- -		21	24	**60.4**	13.7	0	25	148
BRUNDAGE 96	- -	28	20	23	**59.3**	13.0	0	24	149
ID02-859	- -	31	20	23	58.7	13.1	0	23	149
LEGION	- -		23	23	58.2	12.9	0	27	150
CDC PTARMIGAN	- -			23	58.1	12.2	0	24	151
ORCF-102	- -	29	20	22	58.2	13.4	0	24	151
OR2040726	- -			22	56.8	13.3	0	23	149
ROD	- -	30	23	21	56.6	12.8	0	25	152
STEPHENS	- -	26	19	21	57.8	13.1	0	24	149
WB 1066M	- -		18	21	**60.1**	13.7	0	25	148
CODA	- -	30	22	20	**60.3**	13.1	0	23	151
BITTERROOT	- -	25	17	20	58.0	13.5	0	24	151
WB 456	- -	25	18	20	**60.5**	14.5	0	23	148
AP 700 CL	- -	28	21	20	**59.3**	13.9	0	27	149
ROD/TUBBS06	- -		20	20	57.1	13.2	0	23	151
KCF08001	- -			20	58.2	14.0	0	26	148
CHUKAR	- -	30	21	19	55.1	13.1	0	24	152
OR2050293	- -			19	58.1	13.0	0	23	150
BZ6W02-616	- -			19	**60.6**	13.6	0	25	147
ORI2060306	- -			19	57.0	13.8	0	25	150
SIMON	- -	24	18	18	56.9	13.4	0	23	151
ORCF-101	- -	26	17	18	57.0	14.0	0	25	150
MADSEN	- -	27	18	17	58.5	13.8	0	23	151
9364901A	- -	24	15	17	57.9	13.4	0	22	151
LAMBERT	- -	24	16	15	58.8	12.5	0	27	150
MADSEN/ROD	- -	24	17	14	56.6	13.4	0	22	152

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT LIND, WA.

TABLE 29 (cont):

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
ID990435	- -	24	14	13	58.4	13.4	0	25	151
WB 1070M	- -			13	**59.6**	14.8	0	24	148
KCF08002	- -			11	57.2	14.0	0	25	149
OR2060324	- -			*	*	*			
C.V. %	- -	17	22	23	2.3	4.1	- -	7	1
LSD '@ .10'	- -	3	4	8	1.8	0.7	- -	2	1
Average	- -	29	22	24	58.9	13.2	0	25	150
Highest	- -	38	30	38	60.9	14.8	0	27	152
Lowest	- -	24	14	11	55.1	12.1	0	22	147

***Insufficient plant stands for data collection.**

1. Grain yield in the Lind soft white winter wheat trial averaged 23 bu/ac, off 17% from a 3-year average yield for this location. The Lind nursery was located on the WSU Lind Dryland Research Station north of the town of Lind.
2. This nursery was seeded on 4 September, 2008 following summer fallow. Seed was placed at a 45#/acre seeding rate using a deep furrow plot drill with split packer openers set on 15-inch spacing. Base fertilizer was 50#N and 10#S. Fall seeding conditions were dry resulting in poor, spotty emergence, and excess soil coverage due to deep planting with the plot drill caused many gaps in individual plots. Patchy stand establishment was typical of production fields in the area. When appropriate, gaps were subtracted from the plot areas to maintain equivalent comparisons. Because of missing plot values, this experiment was not analyzed as an alpha lattice experimental design, but as a randomized complete block design.
3. Yields ranged from 11 bu/ac to 38 bu/ac. Yield values within the LSD range of the highest yield are shown in bold. The CV for yield was over 20%. When CV yield values exceed 20%, results hold limited statistical validity and should be used with cautious interpretation. Club variety names are designated by italicized print.
4. Test weights were good with an average of 58.9 lb/bu.
5. Grain protein averaged 13.2% with a range of 12.1 to 14.8%. High protein can occur with high amount of spring growth and N uptake that was supported by the weather conditions. Average plant height was 25 inches.

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT MAYVIEW, WA.

TABLE 30:

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
XERPHA	108	109	98	**102**	61.1	10.6	0	31	159
ARS970170-2L				**102**	61.7	10.5	0	34	159
OR2060324				**101**	58.3	9.9	0	29	161
CHUKAR	92		91	**99**	60.0	9.9	0	31	160
SKILES			95	**99**	61.7	11.8	0	32	158
LEGION			97	**99**	60.8	10.4	0	34	158
ROD/TUBBS06			96	**98**	60.8	10.6	0	34	158
ROD	108	107	94	**96**	60.7	10.3	0	30	158
STEPHENS	99	100	91	**95**	60.8	10.3	0	30	154
ORCF-103		103	91	**95**	61.0	10.7	0	30	161
WA008065			92	**95**	62.8	10.8	0	31	156
FINCH	101	101	90	94	62.6	10.3	0	30	161
MASAMI	104	104	93	94	60.2	10.1	0	33	160
WA008063			90	94	61.9	11.3	0	29	155
AP LEGACY			98	94	61.4	10.4	0	33	158
ELTAN/TUBBS06			95	94	61.0	10.7	0	33	158
WA008066			89	93	62.3	10.5	0	31	162
ORCF-101	102	102	91	92	60.7	11.2	0	31	158
TUBBS 06		103	89	92	60.7	10.4	0	34	158
GEORGE	92	100	92	92	61.0	11.1	0	31	161
WA008064			90	91	61.9	11.0	0	29	154
ARS970071-3C				91	61.7	10.7	0	33	157
BRUEHL	104	104	93	90	59.5	10.9	0	35	161
MADSEN	98	96	87	90	61.2	11.2	0	31	160
WB-528	106	104	94	90	62.3	11.0	0	30	153
MADSEN/ROD		101	92	90	60.8	10.7	0	29	159
9364901A		103	91	90	61.6	10.4	0	31	158
ELTAN	93	99	89	89	61.4	11.0	0	32	161
SALUTE		100	88	89	60.0	10.2	0	33	156
ID02-859		97	86	89	60.4	10.1	0	29	158
OR2050293				89	60.6	10.7	0	30	157
OR2040726				89	61.5	10.2	0	29	155
CARA	84		85	88	59.8	10.2	0	29	160
WB 523		102	89	88	61.8	10.7	0	32	156
RJAMES	104	102	90	88	60.5	10.2	0	28	159
KCF08001				88	61.4	11.1	0	31	153
ORCF-102	104	103	93	87	61.7	11.1	0	32	158
WB 1070M				87	**63.1**	11.1	0	29	152
BRUNDAGE 96	91	98	86	85	60.4	10.3	0	30	157
AP 700 CL		94	84	85	62.1	10.6	0	32	156
ELTAN/MADSEN		99	89	85	61.3	11.0	0	33	159
ID990435		95	81	84	60.5	10.1	0	33	155
WB 1020M		96	85	84	61.4	10.3	0	31	159
CODA	97	96	84	83	62.2	10.5	0	30	161
ORI2060306				83	61.4	11.2	0	29	159
BITTERROOT		94	84	82	61.4	11.4	0	33	159
WA008094				82	62.2	10.9	0	31	160
LAMBERT	94	96	81	81	60.9	10.1	0	33	154
SIMON	98	96	83	80	60.3	11.2	0	30	156
CASHUP	97	94	84	80	61.4	10.2	0	29	158
WA008092				80	60.9	11.0	0	31	161
WA008093				78	61.4	10.8	0	30	158
KCF08002				78	61.0	11.4	0	32	154
CDC PTARMIGAN				77	60.0	10.0	0	36	160

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT MAYVIEW, WA.

TABLE 30 (cont):

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
ARS970168-2C			80	76	62.3	10.4	0	28	159
WB 1066M			71	75	61.8	11.8	0	31	155
WB 456		89	77	73	62.8	11.1	0	30	152
BZ6W02-616				72	62.6	10.4	0	31	151
C.V. %	7	8	7	7	0.4	3.0	- -	5	1
LSD '@ .10'	4	5	6	8	0.3	0.4	- -	2	1
Average	99	99	89	88	61.2	10.7	0	31	158
Highest	108	109	98	102	63.1	11.8	0	36	162
Lowest	84	89	71	72	58.3	9.9	0	28	151

1. Grain yield in the Mayview soft white winter wheat trial averaged 88 bu/ac, about 11% lower then 5-year average yield of 99 bu/ac at this location. The Mayview nursery was located about 4 miles south of the Lower Granite Dam on the Snake River, WA or 12 miles northeast of Pomeroy, WA (Roger and Randy Koller, cooperators).
2. This nursery was seeded on 14 October, 2008 following summer fallow. Seed was placed at an 85#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was 80#N and 15#S applied in the fall. Seeding conditions produced good stands that overwintered well. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 205% compared to previously used designs.
3. Yields ranged from 72 bu/ac to 102 bu/ac, with a CV of 7%. Yield values within the LSD range of the highest yield are shown in bold and included 11 cultivars and one blend. Club variety names are designated by italicized print.
4. Test weights were good with an average of 61.2 lb/bu. Grain protein averaged 10.7% with a range of 9.9 to 11.8%. The average plant height was 31 inches.

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT MOSES LAKE, WA.

TABLE 31:

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
BZ6W02-616				**206**	**62.2**	11.1	40	38	149
XERPHA	164	175	191	**194**	58.9	11.8	5	41	155
LAMBERT	169	176	191	**193**	59.5	12.0	20	40	151
OR2040726				**193**	59.7	12.0	0	36	152
OR2050293				**192**	58.0	11.7	0	36	154
ORCF-102	164	168	182	**191**	60.6	11.5	0	40	153
WB-528	167	174	187	**191**	61.7	11.8	3	37	150
KCF08002				189	60.3	12.0	0	38	150
ID990435		167	183	187	58.7	12.1	17	41	152
STEPHENS	162	175	189	187	58.7	11.6	5	38	153
WB 456		167	177	187	**62.4**	11.9	0	35	149
AP 700 CL		164	181	186	59.4	11.9	0	38	152
LEGION			189	186	59.0	11.6	63	40	153
WA008065			189	185	60.2	12.5	0	38	152
WB 1070M				184	**63.1**	12.3	0	34	149
WB 1066M			168	183	**62.7**	12.6	5	41	149
WB 523		166	175	181	60.2	11.8	17	37	153
BRUEHL	149	157	176	180	57.3	12.5	28	38	157
9364901A		165	178	180	60.4	11.1	0	37	154
AP LEGACY			175	180	58.6	11.6	0	40	155
BRUNDAGE 96	155	162	171	179	59.1	11.6	3	37	153
ELTAN/MADSEN		162	170	179	59.6	11.9	72	40	155
CDC PTARMIGAN				178	59.5	11.3	90	43	153
SIMON	162	162	182	177	59.5	11.8	0	38	152
TUBBS 06		168	182	177	58.5	12.0	37	41	155
WA008063			181	176	59.6	11.9	0	35	150
SALUTE		163	181	172	57.7	12.1	50	39	154
ROD/TUBBS06			176	172	58.1	11.8	17	39	154
KCF08001				172	58.8	12.3	30	37	151
ELTAN	135	155	167	171	59.6	12.2	92	40	156
BITTERROOT		157	175	171	59.7	11.4	13	41	155
CASHUP	149	153	168	171	59.6	12.0	30	38	155
WB 1020M		155	171	169	58.4	11.9	18	37	154
ORCF-103		159	171	169	59.5	12.0	85	37	157
ELTAN/TUBBS06			169	169	59.4	12.0	83	37	154
ARS970170-2L				169	58.3	12.5	58	38	155
WA008093				168	58.5	11.9	0	38	153
MADSEN	157	158	171	167	59.2	12.1	0	38	155
ROD	151	159	176	167	58.0	12.2	33	37	156
MADSEN/ROD		156	172	167	58.8	11.8	7	37	155
WA008064			178	164	59.7	12.0	0	34	150
SKILES			166	164	58.3	12.3	0	34	154
ARS970071-3C				164	60.2	12.7	42	38	154
MASAMI	146	154	165	162	57.5	11.5	25	41	157
ID02-859		154	161	161	58.4	12.2	7	36	153
CHUKAR	143	143	154	160	57.6	12.8	7	39	155
ORCF-101	144	148	163	160	58.2	12.5	0	36	155
WA008066			166	159	58.8	12.3	10	39	157
RJAMES	145	148	166	158	56.6	11.6	88	33	154
ARS970168-2C			157	158	60.9	11.6	0	36	153
ORI2060306				158	57.8	12.8	7	37	156
WA008092				157	57.5	12.0	38	41	158
WA008094				157	59.3	12.3	60	42	156
CODA	135	140	152	155	60.3	12.8	57	38	155

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT MOSES LAKE, WA.

TABLE 31 (cont):

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
OR2060324				146	55.7	11.9	0	34	157
FINCH	135	140	155	145	57.9	12.5	3	38	158
CARA	144	144	151	144	56.7	13.3	0	36	156
GEORGE	126	137	146	135	56.4	12.1	77	39	157
C.V. %	8	6	6	7	1.5	2.8	78	4	1
LSD '@ .10'	7	7	8	16	1.2	0.5	24	2	1
Average	150	158	173	172	59.1	12.0	23	38	154
Highest	169	176	191	206	63.1	13.3	92	43	158
Lowest	126	137	146	135	55.7	11.1	0	33	149

1. Grain yield in the Moses Lake irrigated soft white winter wheat trial averaged 172 bu/ac, 15% higher than the 5-year average for this site. The Moses Lake nursery was located about 6 miles southeast of Moses Lake, WA (Randee Bergeson, cooperator).
2. This nursery was seeded on 22 October, 2008 following a crop of onions. Seed was placed at an 85#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was 100#N, 25#K, and 25#P applied in the fall. An additional 100#N was applied through the sprinkler irrigation system during the growing season. Seeding conditions produced good stands that overwintered well with only noticeable winter injury to the most vulnerable varieties. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 46% compared to previously used designs.
3. Yields ranged from 135 bu/ac to 206 bu/ac, with a CV of 7%. Yield values within the LSD range of the highest yield are shown in bold and included seven cultivars. Club variety names are designated by italicized print.
4. Test weights were variable with an average of 59.1 lb/bu and ranged from 55.7 to 63.1 lb/bu. Lodging was highly variable with some cultivars expressing lodging early, and this may have contributed to some of the low test weights. Grain protein averaged 12.0% with a range of 11.1% to 13.3%.The average plant height was 38 inches.

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT PULLMAN, WA.

TABLE 32:

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
CHUKAR	143	136	132	**151**	59.4	8.7	0	40	163
ARS970170-2L				**151**	61.2	9.0	0	42	163
MASAMI	146	148	148	**150**	59.9	8.8	0	39	162
GEORGE	139	142	145	**150**	60.2	9.4	0	40	164
ORCF-103		138	138	**150**	60.0	9.3	0	40	163
ROD	152	148	145	**148**	60.0	8.8	0	36	161
XERPHA	157	155	152	**147**	60.5	9.5	0	37	162
LEGION			144	**147**	60.1	9.0	0	41	160
TUBBS 06		145	144	**144**	60.1	9.0	0	40	160
ELTAN/TUBBS06			138	**144**	60.8	9.2	0	41	161
ROD/TUBBS06			140	**144**	60.1	8.9	0	40	161
ELTAN	138	145	141	142	60.9	9.2	0	41	163
MADSEN/ROD		137	135	142	60.2	9.0	0	37	162
ORCF-102	144	136	137	141	60.3	9.7	0	39	161
ID02-859		137	144	140	59.6	8.9	0	35	160
AP LEGACY			142	140	61.0	9.2	0	39	160
SALUTE		139	135	139	59.7	9.4	0	38	159
AP 700 CL		141	137	139	61.0	9.5	0	39	159
WA008063			136	139	60.7	9.4	0	35	156
CARA	140	127	122	137	59.2	9.3	0	36	162
FINCH	150	146	144	137	61.7	9.0	0	37	163
OR2060324				137	57.9	9.1	0	34	163
ID990435		151	145	136	60.1	9.2	0	40	159
WB 523		140	138	136	60.3	9.3	0	37	160
RJAMES	141	140	138	136	59.5	9.1	0	34	161
OR2050293				136	60.1	9.1	0	35	159
OR2040726				136	60.0	8.9	0	34	158
WB-528	136	132	130	135	61.3	9.7	0	37	156
ELTAN/MADSEN		136	133	135	60.5	9.3	0	39	163
WA008066			139	135	**62.1**	9.1	0	38	163
KCF08002				135	60.9	9.7	0	39	155
ORI2060306				135	60.2	9.6	0	36	161
BRUEHL	142	135	132	134	59.1	9.3	0	41	164
MADSEN	139	129	125	134	60.0	9.7	0	37	163
WB 1020M		128	127	134	60.6	9.8	0	37	162
9364901A		144	145	134	60.2	9.1	0	34	162
BRUNDAGE 96	140	133	133	133	59.5	9.2	0	35	160
BITTERROOT		132	131	133	60.1	9.3	0	42	162
WA008064			134	133	60.9	9.5	0	34	156
SKILES			123	133	60.9	10.4	0	36	162
KCF08001				133	61.0	9.7	0	38	157
ORCF-101	135	129	129	131	60.2	9.9	0	37	160
CODA	137	135	129	130	61.1	9.3	0	40	162
WB 456		124	123	130	61.8	10.1	0	36	156
WA008065			128	130	61.7	9.6	0	38	160
WA008092				130	60.5	9.5	0	40	164
STEPHENS	141	133	128	129	59.6	9.3	0	36	157
WA008094				129	61.4	9.4	0	40	164
WB 1070M				129	61.7	10.0	0	35	155
WA008093				128	59.7	9.5	0	36	160
WB 1066M			126	126	**62.0**	10.0	0	39	156
LAMBERT	144	136	134	125	60.3	9.3	0	38	159
CASHUP	136	130	128	125	60.6	9.3	0	35	162
BZ6W02-616				125	60.5	9.2	0	36	155

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT PULLMAN, WA.

TABLE 32 (cont):

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
ARS970071-3C				124	60.4	9.8	0	41	162
SIMON	140	134	128	123	60.6	9.7	0	37	160
CDC PTARMIGAN				123	59.3	8.4	0	42	160
ARS970168-2C			108	111	61.4	9.8	0	35	162
C.V. %	8	8	7	5	0.4	1.7	- -	3	0
LSD '@ .10'	6	7	8	9	0.3	0.2	- -	2	1
Average	142	138	135	136	60.4	9.4	0	38	160
Highest	157	155	152	151	62.1	10.4	0	42	164
Lowest	135	124	108	111	57.9	8.4	0	34	155

1. Grain yield in the Pullman soft white winter wheat trial averaged 136 bu/ac, 6 bu/ac lower than the 5-year average yield at this location. The Pullman nursery was located about 3 miles southeast of Pullman, WA (Norm Druffel & Sons, cooperators).
2. This nursery was seeded on 3 October, 2008 following chickpeas. Seed was placed at an 85#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was 100#N, 20#P, 15#K, and 30#S (all per acre) applied in the fall and an additional 6#N and 20#P were applied as starter fertilizer. Seeding conditions produced good stands that overwintered well. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 86% compared to previously used designs.
3. Yields ranged from 111 bu/ac to 151 bu/ac, with a CV of 5%. Yield values within the LSD range of the highest yield are shown in bold and included 13 cultivars and blends. Club variety names are designated by italicized print.
4. Test weights were good with an average of 60.4 lb/bu. Grain protein averaged 9.4% with a range of 8.4 to 10.4%. The average plant height was 38 inches.

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT REARDAN, WA.

TABLE 33:

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
WA008066			94	**107**	**62.0**	11.3	0	34	165
ORCF-102	94	87	90	**106**	60.2	11.0	0	35	164
ELTAN/MADSEN		90	92	**106**	60.3	10.4	0	36	166
CDC PTARMIGAN				**106**	59.1	10.4	0	37	162
TUBBS 06		81	82	**104**	58.9	10.5	0	36	164
ELTAN	96	83	87	**103**	61.1	11.8	0	35	165
XERPHA	101	89	91	**102**	60.1	11.2	0	34	165
GEORGE	100	89	93	**102**	59.3	11.1	0	34	166
RJAMES	92	81	86	**102**	59.1	10.9	0	30	163
FINCH	97	89	94	**101**	**61.7**	11.2	0	32	166
ID02-859		91	94	**101**	58.7	10.9	0	30	162
MADSEN/ROD		86	89	**100**	59.7	11.2	0	32	165
BRUEHL	91	82	86	**99**	59.8	11.1	0	35	165
CASHUP	91	81	83	**99**	60.6	10.9	0	29	164
LEGION			83	**99**	58.7	11.4	0	36	164
ORCF-103		84	83	**98**	60.0	11.1	0	33	166
CARA	93	83	88	**97**	59.4	11.0	0	28	164
WB 523		84	84	**97**	60.7	11.4	0	32	162
WB 1020M		78	79	**97**	60.3	11.1	0	28	162
AP LEGACY			87	**96**	60.6	11.2	0	32	163
MASAMI	93	83	85	**95**	59.1	10.7	0	33	165
ID990435		77	74	**95**	59.4	11.0	0	34	161
AP 700 CL		75	75	**95**	59.3	11.5	0	32	163
ROD/TUBBS06			81	**95**	59.1	10.8	0	34	164
WA008094				**95**	61.1	11.8	0	34	165
ARS970170-2L				**95**	60.6	10.6	0	34	165
OR2060324				**95**	56.8	10.8	0	28	165
SKILES			86	**94**	59.6	11.8	0	31	164
OR2040726				**94**	60.2	11.4	0	30	161
ORI2060306				**94**	60.2	12.2	0	31	164
WA008092				93	60.3	11.5	0	34	166
OR2050293				93	59.2	11.5	0	30	162
SIMON	83	76	75	91	59.9	11.3	0	33	164
ARS970168-2C			85	91	**62.3**	11.7	0	30	163
WA008065			78	90	60.7	11.9	0	32	161
ELTAN/TUBBS06			85	90	60.3	11.0	0	34	165
CHUKAR	94	80	83	89	58.8	10.8	0	30	165
MADSEN	88	78	77	89	59.7	11.2	0	32	165
BRUNDAGE 96	96	85	84	89	58.5	10.7	0	30	161
WA008063			78	89	60.9	12.1	0	30	159
ARS970071-3C				88	59.9	11.5	0	34	163
ORCF-101	82	79	79	87	59.3	11.6	0	32	164
WA008093				87	59.2	11.4	0	31	164
BITTERROOT		76	76	86	60.4	11.0	0	35	165
KCF08002				86	59.6	11.3	0	33	159
LAMBERT	91	78	73	85	59.9	11.3	0	33	161
9364901A		76	73	85	60.1	10.8	0	30	164
WA008064			72	85	61.1	11.5	0	29	159
KCF08001				85	60.2	11.7	0	32	159
STEPHENS	76	70	68	84	59.1	11.3	0	30	161
WB-528	76	72	71	84	61.2	11.6	0	31	160
WB 456		72	74	83	61.1	11.6	0	31	158
WB 1066M			76	83	61.1	11.7	0	32	160
CODA	91	78	79	82	61.2	11.7	0	32	165

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT REARDAN, WA.

TABLE 33 (cont):

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
ROD	90	76	77	82	59.3	10.2	0	31	165
SALUTE		74	70	82	58.7	11.1	0	31	162
BZ6W02-616				80	60.9	11.3	0	32	157
WB 1070M				72	**62.1**	13.1	0	29	157
C.V. %	11	12	13	11	0.9	5.5	- -	5	0
LSD '@ .10'	5	7	10	14	0.7	0.8	- -	2	1
Average	91	81	82	93	60.0	11.3	0	32	163
Highest	101	91	94	107	62.3	13.1	0	37	166
Lowest	76	70	68	72	56.8	10.2	0	28	157

1. Grain yield in the Reardan soft white winter wheat trial averaged 93 bu/ac, 2 bu/ac higher than the 5-year average yield at this location. The Reardan nursery was located about 6 miles west of Reardan, WA (Hal Johnson, cooperator).
2. This nursery was seeded on 25 September, 2008 following summer fallow. Seed was placed at an 85#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was 85#N, 7#P, and 5#S applied in the fall. Seeding conditions produced good stands that overwintered well. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 47% compared to previously used designs.
3. Yields ranged from 72 bu/ac to 107 bu/ac, with a CV of 11% which is more variability than desired at this trial. Yield values within the LSD range of the highest yield are shown in bold and included 32 cultivars and blends, more than half of the entries listed. Club variety names are designated by italicized print.
4. Test weights were good with an average of 60.0 lb/bu. Grain protein averaged 11.3% with a range of 10.2 to 13.1%. The average plant height was 32 inches.

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT RITZVILLE, WA.

TABLE 34:

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
ELTAN	54	48	47	**64**	61.0	9.9	0	31	154
ELTAN/MADSEN		46	45	**61**	60.7	10.3	0	31	155
XERPHA	58	47	45	**60**	59.9	9.8	0	30	154
GEORGE	55	46	44	**60**	59.6	10.2	0	32	156
MASAMI	58	47	43	58	59.5	10.1	0	30	154
BRUEHL	53	45	45	57	60.8	10.6	0	32	154
RJAMES	48	39	41	56	58.8	10.1	0	29	153
LEGION			44	56	58.8	10.0	0	32	150
AP LEGACY			41	56	59.4	10.4	0	29	151
ELTAN/TUBBS06			41	56	60.7	10.0	0	31	151
ARS970071-3C				56	60.0	10.6	0	31	153
WB 523		41	40	55	**61.2**	11.2	0	29	150
ORCF-103		44	39	54	60.7	11.1	0	28	155
9364901A		39	36	54	60.2	11.0	0	30	152
ARS970168-2C			39	54	**61.2**	10.8	0	28	154
CDC PTARMIGAN				54	58.7	10.5	0	30	151
WA008092				54	60.7	10.8	0	31	156
BZ6W02-616				54	60.9	10.5	0	30	150
FINCH	54	44	41	53	60.4	10.9	0	28	157
WA008093				53	60.7	10.8	0	28	151
WA008094				53	61.0	10.8	0	30	154
ARS970170-2L				53	60.2	10.2	0	31	154
WB 1020M		39	40	52	60.4	10.6	0	28	153
WA008063			40	52	60.1	11.0	0	29	149
WB 1066M			38	52	61.1	11.2	0	31	150
ORCF-102	53	43	38	51	60.6	11.4	0	31	152
WA008066			38	51	60.5	10.9	0	29	156
BITTERROOT		36	35	50	61.0	10.5	0	30	152
MADSEN/ROD		40	39	50	59.9	10.7	0	28	154
ID02-859		41	38	50	58.8	11.0	0	27	152
CARA	49	40	38	49	58.4	10.7	0	26	154
MADSEN	48	38	37	49	60.0	10.9	0	29	154
WA008065			35	49	61.0	11.8	0	29	152
OR2040726				49	59.4	11.2	0	29	151
BRUNDAGE 96	50	42	37	48	59.1	10.9	0	28	151
ROD/TUBBS06			37	48	58.8	10.9	0	29	153
AP 700 CL		39	37	47	59.6	11.5	0	29	150
SKILES			38	47	60.6	11.6	0	27	153
WB-528	44	38	35	46	61.0	10.9	0	30	150
WB 456		36	34	46	**61.4**	12.1	0	28	151
CODA	50	37	35	45	61.0	12.0	0	27	155
TUBBS 06		38	36	45	59.1	11.6	0	31	152
KCF08002				45	60.1	11.6	0	30	150
ROD	50	40	38	44	58.2	11.2	0	28	155
LAMBERT	44	38	35	44	60.0	11.3	0	32	150
SIMON	42	34	34	44	60.0	12.2	0	29	153
ID990435		36	32	44	59.1	11.6	0	31	151
CASHUP	46	35	35	44	60.9	11.3	0	28	153
SALUTE		38	34	44	58.4	11.2	0	29	152
WA008064			35	44	60.1	11.6	0	27	150
ORI2060306				44	60.0	12.1	0	29	152
OR2050293				42	56.7	12.2	0	26	151
STEPHENS	42	33	32	41	58.6	11.9	0	29	150
OR2060324				41	56.0	11.0	0	25	156

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT RITZVILLE, WA.

TABLE 34 (cont):

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
CHUKAR	49	38	34	40	58.4	11.0	0	26	156
ORCF-101	48	38	33	40	58.7	12.2	0	29	151
KCF08001				40	59.9	11.6	0	30	151
WB 1070M				33	**61.7**	12.8	0	27	150
C.V. %	13	13	10	8	0.8	5.5	- -	4	1
LSD '@ .10'	3	4	4	6	0.6	0.8	- -	2	1
Average	50	40	38	50	59.9	11.1	0	29	152
Highest	58	48	47	64	61.7	12.8	0	32	157
Lowest	42	33	32	33	56.0	9.8	0	25	149

1. Grain yield in the Ritzville soft white winter wheat trial averaged 50 bu/ac and was the same as the 5-year average yield for this location. The Ritzville nursery was located about 4 miles west of Ritzville, WA (R. Jirava farm).
2. This nursery was seeded on 9 September, 2008 following summer fallow. Seed was placed at a 45#/acre seeding rate using a deep furrow plot drill with split packer openers set on 15-inch spacing. Base fertilizer was 60#N and 6#S. Fall seeding conditions were dry and occasional poor emergence and excess soil coverage due to deep planting with the plot drill caused some gaps in individual plots. When appropriate, gaps were subtracted from the plot areas to maintain equivalent comparisons. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 41% compared to previously used designs.
3. Yields ranged from 33 bu/ac to 64 bu/ac, with a CV of 8%. Yield values within the LSD range of the highest yield are shown in bold. Club variety names are designated by italicized print.
4. Test weights were good with an average of 59.9 lb/bu. Grain protein averaged 11.1% with a range of 9.8 to 12.8%. The average plant height was 29 inches.

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT ST. ANDREWS, WA.

TABLE 35:

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
CHUKAR	--	37	39	**43**	57.7	10.0	0	29	159
ARS970071-3C	--			**42**	59.0	11.0	0	31	158
WB 1020M	--	39	42	**38**	59.6	9.4	0	29	158
CARA	--	36	35	37	57.4	11.1	0	26	158
XERPHA	--	43	42	37	58.7	9.2	0	31	157
WB-528	--	33	33	35	60.0	10.7	0	30	152
OR2060324	--			35	54.7	9.7	0	26	158
CODA	--	36	36	34	60.0	10.1	0	28	158
ID02-859	--	38	36	34	58.1	10.2	0	29	156
ARS970168-2C	--		35	33	**60.4**	10.9	0	27	157
MADSEN/ROD	--	37	37	31	58.2	10.5	0	29	158
ROD/TUBBS06	--		36	31	58.3	10.7	0	32	159
FINCH	--	42	42	30	60.0	10.0	0	29	159
MASAMI	--	40	37	30	58.5	10.2	0	29	159
GEORGE	--	44	46	30	58.3	10.0	0	29	159
9364901A	--	33	31	30	59.5	10.4	0	29	158
SKILES	--		37	30	59.1	10.6	0	28	159
ARS970170-2L	--			30	59.0	10.7	0	31	159
BRUEHL	--	41	41	29	59.2	10.8	0	30	159
ELTAN	--	46	44	29	59.6	9.7	0	33	157
BRUNDAGE 96	--	39	36	29	57.6	10.5	0	28	155
ORCF-103	--	40	37	29	59.0	9.6	0	31	159
AP LEGACY	--		34	29	58.9	10.1	0	29	157
CDC PTARMIGAN	--			29	58.1	10.5	0	33	157
OR2040726	--			29	58.3	10.4	0	27	155
KCF08001	--			29	59.0	10.6	0	30	152
MADSEN	--	35	34	28	58.9	10.8	0	29	159
LAMBERT	--	39	37	28	58.4	9.4	0	34	154
ORCF-101	--	34		28	58.7	10.6	0	31	156
WA008065	--		36	28	**60.4**	11.8	0	29	156
LEGION	--		34	28	59.3	10.6	0	34	156
ELTAN/TUBBS06	--		41	28	58.6	10.5	0	33	159
KCF08002	--			28	58.2	11.3	0	31	152
ORI2060306	--			28	59.6	11.1	0	30	155
ROD	--	41	40	27	58.0	10.9	0	28	159
ORCF-102	--	36	34	27	59.6	10.3	0	32	157
WA008066	--		35	27	60.1	10.0	0	29	159
WB 1066M	--		30	27	60.0	11.0	0	32	153
SIMON	--	33	28	26	59.2	10.5	0	30	157
TUBBS 06	--	35	33	26	58.3	10.1	0	31	157
RJAMES	--	39	38	26	57.6	10.0	0	28	158
SALUTE	--	38	37	26	55.7	10.7	0	30	156
ELTAN/MADSEN	--	38	37	26	59.1	10.2	0	31	159
WA008064	--		28	26	59.9	11.6	0	29	153
WA008092	--			26	58.8	10.7	0	32	159
WA008094	--			26	60.0	9.6	0	32	159
BITTERROOT	--	33	31	25	59.6	10.7	0	32	159
ID990435	--	34	30	25	58.5	9.9	0	35	154
STEPHENS	--	32	28	25	58.7	11.1	0	31	153
CASHUP	--	35	35	25	58.6	10.7	0	29	159
AP 700 CL	--	34	29	25	58.5	11.5	0	31	156
WB 523	--	33	31	23	59.6	10.7	0	30	155
OR2050293	--			22	56.4	11.1	0	28	156
WB 1070M	--			22	**61.2**	13.8	0	29	151

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT ST. ANDREWS, WA.

TABLE 35 (cont):

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
WA008093	- -			21	59.4	11.4	0	29	155
BZ6W02-616	- -			21	**61.1**	11.2	0	32	151
WB 456	- -	27	22	20	**60.8**	11.5	0	29	151
WA008063	- -		23	20	59.1	12.5	0	28	152
C.V. %	- -	17	17	15	1.1	7.0	- -	6	1
LSD '@ .10'	- -	4	5	6	0.9	1.0	- -	2	1
Average	- -	37	35	29	58.9	10.6	0	30	157
Highest	- -	46	46	43	61.2	13.8	0	35	159
Lowest	- -	27	22	20	54.7	9.2	0	26	151

1. Grain yield in the St. Andrews soft white winter wheat trial averaged 29 bu/ac, 8 bu/ac lower than the 3-year average. In the week prior to harvest, a hail storm struck the area and caused significant crop loss. The study site incurred hail loss that is hard to quantify, but was probably greater than 20%. Reported field losses from hail in the area were 20% to 50%. There is also the strong possibility that cultivars were impacted by hail differently based on head type, orientation, size, awns, etc. The results show that club varieties did notably well, but the influence of hail on those results is not known. The St. Andrews nursery was located about 7 miles west of Coulee City, WA (Larry Tanneberg, cooperator).
2. This nursery was seeded on 5 September, 2008 following summer fallow. Seed was placed at a 45#/acre seeding rate using a deep furrow plot drill with split packer openers set on 15-inch spacing. Base fertilizer was 65#N and 8#S. Growing conditions caused some gaps in individual plots. When appropriate, gaps were subtracted from the plot areas to maintain equivalent comparisons. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 59% compared to previously used designs.
3. Yields ranged from 20 bu/ac to 43 bu/ac, with a CV of 15%. Yield values within the LSD range of the highest yield are shown in bold. There were five cultivars in the highest group, three of which were clubs. Club variety names are designated by italicized print.
4. Test weights were variable with an average of 58.9 lb/bu and ranged from 54.7 lb/bu to 61.3 lb/bu
5. Grain protein averaged 10.6% also with a large range of 9.2 to 13.8%. The average plant height was 30 inches.

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT ST. JOHN, WA.

TABLE 36:

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
CHUKAR	145	151	147	**178**	58.4	8.8	73	42	155
CARA	146	151	145	**170**	57.8	9.4	53	39	154
TUBBS 06		152	148	**169**	59.5	9.3	10	41	152
OR2040726				**166**	60.4	10.6	7	37	152
ARS970170-2L				164	60.0	9.7	42	40	155
AP LEGACY			145	163	60.1	9.6	8	42	155
OR2060324				163	57.6	10.1	17	33	157
XERPHA	140	157	147	161	58.5	9.8	52	39	155
WB 523		144	140	159	59.6	9.1	13	37	151
OR2050293				159	58.6	9.7	3	36	153
LAMBERT	137	149	145	157	58.8	10.0	60	42	151
WB 456		137	140	157	**61.4**	11.1	7	37	149
ORCF-102	135	143	135	156	60.9	10.6	20	41	153
SIMON	136	140	140	155	60.1	10.3	23	41	154
RJAMES	129	144	138	155	56.4	9.3	83	37	155
ELTAN/TUBBS06			136	155	58.7	10.3	37	41	154
ID990435		139	133	154	58.7	9.9	55	43	152
ELTAN/MADSEN		141	135	154	59.6	9.8	42	41	156
ROD/TUBBS06			138	154	58.8	9.7	35	41	153
ARS970071-3C				154	59.3	10.0	77	40	154
BRUNDAGE 96	134	145	138	153	58.8	11.0	0	39	154
9364901A		147	135	153	59.6	9.6	57	35	155
AP 700 CL		143	135	153	59.2	10.3	5	39	152
SKILES			139	153	59.5	10.4	3	37	155
ORCF-103		137	132	152	57.2	10.6	83	38	158
LEGION			141	152	58.1	10.1	47	40	155
BZ6W02-616				152	58.8	9.8	62	37	149
WB-528	131	142	138	151	59.8	10.3	53	38	150
ID02-859		143	135	150	59.1	10.4	3	37	154
MADSEN	130	131	129	149	60.4	10.3	0	40	155
ORCF-101	133	135	136	149	58.7	11.1	3	38	152
FINCH	134	138	134	148	60.8	9.9	18	37	156
WB 1066M			126	148	**61.9**	11.3	35	43	149
ORI2060306				148	59.6	10.8	0	38	152
ROD	128	140	134	147	55.6	9.0	67	37	155
STEPHENS	136	141	130	147	57.8	11.2	63	38	151
WB 1020M		134	131	147	59.3	10.0	28	38	156
KCF08001				147	58.9	10.1	47	39	150
MADSEN/ROD		137	131	146	58.4	9.7	25	39	156
WA008092				146	59.2	10.2	43	38	159
MASAMI	133	141	132	145	57.8	9.9	13	37	156
BRUEHL	123	132	127	144	55.3	9.7	83	40	157
WA008066			133	144	60.9	9.8	23	40	156
ELTAN	120	137	125	142	57.5	9.4	90	38	157
ARS970168-2C			124	142	**61.4**	10.6	23	38	155
WA008064			132	142	57.4	10.2	38	38	151
WA008065			132	142	59.4	10.0	13	39	153
WA008093				140	57.5	10.5	38	35	154
GEORGE	122	134	130	139	58.0	10.4	72	39	158
WB 1070M				139	**61.5**	11.0	27	37	149
SALUTE		138	132	138	57.1	10.3	67	39	154
WA008063			124	138	57.0	10.2	27	36	150
CODA	123	129	122	137	59.6	10.9	60	38	156
CASHUP	128	134	127	137	58.3	9.7	72	37	156

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT ST. JOHN, WA.

TABLE 36 (cont):

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
KCF08002				136	57.9	10.7	52	37	151
BITTERROOT		140	123	135	59.7	9.9	10	40	155
WA008094				134	59.6	10.0	65	43	157
CDC PTARMIGAN				126	57.6	10.0	73	40	153
C.V. %	9	8	8	6	1.3	5.9	55	6	1
LSD '@ .10'	7	8	9	13	1.0	0.8	29	3	1
Average	132	141	134	150	58.9	10.1	38	39	154
Highest	146	157	148	178	61.9	11.3	90	43	159
Lowest	120	129	122	126	55.3	8.8	0	33	149

1. Grain yield in the St. John soft white winter wheat trial averaged 150 bu/ac, 18 bu/ac higher than the 5-year average yield at this location. The St. John nursery was located about 3 miles east of St. John, WA (Mac Mills, cooperator).
2. This nursery was seeded on 16 September, 2008 following fallow. Seed was placed at an 85#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was 90#N and 15#S (all per acre) applied in the fall. Seeding conditions were rated a 4 out of 10 for moisture, but produced good stands that overwintered well. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 28% compared to previously used designs.
3. Yields ranged from 126 bu/ac to 178 bu/ac, with a CV of 6%. Yield values within the LSD range of the highest yield are shown in bold and included four cultivars. Club variety names are designated by italicized print and the top two yields in the trial were from club varieties.
4. Test weights averaged of 58.9 lb/bu. Grain protein averaged 10.1% with a range of 8.8 to 11.3%. The average plant height was 39 inches.

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT WALLA WALLA, WA.

TABLE 37:

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
XERPHA	--	--	153	**151**	59.7	11.9	0	38	151
WB-528	--	--	140	**146**	62.0	11.4	0	34	146
LEGION	--	--	138	**146**	58.2	11.5	0	37	150
OR2040726	--	--		**146**	60.9	11.5	0	33	147
CHUKAR	--	--	140	**145**	60.0	10.9	0	39	152
CARA	--	--	140	144	59.1	10.6	0	36	151
TUBBS 06	--	--	142	144	58.9	11.8	0	38	149
OR2060324	--	--		144	57.3	11.1	0	34	153
BZ6W02-616	--	--		144	62.3	11.7	0	34	145
WA008065	--	--	132	143	60.7	12.1	0	35	149
SKILES	--	--	138	143	61.4	11.8	0	34	150
AP LEGACY	--	--	145	143	60.3	11.0	0	38	149
OR2050293	--	--		143	58.7	11.5	0	34	148
FINCH	--	--	137	142	61.4	11.3	0	38	154
LAMBERT	--	--	138	142	60.8	10.5	0	38	145
WB 523	--	--	134	142	61.4	11.6	0	34	148
ROD/TUBBS06	--	--	140	142	58.8	11.2	0	36	149
ID990435	--	--	132	141	59.9	12.0	0	37	147
ARS970170-2L	--	--		141	60.0	11.7	0	39	153
WB 1070M	--	--		141	**63.4**	11.8	0	34	146
STEPHENS	--	--	135	140	59.6	12.0	0	35	146
ORCF-102	--	--	137	140	61.1	11.8	0	37	150
WB 456	--	--	130	140	62.7	12.2	0	32	146
AP 700 CL	--	--	130	140	59.8	11.7	0	37	147
9364901A	--	--	131	139	60.8	10.8	0	36	149
ELTAN/TUBBS06	--	--	133	139	59.8	11.9	0	38	149
ARS970071-3C	--	--		139	61.0	12.2	0	41	151
KCF08001	--	--		139	60.3	11.6	0	37	146
BRUEHL	--	--	134	138	58.8	12.0	20	39	154
WA008064	--	--	135	138	60.1	11.4	0	33	146
ROD	--	--	140	137	58.5	11.2	0	34	152
MADSEN/ROD	--	--	133	137	59.4	11.4	0	34	152
SALUTE	--	--	136	137	58.6	11.9	0	37	148
WA008066	--	--	137	137	61.7	11.1	0	38	154
WA008063	--	--	133	136	59.5	11.8	0	33	147
CODA	--	--	133	135	62.0	11.9	10	40	152
ORCF-103	--	--	127	135	60.5	11.6	3	36	153
KCF08002	--	--		135	60.5	11.5	0	36	146
WA008093	--	--		134	58.6	11.8	0	33	149
BRUNDAGE 96	--	--	127	133	59.7	11.6	0	32	149
BITTERROOT	--	--	131	133	61.1	11.2	0	39	152
RJAMES	--	--	125	133	58.5	11.9	7	31	152
WB 1066M	--	--	117	132	**63.1**	12.6	0	41	145
ELTAN	--	--	124	131	60.4	11.7	20	37	155
MASAMI	--	--	129	131	58.8	11.3	0	38	154
ID02-859	--	--	131	130	59.9	11.7	0	33	150
ORI2060306	--	--		130	60.3	12.2	0	33	148
SIMON	--	--	134	129	59.7	11.6	0	36	150
CASHUP	--	--	131	129	60.5	11.0	0	32	152
ARS970168-2C	--	--	121	129	62.6	11.5	0	37	151
WB 1020M	--	--	127	128	59.7	11.9	20	34	153
ELTAN/MADSEN	--	--	119	127	60.5	11.7	0	36	153
MADSEN	--	--	129	126	59.6	11.9	0	34	153
WA008094	--	--		126	61.0	11.8	0	40	154

2009 WSU EXTENSION SOFT WHITE WINTER WHEAT NURSERY AT WALLA WALLA, WA.

TABLE 37 (cont):

Variety Name *Club Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
ORCF-101	- -	- -	128	125	59.9	12.1	0	34	147
GEORGE	- -	- -	125	122	59.6	12.0	13	40	155
WA008092	- -	- -		120	59.0	12.6	0	40	155
CDC PTARMIGAN	- -	- -		116	59.2	10.7	0	38	151
C.V. %	- -	- -	5	4	0.7	4.6	418	3	1
LSD '@ .10'	- -	- -	7	7	0.6	0.7	9	2	1
Average	- -	- -	133	136	60.2	11.6	2	36	150
Highest	- -	- -	153	151	63.4	12.6	20	41	155
Lowest	- -	- -	117	116	57.3	10.5	0	31	145

1. Grain yield in the Walla Walla soft white winter wheat trial averaged 136 bu/ac, 3 bu/ac more than the 2-year average at this location. The Walla Walla nursery was located about 8 miles southwest of Waitsburg, WA about midway between Waitsburg and Walla Walla (Tom and Jason Beechinor, cooperators).
2. This nursery was seeded on 6 October, 2008 following summer fallow. Seed was placed at an 85#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was 120#N, 15#P, and 15#S applied in the fall and 100#N and 15#S was applied in the spring based on a spring soil test. Seeding conditions produced good stands that overwintered well including cold sensitive varieties that were not affected by winter conditions. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 23% compared to previously used designs.
3. Yields ranged from 116 bu/ac to 151 bu/ac, with a CV of 4%. Yield values within the LSD range of the highest yield are shown in bold and included five varieties, including one club. Club variety names are designated by italicized print.
4. Test weights were good with an average of 60.2 lb/bu. Grain protein averaged 11.6% with a range of 10.5 to 12.6%. The average plant height was 36 inches.

2009 Hard Winter Wheat

2009 Hard Winter Wheat Wheat

TABLE 38:

STRIPE RUST INFECTION TYPE (IT) AND SEVERITY (%) ON CULTIVARS AND LINES IN THE WINTER VARIETY TRIAL NURSERY (EXP02) (COORDINATED BY STEPHEN GUY) AT SPILLMAN FARM (LOC 01), PLANT PATH FARM (LOC 03) AND WHITLOW FARM (LOC 04) NEAR PULLMAN, MT VERNON (LOC 05); WALLA WALLA (LOC 06); AND LIND (LOC 07), WA WHEN RECORDED AT THE INDICATED DATES AND STAGES OF PLANT GROWTH IN 2009 UNDER NATURAL INFECTION**

		Spillman Farm (Pullman)		Plant Path Farm (Pullman)		Whitlow Farm (Pullman)		Mt. Vernon, WA.				Walla Walla	
		LOC 1		LOC 3		LOC 4		LOC 5				LOC 6	
		7/2/09		7/2/09		6/30/09		4/21/09		6/2/09		6/19/09	
		Milk		Milk		Milk		Stem elong.		Flowering		S. dough	
CLASS	VARIETY	IT	%	IT	%	IT	%	IT	%	IT	%	IT	%
	PS 279 (S CHECK)	**8**	**70**	**8**	**100**	**8**	**100**	**8**	**60**	**8**	**100**	**8**	**90**
HRW	**FINLEY**	8	20	3	2	8	70	8	40	5	30	8	40
HRW	**HATTON**	8	70	8	80	8	100	8	40	8	100	8	80
HRW	**BAUERMEISTER**	2	10	2	2	2	10	5	20	2	5	2	15
HRW	**WA008098**	2	1	2	1	2	1	2	20	2	1	2	2
HRW	**WA008022**	2	1	2	1	2	1	2	10	2	1	2	2
HRW	**WA008068**	2	1	2	1	8	5	2	10	2	1	8	30
HRW	**WA008095**	8	20	8	1	8	30	8	30	5	30	8	50
HRW	**FARNUM**	3	5	3	5	3	1	2	10	1	1	2	2
HRW	**WA008061**	5	10	2	5	8	10	8	30	2	5	2,8	2,20
HRW	**BOUNDARY**	3	30	3	2	3	20	5	30	2	1	8	40
HRW	**IDO683**	2	10	8	1	5	10	2	20	2	1	2	5
HRW	**NORWEST 553**	2	1	2	1	2	1	2	20	1	1	0	0
HRW	**EDDY**	3	5	5	1	8	30	5	10	2	5	8	40
HDWH	**MOL**	2	5	2	5	3	5	2	20	2	20	0	0
HRW	**ACS 52025**	8	5	8	20	8	60	8	40	2	5	8	30
HRW	**ML9W05-2506**	3	10	3	10	5	30	8	40	5	80	8	20
HRWI	**NORRIS**	8	80	7	30	8	80	8	20	8	80	8	60
HRW	**AGRIPRO PALADIN**	2	5	2	1	8	20	8	40	8	70	2	15
HRW	**WHETSTONE**	2	1	2	1	3	5	8	60	2	5	8	15
HRW	**BC002-2**	2	1	2	1	2	1	8	30	2	5	2	5
HRW	**DECLO**	8	20	8	10	8	100	2	20	1	1	2	2
HRW	**PEREGRINE**	2	5	2	5	3	5	8	30	5	40	2	5
HRW	**ACCIPITER**	2	10	2	10	5	70	8	30	2	30	3	20
HRW	**ESPERIA**	8	80	3	2	8	80	8	40	2	10	8	30
HDWH	**MDM**	2	5	2	10	3	5	8	30	1	1	2	15
HDWH	**WA008070**	2	1	2	1	2	1	8	30	1	1	2	5
HDWH	**WA008096**	2	1	2	10	2	5	8	20	2	1	2	10
HDWH	**WA008097**	2	5	2	10	2	5	8	20	2	5	2	5
HDWH	**UI DARWIN**	2	5	2	1	2	1	5	30	2	1	2	2
HDWHI	**IDO651**	2	5	2	5	2	5	3	30	2	30	3	15
HDWH	**IDO658**	8	10	2	5	8	20	8	30	2	10	3	20
HDWH	**ML9W04-2543W**	2	20	3	5	2	20	8	60	2	10	2	5
HDWH	**PALOMINO**	3	5	8	10	8	15	8	40	3	20	8	20
HDWH	**NUDAKOTA**	8	10	5	10	8	30	8	60	8	100	8	40
HDWH	**MIETI**	8	70	5	5	8	100	8	50	8	100	8	40
SWH	**ELTAN (Check)**	2	10	2	5	2	5	5	30	2	1	2	5

* Infection Type (IT) was recorded based on the 0-9 scale with ITs 8 and 9 combined as 8 (the most susceptible reaction) in field data. Generally IT 0-3 are considered resistant, 4-6 intermediate, and 7-9 susceptible. Heterogenous reactions of an entry were indicated by two or more ITs separated by "," for most plants with the first IT and few plants with the second IT or connected with "-" for entries containing plants with continuous ITs. Entries with a high IT in the first note, but a low IT in the second note may indicate that they have high-temperature, adult-plant (HTAP) resistance.

** No rust occurred in the winter nurseries at the Lind (LOC 7) location.

TABLE 39:

STRIPE RUST INFECTION TYPE (IT) ON ENTRIES IN 2009 WINTER EXTENSION DISEASE (VARIETAL TRIAL) NURSERY (EXP02) (COORDINATED BY STEPHEN GUY) TESTED WITH SELECTED STRIPE RUST RACES IN CONTROLLED GREENHOUSE TESTS FOR SEEDLING TESTS, DIURNAL TEMPERATURES GRADUALLY CHANGING FROM 4°C AT 2:00AM TO 20°C AT 2:00PM WERE USED AND IT WAS FOR 10-17 PLANTS, AND FOR ADULT-PLANT TESTS, DIURNAL TEMPERATURES GRADUALLY CHANGING FROM 10°C AT 2:00AM TO 35°C AT 2:00PM WERE USED AND IT WAS FOR INDIVIDUAL PLANTS.

		Infection type[a]																
		Seedling test (4-20°C)[b]					Adult-plant test (10-30°C)[b]											
		PST-37	PST-45	PST-100	PST-116	PST-127	PST-100			PST-116			PST-127			Slow[c]	HTAP[d]	Seed[e]
CLASS	VARIETY						Rep 1	Rep 2	Rep3	Rep 1	Rep 2	Rep3	Rep 1	Rep 2	Rep3	rusting	resistan	treated
	PS279(Check)	**8**	**8**	**9**	**9**	**9**	**8,8,8**	**8,8,8**	**9,9,9**	**9,9,9**	**8,8,8**	**9,9,9**	**9,9,9**	**8,8,8**	**8,8,8**		**NO**	
HRW	**FINLEY**	8	1	2	8	8	2,2,2	2,2,2	2,2,2	6,6,6	7,7,7	7,7,7	7,7,7	7,7,7	7,7,7		LOW	
HRW	**HATTON**	8	9	8	8	9	9,9,9	8,8,8	8,8,8	8,8,8	8,8,8	8,8,8	8,8,8	8,8,8	8,8,8		NO	
HRW	**BAUERMEISTER**	8	8	8	8	9	2,2,2	2,2,2	2,2,2	2,2,2	2,2,2	1,1,1	3/5,3/5,3/5	3,3,3	2,2,2		YES	
HRW	**WA008098**	1	2	2	2	2	1,1,1	1,1,1	2,2,2	2,2,2	1,1,1	2,2,2	ND	1,1,1	2,2,2			Y
HRW	**WA008022**	1	2	2	8	1	1,1,1	2,2,2	2,2,2	1,1,1	1,1,1	1,1,1	ND	1,1,1	2,2,2		YES	
HRW	**WA008068**	2	2	2	2	2	1,1,1	1,1,1	2,2,2	1,1,1	1,1,1	1,1,1	ND	1,1,1	1,1,1			Y
HRW	**WA008095 (NEW)**	1	2	2	5	1	1,1,1	1,1,1	1,1,1	3,3,3	3,3,3	3,3,3	ND	1,1,1	1,1,1		YES	Y
HRW	**FARNUM**	2	6	8	8	8	3,3,3	3,3,3	3,3,3	3,3,3	2,2,2	3,3,3	3,3,3	3,3,3	3,3,3		YES	Y
HRW	**WA008061**	8	8	8	8	8	3,3,3	3,3,3	1,1,1	2,2,2	2,2,2	2,2,2	1,1,1	2,2,2	2,2,2		YES	Y
HRW	**BOUNDARY**	8	9	8	8	9	3,3,3	3,3,3	1,1,3	3,3,3	4,4,4	1,1,1	5,5,5	4,4,4	4,4,4		LOW	
HRW	**IDO683 (NEW)**	2	2	2	8	2,8(1)	2,2,2	2,2,2	2,2,2	1,1	1,1,1	1,1,1	2,3,3	2,1,1	1,1,1		YES	Y
HRW	**NORWEST 553**	1,5(1)	2	7	2	8	1,1,1	1,1,1	3,3,3	1,1,1	1,1,1	1,1,1	2,3,3	1,1,1	1,1,1		YES	Y
HRW	**EDDY**	2,8(2)	8	8	8	9	3,3,3	3,3,3	2,2,3	3,3,3	3,3,3	3,3,3	3,3,3	3,3,3	3,3,3		YES	
HDWH	**MOL**	8	9	8	8	9	3,3,3	2,2,2	1,1,1	1,1,1	1,1,1	1,1,2	2,2,2	1,1,1	2,2,2		YES	Y
HRW	**ACS 52025**	8	9	8	8	9	7,7,7	7,7,7	3,3,3	3,3,3	7,7,7	3,3,3	7,7,7	8,8,8	8,8,8	yes	YES	
HRW	**ML9W05-2506**	5	9	9	8	8	3,3,3	3,3,3	3,3,3	2,2,3	3,3,3	3,3,3	5,5,4	5,5,5	5,5,5		LOW	
HRWI	**NORRIS (NEW)**	2	8	8	9	8	3,3,3	3,3,3	3,3,3	3,3,3	3,3,3	2,2,2	3,3,3	4,4,4	4,4,4		MODER	Y
HRW	**AGRIPRO PALADIN**	2,8(2)	8	8	8	9	7,7,7	7,7,7	7,7,7	5,5,5	7,7,7	7,7,7	7,7,7	7,7,7	7,7,7	yes	NO	
HRW	**W98-344**	2	8	8	5	9	3,3,3	2,2,2	1,1,1	1,1,1	1,1,1	1,1,1	3,3,3	3,3,3	1,1,1		YES	
HRW	**BC002-2**	8	8	8	8	9	3,3,1	3,3,1	1,1,1	1,1,1	1,1,1	1,1,1	3,3,3	1,3,3	2,2,2		YES	
HRW	**DECLO**	8	8	8	8	9	7,7,7	7,7,7	7,7,7	8,8,8	8,8,8	7,7,7	8,8,8	8,8,8	7,7,7		NO	
HRW	**DH99-37-100**	8	8	9	8	8	2,2,2	2,2,2	1,1,1	1,1,1	1,1,1	2,2,2	3,3,3	3,3,3	3,3,3		YES	
HRW	**DH00-18-196 (NEW)**	1,8(2)	8	8	8	9	3,3,3	3,3,3	3,3,3	3,3,3	3,3,3	3,3,3	3,3,3	3,3,3	3,3,3		YES	Y
HRW	**ESPERIA (NEW)**	1,8(3)	8	8	8	3	6,6,6	7,7,7	7,7,7	7,7,7	7,7,7	7,7,7	7,7,7	7,7,7	7,7,7	yes	NO	Y
HDWH	**MDM**	8	9	8	8	9	3,3,3	2,2,2	2,2,2	2,2,2	3,3,3	2,2,2	2/5,2/5,2/5	2/5,2/5,2/5	2/5,2/5,2/5		YES	
HDWH	**WA008070**	2	2	2	2	3	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	ND	1,1,1	1,1,1			Y
HDWH	**WA008096 (NEW)**	2	2	2,8(2)	8	8	2,2,2	2,2,2	2,2,2	2,2,2	2,2,2	2,2,2	5,4,4	3,3,3	2/3,2/3,2/3		MODER	Y
HDWH	**WA008097 (NEW)**	0,8(2)	2	3	5	9	2,2,2	2,3,	2,2,2	2,2,2	2,2,2	2,2,2	3,3,3	2/3,2/3,2/3	2,2,2		YES	Y
HDWH	**UI DARWIN**	8	9	3	5	8	2,2,2	2,2,2	2,2,2	1,1,1	1,1,1	1,1,1	3,3,3	2,3,3	2,2,2		YES	
HDWHI	**IDO651 (NEW)**	8	8	8	8	9	2,2,2	2,2,2	2,2,2	2,2,2	1,1,1	1,1,2	2,3,3	2,2,	2,2,2		YES	Y
HDWH	**IDO658 (NEW)**	1	2	2	8	8	1,1,1	1,1	1,1,1	3,3,3	3,3,3	3,3,3	4,4,4	3,3,3	3,3,3		YES	Y
HDWH	**ML9W04-2543W (NEW)**	1	8	8	3	8	3,3,3	3,3,3	2,2,2	1,1,1	3,3,3	1,1,1	3,3,3	2,2,2	2,2,2		YES	Y
HDWH	**PALOMINO**	8	2(4),5(8)	8	8	8	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,3,3	1,1,1	1,1,1		YES	
HDWH	**NUDAKOTA**	8	8	9	8	8	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1	1,1,1		YES	
HDWH	**MIETI (NEW)**	8	9	8	8	8	7,7,7	7,7,7	8,8,8	7,7,7	8,8,8	8,8,8	7,7,7	7,7,7	7,7,7		NO	Y
SWH	**ELTAN (Check)**	8	8	8	8	8	2,2,2	2,2,2	2,2,2	2,2,2	2,2,2	2,2,2	3,3,3	3,3,3	3,3,3		YES	
	9325-55	*2*	*2*	*2*	*8*	*2*	*1,1,1*	*1,1,1*	*1,1,1*	*2,2,2*	*2,2,2*	*2,2,2*	*1,1,1*	*2,2,2*	*1,1,1*		*YES*	
	UT9743-42	*2*	*2*	*2*	*2*	*2*	*1,1,1*	*2,2,2*	*2,2,2*	*2,2,2*	*2,2,2*	*2,2,2*	*1,1,1*	*1,1,1*	*1,1,1*			
	PS 279	**8**	**8**	**9**	**8**	**9**												

[a] Infection Type (IT) was recorded based on the 0-9 scale with ITs 8 and 9 combined as 8 (the most susceptible reaction) in field data. Generally IT 0-3 are considered resistant, 4-6 intermediate, and 7-9 susceptible. Heterogenous reactions of an entry were indicated by two or more ITs separated by "," for most plants with the first IT and few plants with the second IT and the number of plants for each IT is indicated in "( )". For adult-plant tests, if the flag leaf has a IT different from the leaf below, the ITs are separated by"/" with the flag leaf IT first.

[b] The seedling tests were conducted in December 2008 to January 2009 for each race without replications. For adult-plant tests, seeds were planted in late November and seedlings of about 3-5 cm were vernalized at 2-4°C for 6 to 9 weeks and then transplanted into big pots and grown in the greenhouse (10 to 25°C diurnal temperature cycle, 16h light) from january to May. Plants at boot to flowering stages were inoculated with a mixture of urediniospores of a particular race with talc powdery at about 1:20 ratio, incubated for 20 to 24 h in a dew chamber (dark, 10°C) and then grown in a greenhouse growth chamber at the 10-30°C diurnal temperature cycle with 16 h light. IT was recorded for each plant 18 to 20 days after inoculation. The three reps for each race test were done in different time period.

[c] Although the ITs are high, rust severities were obviously lower than those of the susceptible check, indicating low infection efficiency, a component of slow-rusting. No attempt was taken to record severity because the infection was just one cycle and we did not attempt to control the amount of spores on a leaf area.

[d] Entries with a high IT in the seedling low-temperature test but with a low IT in the adult-plant tests under high temperatures have possibly high-temperature adult-plant (HTAP) resistance.

[e] Treatment of seeds with chemicals may affect the seedling reaction (reducing IT). The treated seeds were washed before planting for the seedling tests to reduce the chemical effect. The wash appearred to work to some extend. Thus, it is still possible that chemical-treated seeds might produce false resistant reactions in the seedling tests.

2009 WSU HARD WINTER WHEAT TRIAL SUMMARY
Precipitation Zone= >16"

TABLE 40:

VARIETY NAME	DAYTON	PULLMAN	REARDAN	WALLA WALLA	AVERAGE YIELD	DAYTON	PULLMAN	REARDAN	WALLA WALLA	AVERAGE TEST WEIGHT	DAYTON	PULLMAN	REARDAN	WALLA WALLA	AVERAGE PROTEIN
Hard Red Winter	**YIELD (BU/A)**					**TEST WEIGHT (LBS/BU)**					**PROTEIN (%)**				
NORWEST 553	145	131	79	132	**122**	61.8	62.4	61.8	60.9	61.7	11.4	10.7	12.7	12.6	11.9
ACS 52025	149	127	82	121	**120**	61.5	61.2	61.1	60.1	61.0	11.4	10.6	12.1	12.2	11.6
BC002-2	137	129	66	132	116	62.2	62.9	61.6	62.1	62.2	12.0	11.0	13.6	12.7	12.3
ML9W05-2506	128	121	79	127	114	63.1	62.2	62.0	62.1	62.4	11.7	11.3	12.2	12.5	11.9
WA008068	115	134	87	117	114	62.8	62.4	61.3	61.8	62.1	12.8	11.4	12.3	13.0	12.4
WHETSTONE	124	116	82	125	112	61.6	62.6	62.4	61.0	61.9	11.8	11.0	12.8	12.8	12.1
DECLO	119	125	80	118	110	60.8	62.5	62.1	59.6	61.3	11.9	10.7	12.8	13.2	12.2
ESPERIA	130	104	75	131	110	60.2	60.7	60.5	59.9	60.3	12.2	11.1	12.0	13.1	12.1
BOUNDARY	118	125	86	110	110	61.1	61.6	60.6	60.1	60.9	11.4	10.5	12.7	12.4	11.8
BAUERMEISTER	108	137	80	109	108	60.2	61.4	61.4	58.4	60.4	11.7	10.5	11.2	12.8	11.6
EDDY	116	115	78	121	108	62.9	61.0	61.2	61.8	61.7	11.7	11.0	11.8	12.6	11.8
NORRIS	127	118	69	115	107	63.3	62.5	61.9	62.6	**62.6**	11.5	10.7	11.8	11.9	11.5
ACCIPITER	113	127	73	117	107	61.3	62.7	61.7	60.6	61.6	11.7	10.3	11.8	12.5	11.6
WA008022	118	150	74	85	107	61.4	60.5	59.8	58.8	60.1	11.7	9.9	10.6	12.8	11.3
AGRIPRO PALADIN	122	100	71	121	103	61.9	62.9	62.3	60.6	61.9	12.0	11.6	12.6	13.0	12.3
PEREGRINE	115	112	76	105	102	62.8	62.4	61.6	61.8	62.2	11.4	10.2	10.8	12.5	11.2
WA008095	106	136	78	83	100	61.5	62.3	61.4	59.5	61.2	12.2	11.2	11.5	13.5	12.1
WA008098	101	116	90	94	100	62.4	62.5	60.7	60.1	61.4	12.2	10.7	12.2	13.1	12.1
FARNUM	93	121	72	88	94	60.0	59.9	59.7	58.3	59.5	12.6	10.5	12.2	13.8	12.3
FINLEY	105	113	72	71	90	63.2	63.1	62.1	60.4	62.2	12.0	11.1	11.7	13.0	12.0
HATTON	94	97	75	90	89	63.3	62.4	62.8	63.0	**62.9**	10.9	9.3	12.4	12.0	11.2
IDO683	96	98	65	82	85	63.9	62.4	61.6	62.0	62.5	12.4	11.8	13.5	12.9	12.7
WA008061	82	86	68	77	78	62.8	60.9	60.7	60.9	61.3	13.3	12.4	12.9	13.9	13.1
Hard White Winter															
NUDAKOTA	154	107	64	134	115	62.2	61.6	61.2	60.9	61.5	10.8	10.5	11.3	11.6	11.1
ML9W04-2543W	133	121	77	117	112	59.8	61.5	61.3	58.4	60.3	11.3	10.2	11.7	12.1	11.3
MDM	99	150	92	104	111	60.1	61.9	61.4	58.8	60.6	11.6	9.9	11.1	12.6	11.3
IDO658	117	132	75	113	109	62.6	62.7	62.0	60.3	61.9	10.2	10.5	11.2	11.8	10.9
WA008097	103	141	86	104	108	58.1	61.0	60.6	58.5	59.6	11.9	10.0	11.7	12.3	11.5
WA008096	104	135	78	112	107	59.8	61.3	60.4	58.5	60.0	11.1	10.1	12.1	12.0	11.3
UI DARWIN	127	111	54	121	103	63.0	63.1	62.2	62.6	**62.7**	10.8	11.3	11.9	11.9	11.5
WA008070	92	132	80	101	101	61.4	62.6	61.7	61.1	61.7	11.9	10.2	11.2	12.4	11.4
PALOMINO	123	106	52	123	101	61.6	61.9	61.1	60.8	61.4	11.9	11.8	13.4	13.1	12.6
IDO651	109	125	71	90	99	61.1	61.8	60.8	59.7	60.9	11.6	10.1	12.1	13.3	11.8
MOL	113	97	52	121	96	63.1	61.2	60.6	62.8	61.9	13.5	12.5	14.3	14.4	**13.7**
MIETI	97	117	53	104	93	60.5	59.9	59.8	59.4	59.9	11.9	11.0	13.3	13.8	12.5
Soft White Common															
ELTAN (Check)	91	148	75	104	104	58.0	61.2	60.6	57.7	59.4	11.9	9.5	11.2	12.8	11.4
	STATISTICS					**STATISTICS**					**STATISTICS**				
CV (%)	10	7	12	7	8	1.1	0.7	0.5	1.2	0.9	3.3	3.5	4.5	3.5	3.7
LSD (0.10)	15	11	12	10	6	0.9	0.6	0.4	1.0	0.4	0.9	0.5	0.7	1.0	0.3
Average	115	121	74	109	105	61.6	61.9	61.3	60.4	61.3	11.8	10.8	12.1	12.8	11.9
Highest	154	150	92	134	122	63.9	63.1	62.8	63.0	62.9	13.5	12.5	14.3	14.4	13.7
Lowest	82	86	52	71	78	58.0	59.9	59.7	57.7	59.4	10.2	9.3	10.6	11.6	10.9

1. Hard winter wheat (including red and white) grain yield across four locations and 36 entries in the >16" precipitation zone averaged 105 bu/ac, just 1 bu/ac lower than the 2008 average. These trials were analyzed as alpha lattice designs that overall helped to account for within-replication variation and reduced LSD and CV values. The highest value and other values within the LSD range are shown in bold for yield, test weight, and protein.
2. Test weight averaged 61.3 lb/bu across locations and entries, with a range of 59.4 lb/bu to 62.9 lb/bu. Test weights averaged 1.8 lb/bu higher than last year. Grain protein averaged 11.9% with a range of 10.9% to 13.7 %, 1.0% lower than last year's value.

2009 WSU HARD WINTER WHEAT TRIAL SUMMARY
Precipitation Zone= 12"- 16"

TABLE 41:

VARIETY NAME	YIELD (BU/A) ALMIRA	YIELD (BU/A) LAMONT	YIELD (BU/A) AVERAGE YIELD	TW (LBS/BU) ALMIRA	TW (LBS/BU) LAMONT	TW (LBS/BU) AVERAGE TEST WEIGHT	PROTEIN (%) ALMIRA	PROTEIN (%) LAMONT	PROTEIN (%) AVERAGE PROTEIN
Hard Red Winter									
BOUNDARY	105	102	**103**	61.1	62.0	61.6	10.7	12.5	11.6
WA008068	101	97	**99**	62.5	62.4	62.5	10.3	13.3	11.8
ACS 52025	114	83	**99**	61.2	62.2	61.7	9.7	12.9	11.3
ESPERIA	97	93	95	60.1	60.8	60.5	11.1	12.7	11.9
EDDY	97	91	94	61.8	62.7	62.3	10.2	13.2	11.7
WA008098	99	88	93	60.9	62.5	61.7	10.1	13.2	11.7
WA008095	99	87	93	61.7	62.6	62.2	10.5	12.7	11.6
DECLO	104	82	93	62.6	63.2	62.9	10.3	13.7	12.0
NORWEST 553	101	85	93	61.0	62.9	62.0	10.4	13.8	12.1
BAUERMEISTER	103	82	93	59.9	62.6	61.3	10.7	13.3	12.0
PEREGRINE	98	87	93	62.0	63.3	62.7	9.9	12.2	11.1
ACCIPITER	99	86	92	61.1	63.0	62.1	10.3	12.9	11.6
BC002-2	103	79	91	62.3	62.7	62.5	11.3	13.4	12.4
WA008022	97	81	89	60.2	61.5	60.9	10.1	12.5	11.3
HATTON	99	77	88	64.0	63.8	**63.9**	9.9	14.1	12.0
WHETSTONE	88	88	88	61.2	63.0	62.1	10.8	13.6	12.2
FARNUM	95	78	87	60.1	60.6	60.4	10.8	13.9	12.4
NORRIS	102	68	85	62.3	63.0	62.7	10.3	14.1	12.2
AGRIPRO PALADIN	93	76	84	61.5	62.6	62.1	11.2	13.3	12.3
ML9W05-2506	92	76	84	61.8	62.7	62.3	11.2	13.3	12.3
FINLEY	89	78	83	61.9	63.0	62.5	10.8	13.2	12.0
WA008061	88	75	81	61.7	62.1	61.9	10.8	14.7	12.8
IDO683	89	62	75	63.1	63.1	63.1	10.6	14.6	12.6
Hard White Winter									
MDM	99	99	**99**	60.7	62.5	61.6	9.9	12.4	11.2
ML9W04-2543W	104	86	95	60.5	62.1	61.3	9.5	11.9	10.7
IDO658	102	77	90	61.4	63.6	62.5	9.5	13.0	11.3
WA008096	98	78	88	59.6	61.5	60.6	9.8	12.9	11.4
WA008070	92	84	88	61.4	62.6	62.0	10.8	13.0	11.9
NUDAKOTA	100	75	88	61.2	61.6	61.4	9.6	13.0	11.3
WA008097	100	67	84	60.4	61.8	61.1	9.6	12.8	11.2
PALOMINO	95	65	80	61.2	61.8	61.5	10.9	13.4	12.2
IDO651	88	64	76	59.9	62.3	61.1	10.4	13.5	12.0
UI DARWIN	86	64	75	62.8	63.0	62.9	10.7	14.0	12.4
MIETI	92	51	71	60.6	60.6	60.6	10.2	14.3	12.3
MOL	67	56	62	61.1	61.7	61.4	12.5	16.1	**14.3**
Soft White Common									
ELTAN (Check)	109	75	92	59.7	62.3	61.0	10.0	12.4	11.2
	STATISTICS			**STATISTICS**			**STATISTICS**		
CV (%)	7	12	9	0.8	0.4	0.6	6.0	3.7	4.7
LSD (0.10)	9	13	8	0.7	0.3	0.4	0.9	0.7	0.5
Average	97	79	88	61.3	62.4	61.8	10.4	13.3	11.9
Highest	114	102	103	64.0	63.8	63.9	12.5	16.1	14.3
Lowest	67	51	62	59.6	60.6	60.3	9.5	11.9	10.7

1. Hard winter wheat (including red and white) grain yield across two locations and 36 entries in the 12"-16" precipitation zone averaged 88 bu/ac, 9 bu/ac higher than the 2008 average of 79 bu/ac. These trials were analyzed as alpha lattice designs that overall helped to account for within-replication variation and reduced LSD and CV values. The highest value and other values within the LSD range are shown in bold for yield, test weight, and protein.
2. Test weight averaged 61.8 lb/bu across locations and entries, with a range of 60.3 lb/bu to 63.9 lb/bu. Test weights averaged 0.9 lb/bu higher than last year. Grain protein averaged 11.9% with a range of 10.7% to 14.3 %, 0.6% higher than last year's 11.3% value.

2009 WSU HARD WINTER WHEAT TRIAL SUMMARY
Precipitation Zone= <12"

TABLE 42:

VARIETY NAME	CONNELL	HORSE HEAVEN	LIND	RITZVILLE	ST. ANDREWS	AVERAGE YIELD	CONNELL	HORSE HEAVEN	LIND	RITZVILLE	ST. ANDREWS	AVERAGE TEST WEIGHT	CONNELL	HORSE HEAVEN	LIND	RITZVILLE	ST. ANDREWS	AVERAGE PROTEIN
Hard Red Winter	**YIELD (BU/A)**						**TEST WEIGHT (LBS/BU)**						**PROTEIN (%)**					
BAUERMEISTER	49	12	32	59	29	**36**	59.4	58.8	60.0	61.1	58.8	59.6	12.6	15.5	12.6	11.7	10.1	12.5
WA008068	47	13	29	61	30	**36**	60.5	60.8	61.7	62.2	60.6	61.2	13.5	16.8	14.1	11.2	10.1	13.1
PEREGRINE	39	15	35	56	31	**35**	60.3	60.4	62.5	62.0	60.8	61.2	12.5	15.8	12.1	11.1	9.7	12.2
FINLEY	42	15	34	59	25	**35**	61.7	62.0	62.1	63.3	61.5	62.1	12.4	15.5	13.5	11.2	10.6	12.6
FARNUM	38	13	33	58	30	**34**	58.7	59.6	59.8	60.5	57.5	59.2	13.5	15.8	12.9	11.9	10.5	12.9
WA008095	39	12	24	60	34	**34**	59.1	59.9	60.5	61.5	59.4	60.1	13.1	16.1	13.5	11.7	11.4	13.2
BC002-2	38	16	--	53	28	**34**	61.1	59.6	--	62.0	60.5	60.8	13.4	17.0	--	11.7	11.6	13.4
HATTON	49	12	23	54	26	33	63.2	63.2	61.9	64.0	62.6	**63.0**	12.4	15.5	13.4	11.6	10.3	12.6
ML9W05-2506	40	15	25	57	29	33	61.1	59.5	61.5	62.4	60.9	61.1	12.7	16.1	14.1	11.3	11.0	13.0
ACCIPITER	39	13	23	50	38	33	59.5	58.2	61.2	61.7	60.0	60.1	12.7	16.9	13.3	10.8	10.4	12.8
WA008098	38	12	32	52	28	32	59.5	59.7	60.9	61.0	58.9	60.0	13.3	16.1	13.1	11.8	11.1	13.1
NORWEST 553	40	13	--	43	32	32	61.6	62.2	--	60.6	61.1	61.4	12.7	16.1	--	11.3	11.1	12.8
WA008061	37	13	24	56	28	31	61.2	62.6	60.5	62.5	60.2	61.4	14.0	16.4	14.5	12.2	11.4	13.7
WHETSTONE	35	15	26	55	25	31	60.0	59.6	61.2	62.3	61.4	60.9	12.8	15.6	14.3	11.9	11.3	13.2
ACS 52025	34	15	25	52	27	30	61.8	61.7	61.0	62.1	61.0	61.5	12.4	14.9	13.5	12	10.5	12.7
BOUNDARY	39	13	25	50	25	30	60.1	60.1	60.2	61.0	59.4	60.2	12.6	15.6	13.4	11.3	10.4	12.7
EDDY	37	14	--	50	19	30	61.2	62.1	--	62.3	59.9	61.4	13.0	16.1	--	12.0	12.9	13.5
AGRIPRO PALADIN	38	15	25	51	21	30	61.5	61.8	61.4	62.7	61.5	61.8	13.1	15.5	14.1	11.5	12.8	13.4
NORRIS	28	16	22	56	26	30	61.4	61.3	61.8	62.7	61.5	61.7	13.0	14.9	13.9	11.2	10.8	12.8
IDO683	29	14	24	54	24	29	62.7	63.6	62.9	63.9	62.1	**63.0**	13.4	15.7	14.4	11.8	11.2	13.3
ESPERIA	46	15	13	51	19	29	60.2	58.8	60.0	60.6	59.9	59.9	13.0	15.9	15.3	11.1	12.7	13.6
WA008022	36	11	22	46	25	28	60.2	61.0	57.4	61.0	58.6	59.6	12.3	14.9	13.0	11.6	10.6	12.5
DECLO	29	10	--	35	26	25	60.7	60.7	--	61.8	61.0	61.1	13.6	16.6	--	12.9	11.4	13.6
Hard White Winter																		
MDM	48	16	32	62	22	**36**	59.6	59.4	61.0	61.8	59.7	60.3	11.9	14.6	12.1	9.8	9.5	11.6
WA008097	43	12	32	63	29	**36**	57.6	58.5	59.6	61.4	59.1	59.2	13.1	15.8	12.4	11.0	10.4	12.5
WA008070	39	12	33	59	28	**34**	60.3	61.8	60.6	62.3	59.8	61.0	12.5	15.8	13.2	10.8	10.7	12.6
UI DARWIN	44	13	30	57	24	**34**	62.6	62.8	62.1	62.9	61.9	**62.5**	12.8	14.6	13.1	12.4	10.5	12.7
WA008096	46	11	30	60	20	33	57.4	58.1	58.1	61.2	57.8	58.5	12.7	15.7	12.7	10.6	10.3	12.4
IDO658	31	14	27	64	29	33	61.3	62.0	62.2	62.9	60.8	61.8	11.7	15.2	12.7	10.5	10.9	12.2
IDO651	39	15	27	53	28	32	58.8	57.7	59.8	61.4	58.9	59.3	13.2	16.1	13.4	11.4	9.6	12.7
NUDAKOTA	38	17	19	56	28	32	60.2	59.1	60.4	61.7	60.7	60.4	12.5	14.8	14.0	10.9	11.6	12.8
PALOMINO	32	15	21	51	24	29	61.3	59.2	60.6	62.2	60.9	60.8	13.1	16.5	13.8	12.6	12.4	13.7
ML9W04-2543W	35	11	13	53	29	28	60.1	59.7	60.5	61.6	60.0	60.4	12.0	15.7	13.5	10.6	10.8	12.5
MOL	24	10	--	34	21	22	60.9	61.5	--	61.6	60.1	61.0	15.5	15.6	--	13.4	15.5	**15.0**
MIETI	21	10	--	--	18	16	60.7	N/A	--	--	58.3	59.5	14.2	14.4	--	--	13.8	14.1
Soft White Common																		
ELTAN (Check)	48	13	32	72	27	**38**	59.0	59.2	59.1	61.6	58.2	59.4	11.7	15.3	11.6	10.2	9.7	11.7
	STATISTICS						**STATISTICS**						**STATISTICS**					
CV (%)	14	12	19	13	12	15	0.8	--	1.6	0.9	0.9	1.5	3.2	3.0	3.2	7.2	5.6	4.4
LSD (0.10)	7	2	7	10	4	3	0.7	--	1.3	1.3	0.8	0.6	0.6	0.7	0.6	1.1	0.9	0.3
Average	38	13	26	54	26	32	60.5	60.5	60.8	62.0	60.2	60.8	12.9	15.7	13.4	11.5	11.1	12.9
Highest	49	17	35	72	38	38	63.2	63.6	62.9	64.0	62.6	63.0	15.5	17.0	15.3	13.4	15.5	15.0
Lowest	21	10	13	34	18	22	57.4	57.7	57.4	60.5	57.5	58.5	11.7	14.4	11.6	9.8	9.5	11.6

1. Hard winter wheat (including red and white) grain yield across five locations and 36 entries in the <12" precipitation zone averaged 32 bu/ac, 2 bu/ac higher than the 2008 average of 30 bu/ac. The CV for the average data was 15% and that was lower than the CV of 18% in 2008. The CVs in these experiments are higher than desired, but the trials still provide useful data. There was a lot of variability in fall establishment in the zone due to dry planting conditions and some of that variability carried through the trials. These trials were designed and all except Lind were analyzed as alpha lattice designs that overall helped to account for within-replication variation and reduced LSD and CV values.
2. Test weight averaged 60.8 lb/bu across locations and entries and averaged over 60 lb/bu at all locations. This was slightly higher than last year's average of 60.6 lb/bu. Grain protein averaged 12.9% nearly equaling last year's 13% value.

2009 WSU EXTENSION HARD WINTER WHEAT NURSERY AT ALMIRA, WA.

TABLE 43:

Variety Name *HDWH Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
ACS 52025		108	103	**114**	61.2	9.7	0	34	151
ELTAN	103	97	98	**109**	59.7	10.0	63	32	158
BOUNDARY	109	105	93	105	61.1	10.7	0	32	156
ML9W04-2543W				104	60.5	9.5	0	36	154
BAUERMEISTER	102	95	94	103	59.9	10.7	90	33	158
DECLO		89	88	103	62.6	10.3	0	29	154
BC002-2			95	103	62.3	11.3	0	29	151
NORRIS				102	62.3	10.3	0	34	151
IDO658				102	61.4	9.5	63	35	155
NORWEST 553		97	84	101	61.0	10.4	0	30	153
WA008068			87	101	62.5	10.3	0	38	155
NUDAKOTA			92	100	61.2	9.6	0	31	150
WA008097				100	60.4	9.6	60	31	158
HATTON	80	94	91	99	**64.0**	9.9	0	36	157
MDM	106	99	96	99	60.7	9.9	53	31	158
ACCIPITER				99	61.1	10.3	0	30	158
WA008095				99	61.7	10.5	17	29	156
WA008098				99	60.9	10.1	80	38	158
PEREGRINE			87	98	62.0	9.9	0	36	156
WA008096				98	59.6	9.8	37	34	159
EDDY	100	99	90	97	61.8	10.2	0	31	152
WA008022		87	89	97	60.2	10.1	0	34	156
ESPERIA				97	60.1	11.1	0	29	150
FARNUM	93	86	88	95	60.1	10.8	77	35	160
PALOMINO		97	86	95	61.2	10.9	0	30	150
AGRIPRO PALADIN	98	93	84	93	61.5	11.2	0	30	154
ML9W05-2506			82	92	61.8	11.2	0	30	153
WA008070			82	92	61.4	10.8	3	34	159
MIETI				92	60.6	10.2	0	29	151
FINLEY		87	84	89	61.9	10.8	43	36	156
IDO683				89	63.1	10.6	80	32	154
WHETSTONE	98	94	80	88	61.2	10.8	0	28	149
WA008061			81	88	61.7	10.8	80	40	157
IDO651				87	59.9	10.4	10	43	154
UI DARWIN		84	81	86	62.8	10.7	37	35	154
MOL				67	61.1	12.5	0	26	151
C.V. %	12	12	9	7	0.8	6.0	63	13	1
LSD '@ .10'	6	8	8	9	0.7	0.9	19	6	1
Average	99	94	89	97	61.3	10.4	22	33	155
Highest	109	108	103	114	64.0	12.5	90	43	160
Lowest	80	84	80	67	59.6	9.5	0	26	149

1. Grain yield in the Almira hard winter wheat trial averaged 97 bu/ac, just 2 bu/ac less than the 5-year average at this site The Almira nursery was located about 10 miles north of Almira, WA (Dan McKay, cooperator).
2. This nursery was seeded on 8 September, 2008 following summer fallow. Seed was placed at an 85#/acre seeding rate using a hoe plot drill set on 9-inch spacing. Base fertilizer was 80#N, and 10#S applied in the fall. A spring soil sample showed fertility levels high enough for hard wheat and no additional fertilizer was applied. Seeding conditions produced good stands that overwintered well. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 75% compared to previously used designs.
3. Yields ranged from 67 bu/ac to 114 bu/ac, with a CV of 7%. Yield values within the LSD range of the highest yield are shown in bold and included three cultivars. Hard white variety names are designated by italicized print.
4. Test weights were good with an average of 61.3 lb/bu. Grain protein was not as high as desired for hard wheat and no higher than in the soft trial. Protein averaged 10.4% with a range of 9.5 to 12.5%. The average plant height was 33 inches. Several cultivars were highly lodged before harvest.

2009 WSU EXTENSION HARD WINTER WHEAT NURSERY AT CONNELL, WA.

TABLE 44:

Variety Name *HDWH Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
HATTON	- -	- -	44	**49**	**63.2**	12.4	0	33	145
BAUERMEISTER	- -	- -	43	**49**	59.4	12.6	0	28	148
ELTAN	- -	- -	45	**48**	59.0	11.7	0	29	148
MDM	- -	- -	39	**48**	59.6	11.9	0	30	148
WA008068	- -	- -	45	**47**	60.5	13.5	0	31	144
ESPERIA	- -	- -		**46**	60.2	13.0	0	26	142
WA008096	- -	- -		**45**	57.4	12.7	0	29	149
UI DARWIN	- -	- -	40	**44**	**62.6**	12.8	0	30	145
WA008097	- -	- -		**43**	57.6	13.1	0	27	149
FINLEY	- -	- -	39	42	61.7	12.4	0	32	143
NORWEST 553	- -	- -	44	40	61.6	12.7	0	24	145
ML9W05-2506	- -	- -	38	40	61.1	12.7	0	26	144
BOUNDARY	- -	- -	39	39	60.1	12.6	0	29	146
PEREGRINE	- -	- -	35	39	60.3	12.5	0	33	143
WA008070	- -	- -	39	39	60.3	12.5	0	29	149
ACCIPITER	- -	- -		39	59.5	12.7	0	27	147
WA008095	- -	- -		39	59.1	13.1	0	33	146
FARNUM	- -	- -	36	38	58.7	13.5	0	33	149
AGRIPRO PALADIN	- -	- -	40	38	61.5	13.1	0	27	143
IDO651	- -	- -		38	58.8	13.2	0	36	142
BC002-2	- -	- -	39	38	61.1	13.4	0	28	142
NUDAKOTA	- -	- -	36	38	60.2	12.5	0	26	141
WA008098	- -	- -		38	59.5	13.3	0	29	147
EDDY	- -	- -	37	37	61.2	13.0	0	28	143
WA008061	- -	- -	36	37	61.2	14.0	0	31	146
WA008022	- -	- -	35	36	60.2	12.3	0	28	146
WHETSTONE	- -	- -	39	35	60.0	12.8	0	29	141
ML9W04-2543W	- -	- -		35	60.1	12.0	0	29	145
ACS 52025	- -	- -	35	34	61.8	12.4	0	30	142
PALOMINO	- -	- -	37	32	61.3	13.1	0	26	143
IDO658	- -	- -		31	61.3	11.7	0	27	145
DECLO	- -	- -	32	29	60.7	13.6	0	25	146
IDO683	- -	- -		29	**62.7**	13.4	0	29	145
NORRIS	- -	- -		27	61.4	13.0	0	30	141
MOL	- -	- -		24	60.9	15.5	0	25	142
MIETI	- -	- -		20	60.7	14.2	0	20	143
C.V. %	- -	- -	17	14	0.8	3.2	- -	6	1
LSD '@ .10'	- -	- -	6	7	0.7	0.6	- -	3	1
Average	- -	- -	39	38	60.5	12.9	0	29	145
Highest	- -	- -	45	49	63.2	15.5	0	36	149
Lowest	- -	- -	32	20	57.4	11.7	0	20	141

1. Grain yield in the Connell hard winter wheat trial averaged 38 bu/ac, 1 bu/ac lower than the 2-year average. The Connell nursery was located about 5 miles east of Connell, WA (D. Bauermeister farm).
2. This nursery was seeded on 4 September, 2008 following summer fallow. Seed was placed at a 45#/acre seeding rate using a deep furrow plot drill with split packer openers set on 15-inch spacing. Base fertilizer was 45#N and 15#S. Fall seeding conditions were dry and occasional poor emergence and excess soil coverage due to deep planting with the plot drill caused some gaps in individual plots. When appropriate, gaps were subtracted from the plot areas to maintain equivalent comparisons. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 34% compared to previously used designs.
3. Yields ranged from 20 bu/ac to 49 bu/ac, with a CV of 14%. All yield values within the LSD range of the highest yield are shown in bold. Hard white variety names are designated by italicized print.
4. Test weights were good with an average of 60.5 lb/bu. There was favorable spring precipitation and temperatures that supported a good grain filling period and high test weights.
5. Grain protein averaged 12.9% with a range of 11.7 to 15.5% and average plant height was 29 inches.

2009 WSU EXTENSION HARD WINTER WHEAT NURSERY AT DAYTON, WA.

TABLE 45: Variety Name *HDWH Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
NUDAKOTA	- -		134	**154**	62.2	10.8	0	35	146
ACS 52025	- -	141	135	**149**	61.5	11.4	0	33	148
NORWEST 553	- -	121	126	**145**	61.8	11.4	0	32	150
BC002-2	- -		121	137	62.2	12.0	0	35	149
ML9W04-2543W	- -			133	59.8	11.3	0	42	152
ESPERIA	- -			130	60.2	12.2	0	32	146
ML9W05-2506	- -		117	128	**63.1**	11.7	0	34	151
UI DARWIN	- -	99	108	127	63.0	10.8	20	44	153
NORRIS	- -			127	**63.3**	11.5	0	41	147
WHETSTONE	- -	115	114	124	61.6	11.8	0	35	146
PALOMINO	- -	109	114	123	61.6	11.9	0	32	147
AGRIPRO PALADIN	- -	112	115	122	61.9	12.0	0	35	152
DECLO	- -	107	109	119	60.8	11.9	0	32	152
BOUNDARY	- -	110	106	118	61.1	11.4	0	37	152
WA008022	- -	109	104	118	61.4	11.7	3	43	153
IDO658	- -			117	62.6	10.2	30	40	153
EDDY	- -	108	106	116	62.9	11.7	0	37	148
WA008068	- -		108	115	62.8	12.8	13	41	154
PEREGRINE	- -		101	115	62.8	11.4	0	44	153
ACCIPITER	- -			113	61.3	11.7	0	35	154
MOL	- -			113	**63.1**	13.5	0	30	148
IDO651	- -			109	61.1	11.6	13	51	151
BAUERMEISTER	- -	110	103	108	60.2	11.7	63	38	157
WA008095	- -			106	61.5	12.2	37	44	154
FINLEY	- -	97	96	105	**63.2**	12.0	57	43	152
WA008096	- -			104	59.8	11.1	23	39	156
WA008097	- -			103	58.1	11.9	77	36	154
WA008098	- -			101	62.4	12.2	77	42	155
MDM	- -	108	100	99	60.1	11.6	63	35	156
MIETI	- -			97	60.5	11.9	0	29	147
IDO683	- -			96	**63.9**	12.4	47	38	152
HATTON	- -	96	89	94	**63.3**	10.9	3	46	154
FARNUM	- -	91	89	93	60.0	12.6	33	43	157
WA008070	- -		89	92	61.4	11.9	3	45	158
ELTAN	- -	108	98	91	58.0	11.9	92	36	156
WA008061	- -		79	82	62.8	13.3	73	45	154
C.V. %	- -	9	8	9	1.1	3.3	65	4	1
LSD '@ .10'	- -	7	8	15	0.9	0.9	18	2	1
Average	- -	109	107	114	61.6	11.8	20	38	152
Highest	- -	141	135	154	63.9	13.5	92	51	158
Lowest	- -	91	79	82	58.0	10.2	0	29	146

1. Grain yield in the Dayton hard winter wheat trial averaged 114 bu/ac, 5% higher than the 3-year average for this site. The Dayton nursery was located about 6 miles north of Dayton, WA (Jay Penner, cooperator).
2. This nursery was seeded on 24 September, 2008 following summer fallow. Seed was placed at an 85#/acre seeding rate using a double disc drill set on 6-inch spacing. Base fertilizer was 144#N, 10#P, 15#S, and 10#Cl applied in the fall. Spring soil test showed an additional 70#N and 10#S was needed for the hard nursery and that was applied 24 March, 2009. Seeding conditions produced good stands that overwintered well. Alpha lattice experimental designs did not improve variation allocation during statistical analysis. At this site a significant stripe rust infestation was observed in the middle of June. Susceptible cultivars, and some cultivars with high-temperature adult plant resistance (HTAP) were showing extensive leaf cover by stripe rust. The cool temperatures of early June had not allowed the HTAP to 'kick in', but later warmer temperatures the last week of June allowed expression of HTAP resistance. Dr. Chen rated the nursery for stripe rust. Susceptible varieties should have expressed yield loss from stripe rust.
3. Yields ranged from 82 bu/ac to 154 bu/ac, with a CV of 9%. Yield values within the LSD range of the highest yield are shown in bold and included three cultivars. Hard white variety names are designated by italicized print.
4. Test weights were good with an average of 61.6 lb/bu. Grain protein averaged 11.8% with a range of 10.2 to 13.5%. Despite additional spring fertilization, the hard trial did not average higher protein than the soft trial. The average plant height was 38 inches.

2009 WSU EXTENSION HARD WINTER WHEAT NURSERY AT HORSE HEAVEN, WA.

TABLE 46:

Variety Name *HDWH Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT* (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
NUDAKOTA			19	**17**	59.1	14.8	0	17	145
MDM	34	30	19	**16**	59.4	14.6	0	19	151
BC002-2			18	**16**	59.6	17.0	0	18	145
NORRIS				**16**	61.3	14.9	0	20	144
FINLEY		27	18	15	62.0	15.5	0	18	148
AGRIPRO PALADIN	30	22	16	15	61.8	15.5	0	16	146
WHETSTONE	31	24	17	15	59.6	15.6	0	20	143
PALOMINO		23	18	15	59.2	16.5	0	17	146
ACS 52025		25	17	15	61.7	14.9	0	20	146
ML9W05-2506			18	15	59.5	16.1	0	19	147
IDO651				15	57.7	16.1	0	23	146
PEREGRINE			20	15	60.4	15.8	0	19	146
ESPERIA				15	58.8	15.9	0	19	144
EDDY	31	23	16	14	62.1	16.1	0	18	146
IDO658				14	62.0	15.2	0	21	146
IDO683				14	63.6	15.7	0	19	147
ELTAN	35	30	18	13	59.2	15.3	0	18	150
BOUNDARY	33	25	16	13	60.1	15.6	0	17	148
FARNUM	34	27	19	13	59.6	15.8	0	17	151
NORWEST 553		26	16	13	62.2	16.1	0	18	148
UI DARWIN		23	16	13	62.8	14.6	0	21	144
WA008068			17	13	60.8	16.8	0	17	149
WA008061			16	13	62.6	16.4	0	19	148
ACCIPITER				13	58.2	16.9	0	18	148
HATTON	29	24	17	12	63.2	15.5	0	19	151
BAUERMEISTER	33	28	17	12	58.8	15.5	0	18	151
WA008070			17	12	61.8	15.8	0	17	151
WA008095				12	59.9	16.1	0	18	149
WA008097				12	58.5	15.8	0	17	150
WA008098				12	59.7	16.1	0	19	150
WA008022		26	17	11	61.0	14.9	0	18	151
WA008096				11	58.1	15.7	0	17	150
ML9W04-2543W				11	59.7	15.7	0	18	149
DECLO		20	14	10	60.7	16.6	0	17	147
MIETI				10	- -	14.4	0	21	149
MOL				10	61.5	15.6	0	18	147
C.V. %	12	14	16	12		3.0	- -	8	1
LSD '@ .10'	2	2	2	2		0.7	- -	2	1
Average	32	25	17	13	60.5	15.7	0	18	148
Highest	35	30	20	17	63.6	17.0	0	23	151
Lowest	29	20	14	10	57.7	14.4	0	16	143

***Test Weight data are from bulked samples across replications.**

1. Grain yield in the Horse Heaven hard winter wheat trial averaged 13 bu/ac and was only 42% of the 5-year average for this location. The Horse Heaven nursery was located about 5 miles east of Prosser, WA (D. Roseberry farm).
2. This nursery was seeded on 8 October, 2008 following summer fallow. Seed was placed at a 45#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was 40#N. Fall seeding conditions were dry and occasional poor emergence caused some gaps in individual plots. When appropriate, gaps were subtracted from the plot areas to maintain equivalent comparisons. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 14% compared to previously used designs.
3. Yields ranged from 10 bu/ac to 17 bu/ac, with a CV of 12%. All yield values within the LSD range of the highest yield are shown in bold. Hard white variety names are designated by italicized print.
4. Test weights were good with an average of 60.5 lb/bu. There was favorable spring precipitation and temperatures that supported a good grain filling period and high test weights.
5. Grain protein averaged 15.7% with a range of 14.4 to 17.0% High protein could have been influenced by the low yields that reflected dry conditions during much of the growing season. Low yield and dry conditions are also related to 18 inch average plant height.

2009 WSU EXTENSION HARD WINTER WHEAT NURSERY AT LAMONT, WA.

TABLE 47:

Variety Name *HDWH Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
BOUNDARY	- -	95	93	**102**	62.0	12.5	0	29	152
MDM	- -	101	96	**99**	62.5	12.4	17	33	157
WA008068	- -		90	**97**	62.4	13.3	0	37	150
ESPERIA	- -			**93**	60.8	12.7	0	24	150
EDDY	- -	90	83	**91**	62.7	13.2	0	26	150
WHETSTONE	- -	88	79	88	63.0	13.6	0	31	149
WA008098	- -			88	62.5	13.2	10	33	154
PEREGRINE	- -		82	87	63.3	12.2	0	33	151
WA008095	- -			87	62.6	12.7	0	32	152
ACCIPITER	- -			86	63.0	12.9	0	32	153
ML9W04-2543W	- -			86	62.1	11.9	0	31	151
NORWEST 553	- -	87	81	85	62.9	13.8	0	25	152
WA008070	- -		80	84	62.6	13.0	0	34	159
ACS 52025	- -	93	83	83	62.2	12.9	0	27	150
BAUERMEISTER	- -	92	83	82	62.6	13.3	0	29	158
DECLO	- -	84	74	82	63.2	13.7	0	26	152
WA008022	- -	86	82	81	61.5	12.5	0	29	154
BC002-2	- -		78	79	62.7	13.4	0	27	150
FINLEY	- -	86	86	78	63.0	13.2	0	32	150
FARNUM	- -	79	81	78	60.6	13.9	17	36	159
WA008096	- -			78	61.5	12.9	0	27	158
HATTON	- -	80	75	77	**63.8**	14.1	0	32	153
IDO658	- -			77	**63.6**	13.0	0	30	152
AGRIPRO PALADIN	- -	80	76	76	62.6	13.3	0	28	150
ELTAN	- -	93	83	75	62.3	12.4	0	29	157
ML9W05-2506	- -		77	75	62.7	13.3	0	28	150
WA008061	- -		74	75	62.1	14.7	0	36	152
NUDAKOTA	- -		74	75	61.6	13.0	0	23	150
NORRIS	- -			68	63.0	14.1	0	28	149
WA008097	- -			67	61.8	12.8	0	27	157
PALOMINO	- -	77	69	65	61.8	13.4	0	24	150
UI DARWIN	- -	69	68	64	63.0	14.0	0	32	152
IDO651	- -			64	62.3	13.5	0	36	149
IDO683	- -			62	63.1	14.6	7	32	149
MOL	- -			56	61.7	16.1	0	21	151
MIETI	- -			51	60.6	14.3	0	19	152
C.V. %	- -	11	11	12	0.4	3.7	556	8	1
LSD '@ .10'	- -	7	8	13	0.3	0.7	11	3	1
Average	- -	86	80	79	62.4	13.3	1	29	152
Highest	- -	101	96	102	63.8	16.1	17	37	159
Lowest	- -	69	68	51	60.6	11.9	0	19	149

1. Grain yield in the Lamont hard winter wheat trial averaged 79 bu/ac, 7 bu/ac less than the 3-year average. The Lamont nursery was located about 6 miles southeast of Lamont, WA (Gil White, cooperator).
2. This nursery was seeded on 8 September, 2008 following summer fallow. Seed was placed at an 85#/acre seeding rate using a hoe plot drill set on 9-inch spacing. Base fertilizer was 70#N, and 10#S applied in the fall and subsequent soil test indicated no additional nitrogen was needed for this hard wheat trial. Seeding conditions produced good stands that overwintered well. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 104% compared to previously used designs. There was a lot of variability at this site and much of it was accounted for by the lattice design, but the CV at 12% is still higher than desired. This also makes the LSD value of 13 bu/ac higher than desired and reflects the variability.
3. Yields ranged from 51 bu/ac to 102 bu/ac. Yield values within the LSD range of the highest yield are shown in bold and included five cultivars. Hard white variety names are designated by italicized print.
4. Test weights were good with an average of 62.4 lb/bu. Grain protein averaged 13.3% with a range of 11.9 to 16.1% and was high due to high fertility at this site. The average plant height was 29 inches.

2009 WSU EXTENSION HARD WINTER WHEAT NURSERY AT LIND, WA.

TABLE 48:

Variety Name *HDWH Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
PEREGRINE	- -		26	**35**	**62.5**	12.1	0	28	146
FINLEY	- -	35	28	**34**	**62.1**	13.5	0	27	147
FARNUM	- -	35	28	**33**	59.8	12.9	0	24	152
WA008070	- -		26	**33**	60.6	13.2	0	25	152
ELTAN	- -	35	29	**32**	59.1	11.6	0	23	152
BAUERMEISTER	- -	34	27	**32**	60.0	12.6	0	23	152
MDM	- -	35	27	**32**	61.0	12.1	0	24	151
WA008097	- -			**32**	59.6	12.4	0	23	151
WA008098	- -			**32**	60.9	13.1	0	22	151
UI DARWIN	- -	28	23	**30**	**62.1**	13.1	0	26	148
WA008096	- -			**30**	58.1	12.7	0	23	152
WA008068	- -		25	**29**	**61.7**	14.1	0	26	148
IDO651	- -			27	59.8	13.4	0	29	147
IDO658	- -			27	**62.2**	12.7	0	25	147
BOUNDARY	- -	30	24	25	60.2	13.4	0	23	149
AGRIPRO PALADIN	- -	27	22	25	61.4	14.1	0	23	148
WHETSTONE	- -	25	21	25	61.2	14.3	0	24	145
ACS 52025	- -	24	20	25	61.0	13.5	0	23	147
ML9W05-2506	- -		21	25	61.5	14.1	0	21	147
WA008061	- -		20	24	60.5	14.5	0	25	149
WA008095	- -			24	60.5	13.5	0	24	150
IDO683	- -			24	**62.9**	14.4	0	24	147
HATTON	- -	31	23	23	**61.9**	13.4	0	22	150
ACCIPITER	- -			23	61.2	13.3	0	18	150
WA008022	- -	33	22	22	57.4	13.0	0	24	151
NORRIS	- -			22	**61.8**	13.9	0	21	144
PALOMINO	- -	25	21	21	60.6	13.8	0	22	147
NUDAKOTA	- -		17	19	60.4	14.0	0	19	144
ML9W04-2543W	- -			13	60.5	13.5	0	23	148
ESPERIA	- -			13	60.0	15.3	0	18	144
NORWEST 553	- -			*					
EDDY	- -			*					
DECLO	- -			*					
BC002-2	- -			*					
MIETI	- -			*					
MOL	- -			*					
C.V. %	- -	17	19	19	1.6	3.2	- -	10	1
LSD '@ .10'	- -	3	4	7	1.3	0.6	- -	3	1
Average	- -	29	22	26	60.8	13.4	0	23	149
Highest	- -	35	29	35	62.9	15.3	0	29	152
Lowest	- -	22	15	13	57.4	11.6	0	18	144

***Insufficient plant stands for data collection.**

1. Grain yield in the Lind hard winter wheat trial averaged 26 bu/ac, off 11% from a 3-year average yield for this location. The Lind nursery was located on the WSU Lind Dryland Research Station north of the town of Lind.
2. This nursery was seeded on 4 September, 2008 following summer fallow. Seed was placed at a 45#/acre seeding rate using a deep furrow plot drill with split packer openers set on 15-inch spacing. Base fertilizer was 50#N and 10#S. Fall seeding conditions were dry and poor resulting in spotty emergence, and excess soil coverage due to deep planting with the plot drill caused many gaps in individual plots. Patchy stand establishment was typical of production fields in the area. When appropriate, gaps were subtracted from the plot areas to maintain equivalent comparisons. Because of missing plot values, this experiment was not analyzed as an alpha lattice experimental design, but as a randomized complete block design. Six entries did not have adequate plant stands for data collection.
3. Yields ranged from 13 bu/ac to 35 bu/ac. All yield values within the LSD range of the highest yield are shown in bold. The CV for yield was nearly 20%. When CV yield values are 20% or greater, results hold limited statistical validity and should be used with cautious interpretation. Hard white variety names are designated by italicized print.
4. Test weights were good with an average of 60.8 lb/bu. Grain protein averaged 13.4% with a range of 11.6 to 15.3%, and average plant height was 23 inches.

2009 WSU EXTENSION IRRIGATED HARD WINTER WHEAT NURSERY AT MOSES LAKE, WA.

TABLE 49:

Class	Variety Name	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
HRW	**ACS 52025**		193	201	**209**	62.7	11.4	57	36	150
SWH	**VW-30**				**199**	60.7	12.0	77	39	151
HDWH	***NUDAKOTA***			184	**197**	**63.2**	11.9	27	33	149
SWH	**VW-29**				**196**	60.9	11.6	53	38	154
HRW	**ML9W05-2506**		181	183	195	**63.7**	11.5	13	38	150
HDWH	***IDO651***		154	159	195	62.4	12.8	77	47	150
HRW	**WHETSTONE**	162	176	183	194	62.3	12.2	0	36	148
SWH	**STEPHENS**	163	175	185	193	58.7	10.7	3	37	152
HRW	**ACCIPITER**			176	191	62.5	11.2	40	38	151
SWH	**MJ-9**				188	57.7	10.8	27	34	154
HRW	**BC002-2**			188	188	61.8	12.3	53	35	150
HRW	**BOUNDARY**	163	165	165	185	61.0	11.8	43	36	153
SWH	**YIELDSTAR 45**				185	59.0	11.4	47	39	154
SWH	**WA008063**				183	59.1	11.2	0	33	151
SWH	**WA008065**				181	60.1	11.9	27	37	152
SRW	**DH99-55-2**				179	59.4	11.4	57	37	151
HRW	**EDDY**	154	164	167	174	**63.2**	11.5	7	36	151
HRW	**PEREGRINE**				174	**63.4**	11.6	43	42	150
HDWH	***PALOMINO***	161	165	168	173	61.8	11.9	0	31	149
HDWH	***UI DARWIN***		150	152	172	62.4	11.4	83	40	151
SWH	**WA008064**				172	58.9	11.4	0	33	150
HRW	**ESPERIA**				172	61.7	12.5	0	29	148
SWH	**FE-35**				168	59.1	11.3	23	35	156
HRW	**AGRIPRO PALADIN**	152	156	158	167	61.5	12.1	27	36	152
HRW	**BAUERMEISTER**	142	158	156	162	60.0	12.0	73	39	156
HRW	**IDO653**		147	143	158	**63.7**	13.6	50	45	150
HRW	**DECLO**	146	144	156	157	60.4	12.0	0	34	152
HRW	**NORWEST 553**	160	155	167	151	61.6	12.1	0	28	154
HDWH	***MOL***				120	62.6	13.2	0	28	149
HDWH	***MIETI***				26	57.4	14.0	0	20	152
	C.V. %	7	6	5	6	0.9	3.1	79	6	1
	LSD '@ .10'	6	7	8	14	0.8	0.5	33	3	2
	Average	156	163	170	173	61.1	11.9	30	36	151
	Highest	163	193	201	209	63.7	14.0	83	47	156
	Lowest	142	144	143	26	57.4	10.7	0	20	148

1. Grain yield in the Moses Lake irrigated hard winter wheat trial averaged 173 bu/ac and was 11% higher than the 5-year average for this site. This trial has a unique entry list and is not common to other hard winter wheat trials, but many of the entries overlap. There are hard red, hard white, soft white, and soft red entries in this trial. These classes are designated in the column before the names. The Moses Lake nursery was located about 6 miles southeast of Moses Lake, WA (Randee Bergeson, cooperator).
2. This nursery was seeded on 22 October, 2008 following a crop of onions. Seed was placed at an 85#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was 100#N, 25#K, and 25#P applied in the fall. An additional 100#N was applied through the sprinkler irrigation system during the growing season. Seeding conditions produced good stands that overwintered well with only noticeable winter injury to the most vulnerable varieties. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 67% compared to previously used designs.
3. Yields ranged from 26 bu/ac to 209 bu/ac, with a CV of 6%. Yield values within the LSD range of the highest yield are shown in bold and included four cultivars.
4. Most test weights were good with an average of 61.1 lb/bu. Lodging was highly variable with some cultivars expressing lodging early. Grain protein averaged 11.9% with a range of 10.7% to 14.0%. The average plant height was 36 inches.

2009 WSU EXTENSION HARD WINTER WHEAT NURSERY AT PULLMAN, WA.

TABLE 50:

Variety Name *HDWH Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
MDM	131	138	143	**150**	61.9	9.9	5	42	164
WA008022		130	141	**150**	60.5	9.9	0	46	162
ELTAN	133	143	149	**148**	61.2	9.5	22	42	164
WA008097				**141**	61.0	10.0	25	41	164
BAUERMEISTER	123	141	143	137	61.4	10.5	55	44	164
WA008095				135	62.3	11.2	35	48	161
WA008096				135	61.3	10.1	10	41	164
WA008068			141	134	62.4	11.4	22	50	161
WA008070			133	132	**62.6**	10.2	25	48	164
IDO658				132	**62.7**	10.5	12	39	161
NORWEST 553		128	126	131	62.4	10.7	0	33	159
BC002-2			135	129	**62.9**	11.0	0	34	156
ACS 52025		138	140	127	61.2	10.6	0	37	158
ACCIPITER				126	**62.7**	10.3	0	39	162
BOUNDARY	132	129	134	125	61.6	10.5	0	37	161
DECLO		113	118	125	62.5	10.7	0	34	161
IDO651				125	61.8	10.1	32	49	159
FARNUM	100	99	114	121	59.9	10.5	83	47	165
ML9W05-2506			135	121	62.2	11.3	0	36	158
ML9W04-2543W				121	61.5	10.2	0	40	159
NORRIS				118	62.5	10.7	0	42	155
MIETI				117	59.9	11.0	0	28	155
WA008098				116	62.5	10.7	77	47	163
EDDY	113	107	102	115	61.0	11.0	0	32	157
WHETSTONE	124	118	123	115	**62.6**	11.0	0	36	155
FINLEY		116	122	112	**63.1**	11.1	93	48	160
PEREGRINE			125	112	62.4	10.2	15	46	161
UI DARWIN		124	126	111	**63.1**	11.3	30	43	160
NUDAKOTA			117	107	61.6	10.5	0	31	155
PALOMINO		116	117	105	61.9	11.8	0	31	155
ESPERIA				104	60.7	11.1	0	30	154
AGRIPRO PALADIN	117	112	110	99	**62.9**	11.6	0	34	159
IDO683				98	62.4	11.8	95	48	160
HATTON	90	108	118	97	62.4	9.3	0	45	162
MOL				97	61.2	12.5	0	29	155
WA008061			93	86	60.9	12.4	92	50	162
C.V. %	11	9	7	7	0.7	3.5	88	4	1
LSD '@ .10'	7	7	8	11	0.6	0.5	24	2	1
Average	118	122	126	121	61.9	10.8	20	40	160
Highest	133	143	149	150	63.1	12.5	95	50	165
Lowest	90	99	93	86	59.9	9.3	0	28	154

1. Grain yield in the Pullman hard winter wheat trial averaged 121 bu/ac, 3 bu/ac higher than the 5-year average yield at this location. The Pullman nursery was located about 3 miles south east of Pullman, WA (Norm Druffel & Sons, cooperators).
2. This nursery was seeded on 3 October, 2008 following chickpeas. Seed was placed at an 85#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was 100#N, 20#P, 15#K, and 30#S (all per acre) applied in the fall and an additional 6#N and 20#P were applied as starter fertilizer. In the spring, an additional 44#N and 7#S were applied to the hard trial to increase protein. Seeding conditions produced good stands that overwintered well. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 13% compared to previously used designs.
3. Yields ranged from 86 bu/ac to 150 bu/ac, with a CV of 7%. Yield values within the LSD range of the highest yield are shown in bold and included four cultivars. Hard white variety names are designated by italicized print.
4. Test weights were good with an average of 61.9 lb/bu. Grain protein averaged 10.8% with a range of 9.3 to 12.5%. The average plant height was 40 inches.

2009 WSU EXTENSION HARD WINTER WHEAT NURSERY AT REARDAN, WA.

TABLE 51:

Variety Name *HDWH Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
MDM	- -	89	88	**92**	61.4	11.1	3	33	165
WA008098	- -			**90**	60.7	12.2	27	37	166
WA008068	- -		84	**87**	61.3	12.3	3	37	164
BOUNDARY	- -	89	88	**86**	60.6	12.7	0	28	162
WA008097	- -			**86**	60.6	11.7	10	35	165
WHETSTONE	- -	76	74	**82**	62.4	12.8	0	31	157
ACS 52025	- -	83	80	**82**	61.1	12.1	0	30	159
BAUERMEISTER	- -	81	77	80	61.4	11.2	10	32	164
DECLO	- -	77	83	80	62.1	12.8	0	27	161
WA008070	- -		76	80	61.7	11.2	7	38	166
NORWEST 553	- -	78	78	79	61.8	12.7	0	27	161
ML9W05-2506	- -		75	79	62.0	12.2	0	30	158
EDDY	- -	75	74	78	61.2	11.8	0	29	160
WA008095	- -			78	61.4	11.5	7	37	164
WA008096	- -			78	60.4	12.1	0	32	164
ML9W04-2543W	- -			77	61.3	11.7	0	33	159
PEREGRINE	- -		77	76	61.6	10.8	13	37	161
ELTAN	- -	79	75	75	60.6	11.2	0	32	165
HATTON	- -	75	72	75	**62.8**	12.4	3	37	163
IDO658	- -			75	62.0	11.2	3	34	161
ESPERIA	- -			75	60.5	12.0	0	26	157
WA008022	- -	75	71	74	59.8	10.6	0	32	162
ACCIPITER	- -			73	61.7	11.8	0	28	163
FINLEY	- -	73	72	72	62.1	11.7	37	37	162
FARNUM	- -	76	77	72	59.7	12.2	7	37	167
IDO651	- -			71	60.8	12.1	10	40	162
AGRIPRO PALADIN	- -	71	71	70	62.3	12.6	0	29	161
NORRIS	- -			69	61.9	11.8	0	33	158
WA008061	- -		68	68	60.7	12.9	37	39	164
BC002-2	- -		74	66	61.6	13.6	0	26	158
IDO683	- -			65	61.6	13.5	37	33	160
NUDAKOTA	- -		65	64	61.2	11.3	0	26	156
UI DARWIN	- -	64	59	54	62.2	11.9	17	34	159
MIETI	- -			53	59.8	13.3	0	21	157
PALOMINO	- -	62	56	52	61.1	13.4	0	26	158
MOL	- -			52	60.6	14.3	0	25	158
C.V. %	- -	10	12	11	0.5	4.5	166	6	1
LSD '@ .10'	- -	5	8	12	0.4	0.7	14	3	1
Average	- -	77	75	74	61.3	12.1	6	32	161
Highest	- -	89	88	92	62.8	14.3	37	40	167
Lowest	- -	62	56	52	59.7	10.6	0	21	156

1. Grain yield in the Reardan Hard winter wheat trial averaged 74 bu/ac, 3 bu/ac less than the 3-year average yield at this location. The Reardan nursery was located about 6 miles west of Reardan, WA (Hal Johnson, cooperator).
2. This nursery was seeded on 25 September, 2008 following summer fallow. Seed was placed at an 85#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was 85#N, 7#P, and 5#S applied in the fall. Spring soil test showed adequate fertilizer available for hard wheat and no additional spring fertilizer was applied. Seeding conditions produced good stands that overwintered well. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 28% compared to previously used designs.
3. Yields ranged from 52 bu/ac to 92 bu/ac. There was more variability than desired at this trial which contributed to a CV of 11%. Yield values within the LSD range of the highest yield are shown in bold and included eight cultivars. Hard white variety names are designated by italicized print.
4. Test weights were good with an average of 61.3 lb/bu. Grain protein averaged 12.1% with a range of 10.6 to 14.3%. The average plant height was 32 inches.

2009 WSU EXTENSION HARD WINTER WHEAT NURSERY AT RITZVILLE, WA.

TABLE 52:

Variety Name *HDWH Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
ELTAN	54	51	50	**72**	61.6	10.2	0	31	155
IDO658				**64**	**62.9**	10.5	0	28	149
MDM	51	45	46	62	61.8	9.8	0	31	155
WA008097				62	61.4	11.0	0	29	155
WA008068			45	61	62.2	11.2	0	34	150
WA008095				60	61.5	11.7	0	31	151
WA008096				60	61.2	10.6	0	28	157
FINLEY		43	45	59	**63.3**	11.2	0	37	148
BAUERMEISTER	51	45	45	59	61.1	11.7	0	30	156
WA008070			46	59	62.3	10.8	0	32	157
MIETI				*					
FARNUM	49	44	44	58	60.5	11.9	0	31	156
UI DARWIN		37	40	57	**62.9**	12.4	0	29	150
ML9W05-2506			42	57	62.4	11.3	0	29	151
WA008061			41	56	62.5	12.2	0	33	149
PEREGRINE			40	56	62.0	11.1	0	33	149
NUDAKOTA			41	56	61.7	10.9	0	27	150
NORRIS				56	62.7	11.2	0	32	149
WHETSTONE	39	36	39	55	62.3	11.9	0	28	149
HATTON	44	42	41	54	**64.0**	11.6	0	28	151
IDO683				54	**63.9**	11.8	0	31	149
BC002-2			41	53	62.0	11.7	0	26	150
ML9W04-2543W				53	61.6	10.6	0	30	150
ACS 52025		37	38	52	62.1	12.0	0	26	150
IDO651				52	61.4	11.4	0	37	148
WA008098				52	61.0	11.8	0	28	152
AGRIPRO PALADIN	44	40	41	51	62.7	11.5	0	28	151
PALOMINO		38	39	51	62.2	12.6	0	26	151
ESPERIA				51	60.6	11.1	0	23	151
BOUNDARY	50	43	40	50	61.0	11.3	0	25	151
EDDY	45	40	38	50	62.3	12.0	0	26	150
ACCIPITER				50	61.7	10.8	0	27	151
WA008022		44	40	46	61.0	11.6	0	26	153
NORWEST 553		34	35	43	60.6	11.3	0	24	152
DECLO		29	28	35	61.8	12.9	0	25	151
MOL				34	61.6	13.4	0	21	151
C.V. %	13	14	13	13	0.9	7.2	- -	7	1
LSD '@ .10'	3	4	5	9	1.3	1.1	- -	3	1
Average	47	41	41	54	62.0	11.5	0	29	151
Highest	54	51	50	72	64.0	13.4	0	37	157
Lowest	39	29	28	34	60.5	9.8	0	21	148

***Insufficient plant stands for data collection.**

1. Grain yield in the Ritzville hard winter wheat trial averaged 54 bu/ac, an average 15% higher than the cumulative 5-year average yield at this location. The Ritzville nursery was located about 4 miles west of Ritzville, WA (R. Jirava farm).
2. This nursery was seeded on 8 September, 2008 following summer fallow. Seed was placed at a 45#/acre seeding rate using a deep furrow plot drill with split packer openers set on 15-inch spacing. Base fertilizer was 60#N and 6#S. Fall seeding conditions were dry and occasional poor emergence and excess soil coverage due to deep planting with the plot drill caused some gaps in individual plots. When appropriate, gaps were subtracted from the plot areas to maintain equivalent comparisons. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 13% compared to previously used designs.
3. Yields ranged from 34 bu/ac to 72 bu/ac, with a CV of 13%. All yield values within the LSD range of the highest yield are shown in bold. Hard white variety names are designated by italicized print.
4. Test weights were good with an average of 62.0 lb/bu, grain protein averaged 11.5% with a range of 9.8 to 13.4%. Average plant height was 29 inches.

2009 WSU EXTENSION HARD WINTER WHEAT NURSERY AT ST. ANDREWS, WA.

TABLE 53:

Variety Name *HDWH Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
ACCIPITER				**38**	60.0	10.4	0	27	157
WA008095				34	59.4	11.4	0	28	156
NORWEST 553		27	31	32	61.1	11.1	0	24	154
PEREGRINE			38	31	60.8	9.7	0	35	153
FARNUM	54	43	42	30	57.5	10.5	0	33	160
WA008068			37	30	60.6	10.1	0	35	154
BAUERMEISTER	53	40	41	29	58.8	10.1	0	30	158
ML9W05-2506			32	29	60.9	11.0	0	25	154
WA008097				29	59.1	10.4	0	27	159
WA008061			38	28	60.2	11.4	0	32	155
BC002-2			35	28	60.5	11.6	0	27	151
WA008070			36	28	59.8	10.7	0	31	159
NUDAKOTA			36	28	60.7	11.6	0	26	150
IDO658				28	60.8	10.9	0	31	154
ML9W04-2543W				28	60.0	10.8	0	29	154
WA008098				28	58.9	11.1	0	29	159
ELTAN	59	41	41	27	58.2	9.7	0	31	158
IDO651				27	58.9	9.6	0	39	151
HATTON	45	36	33	26	**62.6**	10.3	0	29	157
DECLO		25	25	26	61.0	11.4	0	25	154
ACS 52025		39	35	26	61.0	10.5	0	30	151
NORRIS				26	61.5	10.8	0	28	151
FINLEY		40	36	25	61.5	10.6	0	32	153
BOUNDARY	58	43	43	25	59.4	10.4	0	27	154
WHETSTONE	45	34	32	25	61.4	11.3	0	27	150
WA008022		37	33	25	58.6	10.6	0	28	156
UI DARWIN		31	30	24	**61.9**	10.5	0	34	154
PALOMINO		31	30	24	60.9	12.4	0	26	151
IDO683				24	**62.1**	11.2	0	29	154
MDM	56	40	41	22	59.7	9.5	0	30	158
AGRIPRO PALADIN	43	32	31	21	61.5	12.8	0	27	155
MOL				21	60.1	15.5	0	19	153
WA008096				20	57.8	10.3	0	27	159
EDDY	47	30	27	19	59.9	12.9	0	26	153
ESPERIA				19	59.9	12.7	0	25	150
MIETI				18	58.3	13.8	0	18	153
C.V. %	19	17	17	12	0.9	5.6	- -	6	1
LSD '@ .10'	4	4	5	4	0.8	0.9	- -	3	1
Average	51	36	35	26	60.2	11.1	0	29	155
Highest	59	43	43	38	62.6	15.5	0	39	160
Lowest	43	25	25	18	57.5	9.5	0	18	150

1. Grain yield in the St. Andrews hard winter wheat trial averaged 26 bu/ac, 25 bu/ac less than the 5-year average. In the week prior to harvest, a hail storm struck the area and caused significant crop loss. The study site incurred hail loss that is hard to quantify, but was probably greater than 20%. Reported field losses from hail in the area were 20% to 50%. There is also the strong possibility that cultivars were impacted by hail differently based on head type, orientation, size, awns, etc. The St. Andrews nursery was located about 7 miles west of Coulee City, WA (Larry Tanneberg, cooperator).
2. This nursery was seeded on 5 September, 2008 following summer fallow. Seed was placed at a 45#/acre seeding rate using a deep furrow plot drill with split packer openers set on 15-inch spacing. Base fertilizer was 65#N and 8#S. Based on spring soil test results, there was no additional nitrogen fertilizer needed according to WSU fertilizer guidelines. Growing conditions caused some gaps in individual plots. When appropriate, gaps were subtracted from the plot areas to maintain equivalent comparisons. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 13% compared to previously used designs.
3. Yields ranged from 18 bu/ac to 38 bu/ac, with a CV of 12%. All yield values within the LSD range of the highest yield are shown in bold. Hard white variety names are designated by italicized print.
4. Test weights were good with an average of 60.2 lb/bu. Grain protein averaged 11.1% with a range of 9.5 to 15.5%. Average plant height was 29 inches.

2009 WSU EXTENSION HARD WINTER WHEAT NURSERY AT WALLA WALLA, WA.

TABLE 54:

Variety Name *HDWH Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
NUDAKOTA	--	--	124	**134**	60.9	11.6	20	34	146
NORWEST 553	--	--	128	**132**	60.9	12.6	3	32	148
BC002-2	--	--	125	**132**	**62.1**	12.7	0	33	147
ESPERIA	--	--		**131**	59.9	13.1	0	31	146
ML9W05-2506	--	--	134	**127**	**62.1**	12.5	0	34	148
WHETSTONE	--	--	129	**125**	61.0	12.8	17	36	146
PALOMINO	--	--	122	123	60.8	13.1	7	33	146
EDDY	--	--	128	121	61.8	12.6	3	35	146
AGRIPRO PALADIN	--	--	126	121	60.6	13.0	3	34	148
UI DARWIN	--	--	116	121	**62.6**	11.9	33	40	149
ACS 52025	--	--	124	121	60.1	12.2	70	35	145
MOL	--	--		121	**62.8**	14.4	7	32	146
DECLO	--	--	123	118	59.6	13.2	0	32	150
WA008068	--	--	123	117	61.8	13.0	30	42	150
ACCIPITER	--	--		117	60.6	12.5	0	36	151
ML9W04-2543W	--	--		117	58.4	12.1	27	39	149
NORRIS	--	--		115	**62.6**	11.9	3	43	144
IDO658	--	--		113	60.3	11.8	60	38	151
WA008096	--	--		112	58.5	12.0	3	39	155
BOUNDARY	--	--	123	110	60.1	12.4	23	36	150
BAUERMEISTER	--	--	113	109	58.4	12.8	87	38	154
PEREGRINE	--	--	112	105	61.8	12.5	30	42	149
ELTAN	--	--	112	104	57.7	12.8	77	37	154
MDM	--	--	109	104	58.8	12.6	73	39	155
WA008097	--	--		104	58.5	12.3	53	37	154
MIETI	--	--		104	59.4	13.8	3	30	147
WA008070	--	--	107	101	61.1	12.4	50	44	155
WA008098	--	--		94	60.1	13.1	73	40	154
HATTON	--	--	97	90	**63.0**	12.0	37	45	151
IDO651	--	--		90	59.7	13.3	93	46	149
FARNUM	--	--	93	88	58.3	13.8	73	42	155
WA008022	--	--	96	85	58.8	12.8	87	40	151
WA008095	--	--		83	59.5	13.5	88	43	152
IDO683	--	--		82	62.0	12.9	87	38	148
WA008061	--	--	81	77	60.9	13.9	87	43	151
FINLEY	--	--	80	71	60.4	13.0	83	41	149
C.V. %	--	--	8	7	1.2	3.5	39	3	1
LSD '@ .10'	--	--	8	10	1.0	1.0	20	2	1
Average	--	--	114	109	60.4	12.8	39	38	150
Highest	--	--	134	134	63.0	14.4	93	46	155
Lowest	--	--	80	71	57.7	11.6	0	30	144

1. Grain yield in the Walla Walla hard winter wheat trial averaged 109 bu/ac, 5 bu/ac less than the 2-year average. The Walla Walla nursery was located about 8 miles southwest of Waitsburg, WA about midway between Waitsburg and Walla Walla (Tom and Jason Beechinor, cooperators).
2. This nursery was seeded on 6 October, 2008 following summer fallow. Seed was placed at an 85#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer applied in the fall was 120#N, 15#P, and 15#S. Based on a spring soil test, 195#N and 29#S were applied in the spring. Seeding conditions produced good stands that overwintered well including cold sensitive varieties that were not affected by winter conditions. Alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 16% compared to previously used designs.
3. Yields ranged from 71 bu/ac to 134 bu/ac, with a CV of 7%. Yield values within the LSD range of the highest yield are shown in bold and included six varieties. Hard white varieties are listed in italicized print.
4. Test weights were good with an average of 60.4 lb/bu. Grain protein averaged 12.8% with a range of 11.6 to 14.4%. The average plant height was 38 inches, and lodging was high for many varieties.

2009 Soft White Spring Wheat

2009 Soft White Spring Wheat

TABLE 55:

STRIPE RUST INFECTION TYPE (IT) AND SEVERITY (%) ON CULTIVARS AND LINES IN THE SPRING EXTENSION DISEASE NURSERY (EXP32) (COORDINATED BY STEVE GUY AS SPRING WHEAT VARIETY TRIAL NURSERIES) AT SPILLMAN (LOC 1), PLANT PATH FARM (LOC 3) AND WHITLOW (LOC 4) FARMS NEAR PULLMAN, MT VERNON (LOC 5); WALLA WALLA (LOC 6); AND LIND (LOC 7)*, WA WHEN RECORDED AT THE INDICATED DATES AND STAGES OF PLANT GROWTH IN 2009 UNDER NATURAL INFECTION.

		Spillman Farm (Pullman)		Plant Path Farm (Pullman)		Whitlow Farm (Pullman)		Mt. Vernon, WA.				Walla Walla		Walla Walla	
		LOC1		LOC3		LOC4		LOC5				LOC6		LOC6	
		7/21/09		7/22/09		7/15/09		6/10/09		7/9/09		6/19/09		6/30/09	
		Milk		S. dough		Milk		Stem elong.		S. dough		L. flowering		Milk	
CLASS	**VARIETY**	**IT**	**%**	**IT**	**%**	**IT**	**%**	**IT**	**%**	**IT**	**%**	**IT**	**%**	**IT**	**%**
(S check)	**LEMHI**	**8**	**70**	**8**	**100**	**8**	**100**	**8**	**80**	**8**	**80**	**8**	**60**	**8**	**60**
SWH	**ALPOWA**	3	10	3	10	3	20	7	50	2	20	3	40	2	15
SWH	**ZAK**	8	70	8	100	8	80	8	20	8	30	8	40	8	40
SWH	**LOUISE**	2	5	2	20	2	1	5	30	2	20	2	10	0	0
SWH	**WAKANZ**	2	5	3	40	2	5	7	30	2	20	3	30	2	5
SWH	**NICK**	8	5	8	100	8	20	8	5	8	30	0	0	2	5
SWH	**BZ604-002**	8	20	8	100	8	70	3	5	2	20	8	20	8	5
SWH	**WHIT**	3	10	3	20	3	10	2	5	2	20	5	10	0	0
SWH	**WA008039**	3	1	3	30	2	5	2	10	2	20	2	2	2	2
SWH	**WA008039HF**	2	5	3	30	2	5	2	5	2	20	3	5	2	5
SWH	**WA008041**	2	2	2	1	2	1	2	5	2	10	0	0	0	0
SWH	**WA008108**	3	5	3	30	3	5	8	20	2	20	2	2	2	5
SWH	**WA008090**	2	5	3	10	2	5	3	10	2	10	2	2	0	0
SWH	**WA008089**	2	10	3	10	2	5	3	10	2	20	3	20	2	5
SWH	**WA008058**	2	10	2	30	2	5	2	5	2	10	3	10	8	50
SWH	**WA008059**	2	10	2	30	2	1	2	1	2	10	3	20	8	50
SWH	**WA008104**	2	5	3	10	3	1	2	5	2	10	5	30	3	5
SWH	**WA008112**	2	5	2	10	2	5	3	15	2	10	2	10	2	5
SWS	**WA008106**	2	2	3	20	3	1	7	5	6	30	2	2	2	2
SWH	**ALTURAS**	2,8	1	2	10	2	1	8	10	2	10	0	0	0	0
(S check)	**LEMHI**	**8**	**70**	**8**	**100**	**8**	**100**	**8**	**80**	**8**	**80**	**8**	**80**	**8**	**60**
SWH	**CATALDO**	2	5	3	20	5	5	8	5	2	5	8	5	0	0
WHCB	**EDEN**	3	5	3	30	3	5	8	10	2	20	8	20	3	15
WHCB	**WA008047**	2	2	2	5	2	1	2	5	2	10	0	0	3	5
WHCB	**EDEN (HSR)**	2	5	3	20	3	5	8	10	8	30	8	20	8	15
WHCB	**WA008047 (HSR)**	2	1	2	5	2	1	3	5	2	20	0	0	2	5

* No rust was observed in Lind (LOC 07).

** Infection Type (IT) was recorded based on the 0-9 scale with ITs 8 and 9 combined as 8 (the most susceptible reaction) in field data. Generally IT 0-3 are considered resistant, 4-6 intermediate, and 7-9 susceptible. Heterogenous reactions of an entry were indicated by two or more ITs separated by "," for most plants with the first IT and few plants with the second IT or connected with "-" for entries containing plants with continuous ITs. Entries with a high IT in the first note, but a low IT in the second note may indicate that they have high-temperature, adult-plant (HTAP) resistance.

2009 WSU SOFT WHITE SPRING WHEAT TRIAL SUMMARY
Precipitation Zone= >20"

TABLE 56:

VARIETY NAME (SWH Club in italics)	FARMINGTON	PULLMAN	AVERAGE YIELD	FARMINGTON	PULLMAN	AVERAGE TEST WEIGHT	FARMINGTON	PULLMAN	AVERAGE PROTEIN
	YIELD (BU/A)			TW (LBS/BU)			PROTEIN (%)		
WA008106	95	85	**90**	61.7	62.9	62.3	10.8	11.6	11.2
JD	99	80	**89**	62.3	63.6	**63.0**	11.3	11.7	11.5
WA008112	95	82	**89**	60.2	60.7	60.5	10.9	11.8	11.4
BABE	101	77	**89**	61.2	63.0	62.1	10.7	11.7	11.2
WA008041	94	81	**88**	60.2	60.7	60.5	11.5	11.5	11.5
JD (HSR)	96	80	**88**	61.9	63.8	**62.9**	11.3	12.3	11.8
LOUISE	94	80	**87**	60.8	62.3	61.6	10.9	11.5	11.2
WA008090	100	72	**86**	61.8	62.5	62.2	11.0	11.7	11.4
WA008089	95	77	**86**	61.7	63.2	62.5	10.5	11.3	**10.9**
ALTURAS	90	81	**86**	60.8	61.5	61.2	10.5	11.0	**10.8**
EDEN (HSR)	92	78	85	62.0	63.3	**62.7**	10.8	11.5	11.2
ALPOWA	90	78	84	61.8	62.6	62.2	11.1	11.5	11.3
EDEN	91	77	84	62.0	62.8	62.4	10.9	11.5	11.2
WA008039HF	88	80	84	61.1	63.4	62.3	11.0	12.0	11.5
WAKANZ	91	75	83	60.0	61.7	60.9	11.1	12.0	11.6
WHIT	92	74	83	61.0	61.7	61.4	11.0	11.9	11.5
BZ604-002	84	81	83	61.2	62.5	61.9	10.5	11.8	11.2
NICK	87	78	82	61.1	62.0	61.6	11.3	12.4	11.9
ZAK	87	77	82	60.9	61.4	61.2	10.9	12.0	11.5
WA008104	85	75	80	62.3	62.9	62.6	11.8	12.2	12.0
WA008108	85	72	79	61.7	62.7	62.2	11.7	12.3	12.0
CATALDO	77	73	75	59.8	60.4	60.1	11.1	11.7	11.4
WA008059	77	67	72	60.2	61.4	60.8	12.7	13.0	12.9
WA008058	78	64	71	60.5	62.2	61.4	12.6	13.0	12.8
	STATISTICS			STATISTICS			STATISTICS		
CV (%)	4	7	6	0.4	0.6	0.5	1.6	2.6	2.2
LSD (0.10)	5	7	5	0.4	0.5	0.3	0.2	0.4	0.2
Average	90	77	83	61.2	62.3	61.7	11.2	11.9	11.5
Highest	101	85	90	62.3	63.8	62.9	12.7	13.0	12.9
Lowest	77	64	71	59.8	60.4	60.1	10.5	11.0	10.8

1. Soft white spring wheat grain yield across two locations and 24 entries in the >20" precipitation zone averaged 83 bu/ac, 22 bu/ac higher than the 2008 average. These trials were analyzed as alpha lattice designs that overall helped to account for within-replication variation and reduced LSD and CV values. The highest value and other values within the LSD range are shown in bold for yield and test weight, but the lowest group is bolded for protein.
2. Club varieties are indicated by italicized print and the (HSR) designates a 20% higher seeding rate for two club varieties.
3. Test weight averaged 61.7 lb/bu across locations and entries, with a range of 60.1 lb/bu to 62.9 lb/bu. Test weights averaged over 1 lb/bu higher than last year. Grain protein averaged 11.5% with a range of 10.8% to 12.9%, 0.4 % higher than last year's average.

2009 WSU SOFT WHITE SPRING WHEAT TRIAL SUMMARY
Precipitation Zone= 16"- 20"

TABLE 57:

VARIETY NAME (SWH Club in italics)	YIELD (BU/A)						TEST WEIGHT (LBS/BU)						PROTEIN (%)					
	DAYTON	MAYVIEW	REARDAN	ST. JOHN	WALLA WALLA	AVERAGE YIELD	DAYTON	MAYVIEW	REARDAN	ST. JOHN	WALLA WALLA	AVERAGE TEST WEIGHT	DAYTON	MAYVIEW	REARDAN	ST. JOHN	WALLA WALLA	AVERAGE PROTEIN
BABE	42	60	63	91	104	**72**	58.2	61.8	62.9	62.2	60.6	61.1	12.7	11.4	12.7	10.7	10.4	11.6
ALTURAS	42	60	66	88	97	**71**	57.2	60.9	62.3	61.0	60.5	60.4	12.3	10.9	11.7	10.2	10.7	**11.2**
LOUISE	42	62	57	95	96	**70**	57.9	62.1	62.1	61.7	60.8	60.9	12.3	10.8	11.9	10.6	10.5	**11.2**
ZAK	45	58	63	88	95	**70**	56.7	60.6	61.6	61.4	60.1	60.1	13.5	12.3	12.8	11.2	11.2	12.2
WA008106	39	55	66	86	101	69	58.4	61.5	62.6	62.0	61.8	61.3	12.0	11.7	11.8	10.5	10.7	**11.3**
WA008089	40	57	56	89	103	69	57.7	62.0	63.1	62.7	60.7	61.2	12.3	11.0	11.6	10.4	10.6	**11.2**
WHIT	39	59	61	91	95	69	57.5	60.8	62.1	61.2	60.2	60.4	13.0	11.9	12.2	10.8	10.8	11.7
BZ604-002	44	54	61	92	95	69	59.1	62.0	62.2	62.2	61.8	61.5	13.3	12.1	12.6	10.7	11.0	11.9
JD (HSR)	43	55	58	89	98	69	59.5	62.5	63.1	63.4	62.2	**62.1**	13.2	11.6	12.9	11.3	11.4	12.1
WA008090	41	60	55	94	94	69	58.2	62.1	62.2	62.2	61.0	61.1	12.5	11.6	12.7	10.9	10.6	11.7
WAKANZ	48	57	50	88	99	68	56.5	60.4	60.5	61.5	59.4	59.7	12.7	11.9	13.1	11.1	10.9	11.9
WA008039HF	36	56	59	88	102	68	58.5	61.7	62.6	62.4	61.1	61.3	12.7	11.3	12.2	11.1	10.7	11.6
WA008112	43	60	53	89	92	67	54.9	60.3	61.3	60.8	58.3	59.1	12.5	11.2	12.1	10.7	10.8	11.5
JD	42	57	59	85	92	67	59.4	62.4	63.2	63.0	61.9	**62.0**	13.0	12.2	12.9	11.1	11.4	12.1
NICK	46	56	50	82	96	66	59.0	61.4	61.8	61.4	60.5	60.8	13.2	12.4	13.2	11.4	11.3	12.3
EDEN (HSR)	43	50	52	86	95	65	59.7	62.6	63.1	62.5	61.7	**61.9**	12.2	11.7	12.0	10.2	10.6	**11.3**
ALPOWA	34	55	54	83	99	65	57.6	62.2	61.9	62.3	60.9	61.0	12.5	11.6	12.8	10.9	10.6	11.7
EDEN	40	56	44	84	97	64	59.5	62.2	62.6	62.7	61.8	61.8	12.1	11.5	12.3	10.4	10.6	11.4
WA008104	34	51	58	84	92	64	58.6	62.5	63.3	62.8	61.3	61.7	12.9	12.4	12.7	11.5	11.1	12.1
WA008041	35	53	44	87	96	63	56.3	60.1	60.8	60.7	58.7	59.3	12.8	12.5	12.9	11.2	10.9	12.1
WA008108	39	53	52	78	93	63	59.3	62.2	62.3	62.3	61.0	61.4	13.6	12.8	13.3	11.1	11.2	12.4
CATALDO	35	51	56	76	89	61	57.4	60.5	61.4	60.3	60.2	60.0	13.2	11.6	12.3	11.0	11.2	11.9
WA008059	30	43	50	78	90	58	56.9	61.0	60.9	61.7	60.9	60.3	14.6	13.4	14.4	12.1	12.1	13.3
WA008058	26	46	39	73	89	55	57.1	60.9	60.8	61.8	60.9	60.3	14.5	13.6	14.3	12.3	12.1	13.4
	STATISTICS						STATISTICS						STATISTICS					
CV (%)	8	9	11	4	6	7	0.8	0.5	0.8	0.4	0.9	0.7	1.7	3.0	2.0	2.6	2.0	2.3
LSD (0.10)	4	7	8	5	8	3	0.6	0.4	0.7	0.3	0.7	0.3	0.3	0.5	0.4	0.4	0.3	0.2
Average	39	55	55	86	96	66	58.0	61.5	62.1	61.9	60.8	60.9	12.9	11.9	12.6	11.0	11.0	11.9
Highest	48	62	66	95	104	72	59.7	62.6	63.3	63.4	62.2	62.1	14.6	13.6	14.4	12.3	12.1	13.4
Lowest	26	43	39	73	89	55	54.9	60.1	60.5	60.3	58.3	59.1	12.0	10.8	11.6	10.2	10.4	11.2

1. Soft white spring wheat grain yield across five locations and 24 entries in the 16”- 20” precipitation zone averaged 66 bu/ac, 19 bu/ac higher than the 2008 average. These trials were analyzed as alpha lattice designs that overall helped to account for within replication variation and reduced LSD and CV values. The highest value and other values within the LSD range are shown in bold for yield and test weight, but the lowest group is bolded for protein.
2. Club varieties are indicated by italicized print and the (HSR) designates a 20% higher seeding rate for two club varieties. The HSR entries averaged 1.5 bu/ac higher yield than those varieties seeded at the conventional seeding rate. A larger yield advantage for higher club seeding rate was found in the 12”-16” average data.
3. Test weight averaged 60.9 lb/bu across locations and entries, with a range of 59.1 lb/bu to 62.1 lb/bu. Test weights averaged 1.2 lb/bu higher than last year. Grain protein averaged 11.9% with a range of 11.2% to 13.4%, nearly equal to last year’s average of 11.7%.

2009 WSU SOFT WHITE SPRING WHEAT TRIAL SUMMARY
Precipitation Zone= 12"- 16"

TABLE 58:

VARIETY NAME (SWH Club in italics)	YIELD (BU/A) ALMIRA	ENDICOTT	LAMONT	AVERAGE YIELD	TW (LBS/BU) ALMIRA	ENDICOTT	LAMONT	AVERAGE TEST WEIGHT	PROTEIN (%) ALMIRA	ENDICOTT	LAMONT	AVERAGE PROTEIN
WA008089	65	68	52	**62**	60.5	62.3	60.7	**61.2**	11.1	11.3	11.0	**11.2**
BZ604-002	62	67	51	**60**	60.5	61.9	60.4	60.9	11.6	12.5	11.7	11.9
LOUISE	65	64	52	**60**	60.2	61.5	60.2	60.6	11.4	12.0	11.3	11.6
NICK	64	63	53	**60**	60.8	61.3	60.1	60.7	12.0	12.8	11.9	12.2
WA008106	61	67	49	**59**	60.6	61.6	60.7	61.0	11.3	11.8	11.3	11.5
JD (HSR)	60	64	50	58	61.4	62.2	60.6	**61.4**	11.9	12.9	11.9	12.2
WA008090	57	61	55	58	59.9	61.3	60.8	60.7	11.1	12.0	11.0	11.4
WA008112	58	72	43	58	56.7	59.7	58.3	58.2	11.8	11.5	11.1	11.5
ZAK	57	65	51	58	59.1	60.7	59.9	59.9	11.9	12.8	11.9	12.2
ALTURAS	55	74	43	58	59.5	61.2	59.4	60.0	11.4	11.6	10.7	**11.2**
WAKANZ	58	69	46	57	58.5	60.1	59.1	59.2	11.9	12.1	11.9	12.0
EDEN (HSR)	70	58	44	57	60.5	62.1	60.5	61.0	11.2	11.8	11.2	11.4
BABE	63	60	47	57	61.1	60.6	60.5	60.7	11.5	12.2	10.9	11.5
WHIT	65	65	39	56	59.7	60.6	59.2	59.8	11.6	12.1	11.7	11.8
WA008039HF	64	58	45	56	61.3	61.2	60.1	60.9	11.6	12.4	11.4	11.8
WA008041	61	60	46	56	58.0	59.8	58.8	58.9	11.7	12.9	11.8	12.1
CATALDO	53	66	47	55	58.8	60.9	59.1	59.6	11.9	12.2	11.3	11.8
EDEN	65	57	42	54	60.3	62.1	60.5	61.0	11.2	11.9	11.4	11.5
JD	58	59	44	54	60.9	62.1	60.5	**61.2**	11.6	12.7	11.6	12.0
WA008104	61	59	41	53	60.0	62.1	60.9	61.0	11.9	12.6	11.6	12.0
WA008059	55	54	49	53	59.2	59.5	59.1	59.3	12.9	14.3	13.0	13.4
ALPOWA	57	60	40	52	59.8	61.2	60.2	60.4	11.2	12.9	11.2	11.8
WA008108	58	54	41	51	61.3	61.2	60.6	61.0	11.7	12.7	11.8	12.1
WA008058	54	48	48	50	59.7	60.0	59.7	59.8	12.8	14.5	12.8	13.4
	STATISTICS				**STATISTICS**				**STATISTICS**			
CV (%)	8	8	13	9	1.1	0.8	0.7	0.9	2.5	1.8	3.3	2.6
LSD (0.10)	6	7	8	4	0.9	0.7	0.6	0.4	0.4	0.3	0.5	0.2
Average	60	62	47	56	59.9	61.1	60.0	60.4	11.7	12.4	11.6	11.9
Highest	70	74	55	62	61.4	62.3	60.9	61.4	12.9	14.5	13.0	13.4
Lowest	53	48	39	50	56.7	59.5	58.3	58.2	11.1	11.3	10.7	11.2

1. Soft white spring wheat grain yield across three locations and 24 entries in the 12”-16” precipitation zone averaged 56 bu/ac, 10 bu/ac higher than the 2008 average. These trials were analyzed as alpha lattice designs that overall helped to account for within-replication variation and reduced LSD and CV values. The highest value and other values within the LSD range are shown in bold for yield and test weight, but the lowest group is bolded for protein.
2. Club varieties are indicated by italicized print and the (HSR) designates a 20% higher seeding rate for two club varieties. The HSR entries averaged 3.5 bu/ac higher yield than those varieties seeded at the conventional seeding rate. This yield difference due to seeding rate supports the hypothesis that club cultivars tend to tiller less and need higher plant populations to produce to their capability.
3. Test weight averaged 60.4 lb/bu across locations and entries, with a range of 58.2 lb/bu to 61.4 lb/bu. Test weights averaged 0.3 lb/bu higher than last year. Grain protein averaged 11.9% with a range of 11.2% to 13.4%, 0.3% lower than last year’s average.

2009 WSU SOFT WHITE SPRING WHEAT TRIAL SUMMARY
Precipitation Zone= <12"

TABLE 59:

VARIETY NAME (SWH Club in italics)	BICKLETON	CONNELL	HORSE HEAVEN	LIND	AVERAGE YIELD	BICKLETON	CONNELL	HORSE HEAVEN	LIND	AVERAGE TEST WEIGHT	BICKLETON	CONNELL	HORSE HEAVEN	LIND	AVERAGE PROTEIN
	YIELD (BU/A)					TW (LBS/BU)					PROTEIN (%)				
BZ604-002	27	30	15	31	**26**	61.3	62.2	60.6	61.5	61.4	11.8	12.5	12.6	12.3	12.3
WA008090	24	30	17	30	**25**	60.4	62.0	60.9	62.2	61.4	11.6	12.6	12.1	12.3	12.2
ALTURAS	28	30	14	28	**25**	59.4	61.7	60.2	61.3	60.7	11.5	12.6	12.6	12.5	12.3
LOUISE	26	31	14	28	**25**	59.9	61.6	60.1	61.7	60.8	11.7	12.5	13.2	11.8	12.3
JD (HSR)	28	30	13	27	**25**	61.6	62.9	61.2	62.5	**62.1**	12.1	12.7	13.1	12.4	12.6
WA008106	26	31	13	29	**25**	60.7	62.6	60.6	62.1	61.5	11.3	12.3	12.5	12.3	12.1
NICK	27	29	14	27	24	60.3	61.6	60.7	61.1	60.9	12.2	13.7	13.5	13.0	13.1
WA008089	25	29	13	30	24	60.8	62.3	60.4	62.4	61.5	11.0	12.2	12.7	11.7	**11.9**
JD	26	29	14	27	24	60.9	63.0	61.6	62.4	**62.0**	12.0	12.8	12.9	12.5	12.6
ZAK	27	28	14	27	24	61.1	61.7	61.2	60.8	61.2	12.7	13.4	13.3	13.2	13.2
WA008112	27	27	13	28	24	58.2	59.6	59.4	61.0	59.6	12.2	12.8	13.1	12.2	12.6
WHIT	26	26	15	28	24	59.7	61.6	59.7	60.9	60.5	12.0	13.4	13.0	12.2	12.7
WA008104	26	28	15	26	24	60.9	63.4	60.8	62.4	**61.9**	12.4	13.5	13.0	13.1	13.0
EDEN	23	28	17	25	24	61.1	63.0	62.0	62.2	**62.1**	11.3	12.2	12.0	12.0	**11.9**
WA008039HF	25	29	14	26	23	60.8	62.5	59.8	61.9	61.3	12.0	13.4	13.1	13.0	12.9
EDEN (HSR)	24	28	16	26	23	60.5	62.7	61.9	62.1	61.8	11.5	12.5	12.5	11.9	12.1
BABE	25	26	13	27	23	61.3	62.6	60.3	61.7	61.5	12.0	13.4	13.2	12.8	12.9
WAKANZ	25	27	13	25	22	59.3	60.7	59.1	60.4	59.9	12.1	13.7	13.4	13.1	13.1
CATALDO	21	28	13	24	22	58.2	60.3	58.8	59.7	59.3	12.2	13.2	13.3	12.6	12.8
ALPOWA	21	25	14	27	21	61.0	62.8	61.4	61.8	61.8	12.1	13.3	13.1	12.8	12.8
WA008108	21	26	13	24	21	61.5	63.0	61.1	62.3	**62.0**	12.7	14.0	13.7	13.3	13.4
WA008059	21	25	14	24	21	60.6	61.3	61.7	60.4	61.0	13.9	14.2	13.6	13.6	13.8
WA008058	19	24	15	23	20	60.8	61.5	62.1	60.7	61.3	14.1	14.6	13.9	13.6	14.1
WA008041	19	24	13	23	20	60.1	61.1	60.7	60.1	60.5	12.7	13.6	12.9	13.2	13.1
	STATISTICS					STATISTICS					STATISTICS				
CV (%)	14	6	12	6	10	1.0	0.3	1.0	0.5	0.8	3.5	1.5	3.1	1.9	2.6
LSD (0.10)	5	2	2	2	2	0.8	0.3	0.9	0.4	0.3	0.6	0.3	0.6	0.3	0.2
Average	25	28	14	27	23	60.4	62.0	60.7	61.5	61.2	12.1	13.1	13.0	12.6	12.7
Highest	28	31	17	31	26	61.6	63.4	62.1	62.5	62.1	14.1	14.6	13.9	13.6	14.0
Lowest	19	24	13	23	20	58.2	59.6	58.8	59.7	59.3	11.0	12.2	12.0	11.7	11.9

1. Soft white spring wheat grain yield across four locations and 24 entries in the <12" precipitation zone averaged 23 bu/ac, 2 bu/ac lower than the 2008 average. These trials were analyzed as alpha lattice designs that overall helped to account for within-replication variation and reduced LSD and CV values. The highest value and other values within the LSD range are shown in bold for yield and test weight, but the lowest group is bolded for protein.
2. Club varieties are indicated by italicized print and (HSR) designates a 20% higher seeding rate for two club varieties.
3. Test weight averaged 61.2 lb/bu across locations and entries, with a range of 59.3 lb/bu to 62.1 lb/bu. Test weights averaged 1.4 lb/bu higher than last year. Grain protein averaged 12.7% with a range of 11.9% to 14.0%, 0.4% lower than last year's average.

2009 WSU EXTENSION SOFT WHITE SPRING WHEAT NURSERY AT ALMIRA, WA.

TABLE 60: Variety Name *Club Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
EDEN (HSR)				**70**	60.5	11.2	29	175
LOUISE	57	54	60	**65**	60.2	11.4	34	176
EDEN	54	53	61	**65**	60.3	11.2	29	175
WHIT		54	62	**65**	59.7	11.6	30	172
WA008089			63	**65**	60.5	11.1	30	176
NICK	59	57	62	64	**60.8**	12.0	29	173
WA008039HF				64	**61.3**	11.6	30	173
BABE		56	62	63	**61.1**	11.5	31	176
BZ604-002				62	60.5	11.6	30	172
WA008041		53	60	61	58.0	11.7	32	177
WA008104				61	60.0	11.9	33	174
WA008106				61	**60.6**	11.3	33	172
JD (HSR)				60	**61.4**	11.9	30	174
WAKANZ	53	52	57	58	58.5	11.9	29	178
JD		54	59	58	**60.9**	11.6	30	174
WA008112				58	56.7	11.8	31	177
WA008108				58	**61.3**	11.7	33	171
ALPOWA	54	52	57	57	59.8	11.2	31	178
ZAK	48	50	55	57	59.1	11.9	31	176
WA008090			57	57	59.9	11.1	34	176
ALTURAS	51	50	55	55	59.5	11.4	29	175
WA008059		49	53	55	59.2	12.9	30	173
CATALDO		47	53	53	58.8	11.9	28	170
WA008058			54	53	59.7	12.8	31	173
C.V. %	8	7	7	8	1.1	2.5	4	0
LSD '@ .10'	3	3	4	6	0.9	0.4	2	1
Average	54	52	58	60	59.9	11.7	31	174
Highest	59	57	63	70	61.4	12.9	34	178
Lowest	48	47	53	53	56.7	11.1	28	170

1. Grain yield in the Almira soft white spring wheat trial averaged 60 bu/ac, 10% higher than the average 5-year yield for this location. The Almira nursery was located about 10 miles north of Almira, WA (Dan McKay, cooperator).
2. This nursery was seeded on 20 April, 2009 following summer fallow. Seed was placed at a 60#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was applied in the fall as 80#N and 10#S per acre, and a spring soil test showed more than adequate available nutrients. Spring seeding conditions were rated 7 on a 1-10 scale and spring rain made the outlook good for the spring crop. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 16% compared to an RCBD design.
3. Yields ranged from 53 bu/ac to 70 bu/ac, with a CV of 8%. Yield values within the LSD range of the highest yield are shown in bold and 7 of the 24 entries are in this group. Club entries are listed in italicized print and the (HSR) designation is a 20% higher seeding rate for the club entries. The HSR treatment appears to have increased yield for both club varieties in the trial. Club varieties tend to have low tillering rates and the higher seeding rate might add heads that contribute to yield.
4. Test weights were good with an average of 59.9 lb/bu. Grain protein averaged 11.7% with a range of 11.1% to 12.9% and is higher than desired due to high available N at this site. The average plant height was 31 inches.

2009 WSU EXTENSION SOFT WHITE SPRING WHEAT NURSERY AT BICKLETON, WA.

TABLE 61: Variety Name *Club Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT
ALTURAS	- -	- -	29	**28**	59.4	11.5	21
JD (HSR)	- -	- -		**28**	**61.6**	12.1	20
ZAK	- -	- -	33	**27**	**61.1**	12.7	21
NICK	- -	- -	38	**27**	60.3	12.2	20
WA008112	- -	- -		**27**	58.2	12.2	22
BZ604-002	- -	- -		**27**	**61.3**	11.8	22
LOUISE	- -	- -	34	**26**	59.9	11.7	23
WHIT	- -	- -	35	**26**	59.7	12.0	20
JD	- -	- -	32	**26**	**60.9**	12.0	20
WA008104	- -	- -		**26**	**60.9**	12.4	21
WA008106	- -	- -		**26**	60.7	11.3	23
WAKANZ	- -	- -	33	**25**	59.3	12.1	19
BABE	- -	- -	32	**25**	**61.3**	12.0	21
WA008089	- -	- -	34	**25**	60.8	11.0	22
WA008039HF	- -	- -		**25**	60.8	12.0	23
WA008090	- -	- -	30	**24**	60.4	11.6	21
EDEN	- -	- -	31	23	**61.1**	11.3	20
EDEN (HSR)	- -	- -		23	60.5	11.5	19
ALPOWA	- -	- -	29	21	**61.0**	12.1	20
CATALDO	- -	- -	28	21	58.2	12.2	20
WA008059	- -	- -	28	21	60.6	13.9	22
WA008108	- -	- -		21	**61.5**	12.7	21
WA008041	- -	- -	29	19	60.1	12.7	21
WA008058	- -	- -	28	19	60.8	14.1	22
C.V. %	- -	- -	14	14	1.0	3.5	7
LSD '@ .10'	- -	- -	4	5	0.8	0.6	2
Average	- -	- -	31	25	60.4	12.1	21
Highest	- -	- -	38	28	61.6	14.1	23
Lowest	- -	- -	28	19	58.2	11.0	19

1. Grain yield in the Bickleton soft white spring wheat trial averaged 25 bu/ac, about 13 bu/ac lower than the 2008 average yield for this location. The Bickleton nursery was located about 3 miles east of Bickleton, WA (Steve Matsen, cooperator).
2. This nursery was seeded on 21 April, 2009 following spring wheat. Seed was placed at a 60#/acre seeding rate using a no-till plot drill fitted with Cross-slot openers set on 10-inch spacing. Spring seeding conditions were good with moisture rated 7 out of 10. Base fertilizer was 30#N, 5#P, and 5#S per acre applied in the spring. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 92% compared to an RCBD design.
3. Yields ranged from 19 bu/ac to 28 bu/ac. The CV was larger than desirable, 14%, but is not uncommon in low yielding trials. Yield values within the LSD range of the highest yield are shown in bold and 16 of the 24 entries are in this group. This large number of cultivars in the top LSD group shows that there are many great producing soft white cultivars. Club entries are listed in italicized print and the (HSR) designation is a 20% higher seeding rate for the club entries.
4. Test weights were good with an average of 60.4 lb/bu. Grain protein averaged 12.1% with a range of 11.0% to 14.1%. The average plant height was 21 inches.

2009 WSU EXTENSION SOFT WHITE SPRING WHEAT NURSERY AT CONNELL, WA.

TABLE 62: Variety Name *Club Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
LOUISE	29	26	24	**31**	61.6	12.5	24	153
WA008106				**31**	62.6	12.3	24	152
ALTURAS	27	25	24	**30**	61.7	12.6	19	153
WA008090			29	**30**	62.0	12.6	24	154
BZ604-002				**30**	62.2	12.5	22	152
JD (HSR)				**30**	62.9	12.7	22	154
NICK	29	26	24	29	61.6	13.7	20	153
JD		24	24	29	63.0	12.8	22	154
WA008089			23	29	62.3	12.2	23	154
WA008039HF				29	62.5	13.4	21	153
ZAK	26	25	25	28	61.7	13.4	23	155
EDEN	26	24	23	28	63.0	12.2	19	153
CATALDO		23	23	28	60.3	13.2	20	152
WA008104				28	**63.4**	13.5	24	152
EDEN (HSR)				28	62.7	12.5	19	153
WAKANZ	27	25	23	27	60.7	13.7	21	156
WA008112				27	59.6	12.8	22	155
WHIT		22	22	26	61.6	13.4	20	151
BABE		23	21	26	62.6	13.4	21	153
WA008108				26	63.0	14.0	22	151
WA008059		21	21	25	61.3	14.2	23	153
ALPOWA	25	23	21	24	62.8	13.3	22	155
WA008041		22	22	24	61.1	13.6	21	155
WA008058			20	24	61.5	14.6	22	153
C.V. %	9	9	10	6	0.3	1.5	5	1
LSD '@ .10'	1	2	2	2	0.3	0.3	1	1
Average	27	24	23	28	62.0	13.1	22	153
Highest	29	26	29	31	63.4	14.6	24	156
Lowest	25	21	20	24	59.6	12.2	19	151

1. Grain yield in the Connell soft white spring wheat trial averaged 28 bu/ac, just 1 bu/ac more than the average 5-year yield for this location. The Connell spring nursery was located about 5 miles east of Connell, WA (D. Bauermeister farm).
2. This nursery was seeded on 18 March, 2009 following summer fallow. Seed was placed at a 60#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was 45#N and 15#S and soil test analysis showed an additional 165#N available. Spring seeding conditions were adequate and some spring rain made the outlook good for the spring crop until heading, when lack of moisture limited yield. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 21% compared to an RCBD design.
3. Yields ranged from 24 bu/ac to 31 bu/ac, with a CV of 6%. Yield values within the LSD range of the highest yield are shown in bold and 8 of the 24 entries are in this group. Club entries are listed in italicized print and the (HSR) designation is a 20% higher seeding rate for the club entries.
4. Test weights were good with an average of 62.0 lb/bu. Grain protein averaged 13.1% with a range of 12.2 to 14.6% and is higher than desired due to yield level and the available N at this site. The average plant height was 22 inches.

2009 WSU EXTENSION SOFT WHITE SPRING WHEAT NURSERY AT DAYTON, WA.

TABLE 63: Variety Name *Club Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
WAKANZ	56	62	55	**48**	56.5	12.7	25	168
NICK	54	57	52	**46**	59.0	13.2	24	163
ZAK	52	57	51	**45**	56.7	13.5	25	168
BZ604-002				44	59.1	13.3	24	164
WA008112				43	54.9	12.5	26	168
EDEN (HSR)				43	**59.7**	12.2	22	166
JD (HSR)				43	**59.5**	13.2	27	166
LOUISE	52	58	52	42	57.9	12.3	27	166
ALTURAS	49	51	47	42	57.2	12.3	23	166
BABE		55	48	42	58.2	12.7	24	167
JD		56	50	42	**59.4**	13.0	23	165
WA008090			52	41	58.2	12.5	26	168
EDEN	50	54	47	40	**59.5**	12.1	23	165
WA008089			49	40	57.7	12.3	26	168
WHIT		56	51	39	57.5	13.0	24	165
WA008108				39	**59.3**	13.6	24	165
WA008106				39	58.4	12.0	26	165
WA008039HF				36	58.5	12.7	24	165
CATALDO		48	41	35	57.4	13.2	21	163
WA008041		54	46	35	56.3	12.8	26	167
ALPOWA	50	54	45	34	57.6	12.5	25	168
WA008104				34	58.6	12.9	25	165
WA008059		50	42	30	56.9	14.6	24	165
WA008058			40	26	57.1	14.5	26	165
C.V. %	7	7	6	8	0.8	1.7	6	0
LSD '@ .10'	2	3	3	4	0.6	0.3	2	1
Average	52	55	48	39	58.0	12.9	25	166
Highest	56	62	55	48	59.7	14.6	27	168
Lowest	49	48	40	26	54.9	12.0	21	163

1. Grain yield in the Dayton soft white spring wheat trial averaged 39 bu/ac, 13 bu/ac lower than the average 5-year yield for this location. The low yields at this site indicate below average conditions that were evident from emergence through harvest. Soil compaction is suspected to have contributed to limiting yield potential. The Dayton nursery was located about 6 miles north of Dayton, WA (Jay Penner, cooperator).
2. This nursery was seeded on 16 April, 2009 following winter wheat. Seed was placed at an 80#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was applied at 137#N, 10#P and 15#S per acre, and a spring soil test showed more than adequate available nutrients. Spring seeding conditions were good with moisture rated 6 out of 10 and spring rain made the early outlook good for the spring crop. For grain yield, the alpha lattice experimental design improved variation allocation during statistical analysis and the CV by 51% compared to an RCBD design.
3. Yields ranged from 26 bu/ac to 48 bu/ac, with a CV of 8%. Yield values within the LSD range of the highest yield are shown in bold and 3 of the 24 entries are in this group. Club entries are listed in italicized print and the (HSR) designation is a 20% higher seeding rate for the club entries.
4. Average test weights were lower than usual at 58.0 lb/bu. Grain protein was high and averaged 12.9% with a range of 12.0% to 14.6%. The average plant height was 25 inches, showing the limited plant growth at this site. No lodging occurred.

2009 WSU EXTENSION SOFT WHITE SPRING WHEAT NURSERY AT ENDICOTT, WA.

TABLE 64: Variety Name *Club Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
ALTURAS	- -	62	69	**74**	61.2	11.6	28	165
WA008112	- -			**72**	59.7	11.5	30	168
WAKANZ	- -	58	62	**68**	60.1	12.1	28	169
WA008089	- -		61	**68**	**62.3**	11.3	31	167
BZ604-002	- -			67	**61.9**	12.5	30	165
WA008106	- -			67	61.6	11.8	33	165
CATALDO	- -	57	62	66	60.9	12.2	26	163
ZAK	- -	58	62	65	60.7	12.8	30	168
WHIT	- -	59	64	65	60.6	12.1	30	164
LOUISE	- -	60	65	64	61.5	12.0	34	166
JD (HSR)	- -			64	**62.2**	12.9	32	166
NICK	- -	58	62	63	61.3	12.8	30	165
WA008090	- -		65	61	61.3	12.0	32	166
ALPOWA	- -	58	61	60	61.2	12.9	28	167
WA008041	- -	54	56	60	59.8	12.9	30	166
BABE	- -	55	57	59	60.6	12.2	29	165
JD	- -	58	61	59	**62.1**	12.7	31	166
WA008104	- -			59	**62.1**	12.6	32	166
WA008039HF	- -			58	61.2	12.4	27	165
EDEN (HSR)	- -			58	**62.1**	11.8	28	165
EDEN	- -	54	55	57	**62.1**	11.9	27	165
WA008059	- -	52	53	54	59.5	14.3	30	164
WA008108	- -			54	61.2	12.7	29	164
WA008058	- -		51	48	60.0	14.5	30	165
C.V. %	- -	7	8	8	0.8	1.8	4	0
LSD '@ .10'	- -	3	4	7	0.7	0.3	2	1
Average	- -	57	60	62	61.1	12.4	30	166
Highest	- -	62	69	74	62.3	14.5	34	169
Lowest	- -	52	51	48	59.5	11.3	26	163

1. Grain yield in the Endicott soft white spring wheat trial averaged 62 bu/ac, about 8% higher than the average 3-year yield for this location. The Endicott nursery was located about 10 miles west of Colfax, WA (Mark Richter, cooperator).
2. This nursery was seeded on 7 April, 2009 following winter wheat. Seed was placed at an 80#/acre seeding rate using a no-till, Cross-slot plot drill set on 10-inch spacing. Base fertilizer was applied as 85#N, 16#P, and 16#S per acre, and a spring soil test showed more than adequate available nutrients. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 56% compared to an RCBD design.
3. Yields ranged from 48 bu/ac to 74 bu/ac, with a CV of 8%. Yield values within the LSD range of the highest yield are shown in bold and 4 of the 24 entries are in this group. Club entries are listed in italicized print and the (HSR) designation is a 20% higher seeding rate for the club entries. The HSR treatment appears to have increased yield for both club varieties in the trial. Club varieties tend to have low tillering rates and the higher seeding rate might add heads that contribute to yield.
4. Test weights were good with an average of 61.1 lb/bu. Grain protein averaged 12.4% with a range of 11.3% to 14.5% and is higher than desired due to high available N at this site. The average plant height was 30 inches.

2009 WSU EXTENSION SOFT WHITE SPRING WHEAT NURSERY AT FARMINGTON, WA.

TABLE 65: Variety Name *Club Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
BABE		87	81	**101**	61.2	10.7	31	185
WA008090			82	**100**	61.8	11.0	33	185
JD		86	79	**99**	**62.3**	11.3	31	184
JD (HSR)				96	61.9	11.3	30	182
WA008089			78	95	61.7	10.5	32	185
WA008112				95	60.2	10.9	30	186
WA008106				95	61.7	10.8	33	182
LOUISE	84	85	77	94	60.8	10.9	32	185
WA008041		82	73	94	60.2	11.5	31	186
EDEN (HSR)				92	**62.0**	10.8	29	181
WAKANZ	82	83	75	91	60.0	11.1	29	187
EDEN	80	84	78	91	**62.0**	10.9	28	182
WHIT		82	74	91	61.0	11.0	29	182
ALPOWA	81	83	75	90	61.8	11.1	30	187
ALTURAS	75	79	70	90	60.8	10.5	28	184
WA008039HF				88	61.1	11.0	29	183
ZAK	78	84	75	87	60.9	10.9	30	186
NICK	83	82	75	87	61.1	11.3	27	182
WA008108				85	61.7	11.7	29	181
WA008104				85	**62.3**	11.8	30	183
BZ604-002				84	61.2	10.5	29	183
WA008058			69	78	60.5	12.6	30	183
CATALDO		72	63	77	59.8	11.1	27	180
WA008059		79	69	77	60.2	12.7	29	182
C.V. %	6	5	5	4	0.4	1.6	4	0
LSD '@ .10'	3	3	4	5	0.4	0.2	1	1
Average	80	82	75	90	61.2	11.2	30	184
Highest	84	87	82	101	62.3	12.7	33	187
Lowest	75	72	63	77	59.8	10.5	27	180

1. Grain yield in the Farmington soft white spring wheat trial averaged 90 bu/ac, 10 bu/ac higher than the 5-year yield average for this location. The Farmington nursery was located about 4 miles south of Farmington, WA (Bruce Nelson, cooperator).
2. This nursery was seeded on 4 May, 2009 following winter wheat. Seed was placed at an 80#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was applied at 115#N and 17#S per acre. Spring seeding conditions were good with moisture rated 9 out of 10 and spring rain made the early outlook good for the spring crop. For grain yield, the alpha lattice experimental design improved variation allocation during statistical analysis and the CV by 25% compared to an RCBD design.
3. Yields ranged from 77 bu/ac to 101 bu/ac, with a CV of 4%. Yield values within the LSD range of the highest yield are shown in bold and 5 of the 24 entries are in this group. Club entries are listed in italicized print and the (HSR) designation is a 20% higher seeding rate for the club entries.
4. Average test weights were 61.2 lb/bu. Grain protein was good and averaged 11.2% with a range of 10.5% to 12.7%. The average plant height was 30 inches. No lodging occurred.

2009 WSU EXTENSION SOFT WHITE SPRING WHEAT NURSERY AT HORSE HEAVEN, WA.

TABLE 66: Variety Name *Club Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
EDEN	24	22	20	**17**	**62.0**	12.0	18	148
WA008090			24	**17**	60.9	12.1	19	151
EDEN (HSR)				**16**	**61.9**	12.5	18	150
WHIT		22	19	15	59.7	13.0	19	150
WA008104				15	60.8	13.0	21	150
BZ604-002				15	60.6	12.6	19	150
ZAK	23	25	22	14	61.2	13.3	18	154
LOUISE	26	24	21	14	60.1	13.2	19	152
NICK	26	23	20	14	60.7	13.5	18	150
ALTURAS	23	22	19	14	60.2	12.6	18	150
WA008059		21	19	14	**61.7**	13.6	19	151
JD		23	21	14	**61.6**	12.9	18	151
WA008058			21	14	**62.1**	13.9	18	150
WA008039HF				14	59.8	13.1	19	152
ALPOWA	23	22	19	13	**61.4**	13.1	18	151
WAKANZ	25	23	19	13	59.1	13.4	16	155
CATALDO		19	16	13	58.8	13.3	19	149
BABE		22	20	13	60.3	13.2	19	152
WA008041		23	20	13	60.7	12.9	17	153
WA008089			22	13	60.4	12.7	19	152
WA008112				13	59.4	13.1	18	154
WA008108				13	61.1	13.7	19	149
WA008106				13	60.6	12.5	21	148
JD (HSR)				13	61.2	13.1	17	151
C.V. %	10	12	14	12	1.0	3.1	7	1
LSD '@ .10'	1	2	3	2	0.9	0.6	2	1
Average	24	23	20	14	60.7	13.0	19	151
Highest	26	25	24	17	62.1	13.9	21	155
Lowest	23	19	16	13	58.8	12.0	16	148

1. Grain yield in the Horse Heaven soft white spring wheat trial averaged 14 bu/ac, 10 bu/ac less than the average 5-year yield for this location. The Horse Heaven spring nursery was located about 5 miles southwest of Prosser, WA (M. Schmitt, cooperator).
2. This nursery was seeded on 20 March, 2009 following summer fallow. Seed was placed at a 60#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was 40#N and soil test analysis showed an additional 110#N available. Spring seeding conditions were adequate and some spring rain made the outlook good for the spring crop until heading, when lack of moisture limited yield. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 262% compared to an RCBD design.
3. Yields ranged from 13 bu/ac to 17 bu/ac, with a CV of 12%. Yield values within the LSD range of the highest yield are shown in bold and 4 of the 24 entries are in this group. Club entries are listed in italicized print and the (HSR) designation is a 20% higher seeding rate for the club entries.
4. Test weights were good with an average of 60.7 lb/bu. Grain protein averaged 13.0% with a range of 12.0 to 13.9% and is higher than desired due to low yield and the available N at this site. The average plant height was 19 inches.

2009 WSU EXTENSION SOFT WHITE SPRING WHEAT NURSERY AT LAMONT, WA.

TABLE 67: Variety Name *Club Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
WA008090			41	**55**	**60.8**	11.0	29	168
NICK	54	42	40	**53**	60.1	11.9	24	166
LOUISE	58	42	39	**52**	60.2	11.3	27	168
WA008089			38	**52**	**60.7**	11.0	29	168
ZAK	47	41	40	**51**	59.9	11.9	31	171
BZ604-002				**51**	**60.4**	11.7	27	165
WA008059		40	39	**49**	59.1	13.0	28	166
WA008106				**49**	**60.7**	11.3	28	167
JD (HSR)				**49**	**60.6**	11.9	25	168
WA008058			36	**48**	59.7	12.8	28	166
CATALDO		35	32	47	59.1	11.3	23	164
BABE		41	37	47	**60.5**	10.9	28	169
WAKANZ	54	42	38	46	59.1	11.9	24	173
WA008041		40	37	46	58.8	11.8	26	168
WA008039HF				45	60.1	11.4	24	168
JD		37	35	44	**60.5**	11.6	28	169
EDEN (HSR)				44	**60.5**	11.2	23	167
ALTURAS	47	36	32	43	59.4	10.7	25	168
WA008112				43	58.3	11.1	26	171
EDEN	42	38	34	42	**60.5**	11.4	21	167
WA008108				41	**60.6**	11.8	27	164
WA008104				41	**60.9**	11.6	26	167
ALPOWA	46	37	33	40	60.2	11.2	24	173
WHIT		38	34	39	59.2	11.7	25	167
C.V. %	11	11	13	13	0.7	3.3	7	1
LSD '@ .10'	3	4	5	8	0.6	0.5	3	1
Average	50	39	37	47	60.0	11.6	26	168
Highest	58	42	41	55	60.9	13.0	31	173
Lowest	42	35	32	39	58.3	10.7	21	164

1. Grain yield in the Lamont soft white spring wheat trial averaged 47 bu/ac, 3 bu/ac lower than the average 5-year yield for this location. The Lamont nursery was located about 4 miles southeast of Lamont, WA (Gil White, cooperator).
2. This nursery was seeded on 15 April, 2009 following winter wheat. Seed was placed at a 70#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was applied at 70#N and 10#S per acre, and a spring soil test showed more than adequate available nutrients. Spring seeding conditions were rated 8 on a 1-10 scale and spring rain made the early outlook good for the spring crop. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 230% compared to an RCBD design.
3. Yields ranged from 39 bu/ac to 55 bu/ac. The CV was 13% indicating there was more variability than desirable within this trial. Yield values within the LSD range of the highest yield are shown in bold and 12 of the 24 entries are in this group, and this also shows higher variability within this trial. Club entries are listed in italicized print and the (HSR) designation is a 20% higher seeding rate for the club entries. The HSR treatment appears to have increased yield for both club varieties in the trial. Club varieties tend to produce less tillering and the higher seeding rate might add more heads that contribute to yield.
4. Test weights were good with an average of 60.0 lb/bu. Grain protein averaged 11.6% with a range of 10.7% to 13.0% and is higher than desired due to high available N at this site. The average plant height was 26 inches.

2009 WSU EXTENSION SOFT WHITE SPRING WHEAT NURSERY AT LIND, WA.

TABLE 68: Variety Name *Club Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
BZ604-002				**31**	61.5	12.3	22	155
WA008089			24	**30**	**62.4**	11.7	23	156
WA008090			24	29	**62.2**	12.3	23	156
WA008106				29	62.1	12.3	23	156
LOUISE	30	26	23	28	61.7	11.8	25	156
ALTURAS	27	25	22	28	61.3	12.5	20	156
WHIT		24	22	28	60.9	12.2	21	155
WA008112				28	61.0	12.2	23	159
ZAK	26	24	22	27	60.8	13.2	23	159
NICK	27	25	24	27	61.1	13.0	20	156
BABE		23	22	27	61.7	12.8	22	157
JD		24	21	27	**62.4**	12.5	21	157
JD (HSR)				27	**62.5**	12.4	21	157
ALPOWA	27	24	22	26	61.8	12.8	22	158
WA008104				26	**62.4**	13.1	23	155
WA008039HF				26	61.9	13.0	22	156
EDEN (HSR)				26	62.1	11.9	19	155
EDEN	26	23	20	25	**62.2**	12.0	19	154
WAKANZ	27	23	20	24	60.4	13.1	21	160
CATALDO		23	20	24	59.7	12.6	18	155
WA008059		21	19	24	60.4	13.6	22	156
WA008108				24	**62.3**	13.3	23	155
WA008041		21	19	23	60.1	13.2	23	158
WA008058			20	23	60.7	13.6	22	155
C.V. %	7	8	7	6	0.5	1.9	5	0
LSD '@ .10'	1	1	2	2	0.4	0.3	1	1
Average	27	23	22	27	61.5	12.6	22	156
Highest	30	26	24	31	62.5	13.6	25	160
Lowest	26	21	19	23	59.7	11.7	18	154

1. Grain yield in the Lind soft white spring wheat trial averaged 27 bu/ac, equal to the average 5-year yield for this location. The Connell spring nursery was located about 3 miles northeast of Lind, WA on the WSU Lind Dryland Research Station.
2. This nursery was seeded on 19 March, 2009 following summer fallow. Seed was placed at a 60#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was not applied based on soil tests that showed adequate fertility. Spring seeding conditions were adequate and some spring rain made the outlook good for the spring crop until heading, when lack of moisture limited yield. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 41% compared to an RCBD design.
3. Yields ranged from 23 bu/ac to 31 bu/ac, with a CV of 6%. Yield values within the LSD range of the highest yield are shown in bold and 3 of the 24 entries are in this group. Club entries are listed in italicized print and the (HSR) designation is a 20% higher seeding rate for the club entries.
4. Test weights were good with an average of 61.5 lb/bu. Grain protein averaged 12.6% with a range of 11.7% to 13.6% and is higher than desired due to yield level and the available N at this site. The average plant height was 22 inches.

2009 WSU EXTENSION SOFT WHITE SPRING WHEAT NURSERY AT MAYVIEW, WA.

TABLE 69: Variety Name *Club Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
LOUISE	50	60	58	**61**	62.1	10.8	27	178
ALTURAS	47	57	57	**60**	60.9	10.9	23	176
BABE		58	56	**60**	61.8	11.4	25	176
WA008090			59	**60**	62.1	11.6	26	178
WA008112				**60**	60.3	11.2	25	179
WHIT		58	58	**59**	60.8	11.9	25	173
ZAK	46	55	55	**58**	60.6	12.3	27	178
JD		56	56	**57**	**62.4**	12.2	26	176
WA008089			55	**57**	62.0	11.0	25	178
WAKANZ	49	57	57	**56**	60.4	11.9	24	180
NICK	51	57	55	**56**	61.4	12.4	25	171
EDEN	49	56	55	**56**	62.2	11.5	23	175
WA008039HF				**56**	61.7	11.3	25	175
ALPOWA	48	55	54	**55**	62.2	11.6	25	178
WA008106				**55**	61.5	11.7	26	175
JD (HSR)				**55**	**62.5**	11.6	24	175
BZ604-002				54	62.0	12.1	25	172
WA008041		54	53	53	60.1	12.5	26	178
WA008108				53	62.2	12.8	25	172
CATALDO		53	50	51	60.5	11.6	24	171
WA008104				51	**62.5**	12.4	25	175
EDEN (HSR)				50	**62.6**	11.7	23	174
WA008058			46	46	60.9	13.6	25	174
WA008059		49	47	43	61.0	13.4	25	174
C.V. %	7	7	7	9	0.5	3.0	5	1
LSD '@ .10'	2	3	4	7	0.4	0.5	2	1
Average	49	56	55	55	61.5	11.9	25	175
Highest	51	60	59	61	62.6	13.6	27	180
Lowest	46	49	46	43	60.1	10.8	23	171

1. Grain yield in the Mayview soft white spring wheat trial averaged 55 bu/ac, 6 bu/ac higher than the average 5-year yield for this location. The Mayview nursery was located about 5 miles south of the Lower Granite Dam on the Snake River, WA or 12 miles northeast of Pomeroy, WA (Roger and Randy Koller, cooperators).
2. This nursery was seeded on 24 April, 2009 following winter wheat. Seed was placed at a 70#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was applied at 64#N and 10#S per acre. Spring seeding moisture conditions were rated 4 out of 10 and spring rain made the early outlook good for the spring crop. For grain yield, the alpha lattice experimental design improved variation allocation during statistical analysis and the CV by 71% compared to an RCBD design.
3. Yields ranged from 43 bu/ac to 61 bu/ac, with a CV of 9%. Yield values within the LSD range of the highest yield are shown in bold and 16 of the 24 entries are in this group. Club entries are listed in italicized print and the (HSR) designation is a 20% higher seeding rate for the club entries.
4. Test weights were good with an average of 61.5 lb/bu. Grain protein was high and averaged 11.9% with a range of 10.8% to 13.6%. The average plant height was 25 inches. No lodging occurred.

2009 WSU EXTENSION SOFT WHITE SPRING WHEAT NURSERY AT MOSES LAKE, WA.

TABLE 70:

Variety Name *Club Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
WA008106	- -	- -	- -	**139**	**63.2**	11.0	32	37	154
BZ604-002	- -	- -	- -	**133**	62.2	10.2	43	35	154
NICK	- -	- -	- -	**128**	62.3	11.0	8	33	154
WA008041	- -	- -	- -	**127**	60.9	10.5	37	35	158
WA008039HF	- -	- -	- -	126	**63.4**	10.8	32	35	156
ALTURAS	- -	- -	- -	124	61.6	10.0	35	34	155
WA008089	- -	- -	- -	124	**62.9**	10.5	52	36	156
WHIT	- -	- -	- -	123	62.0	10.7	35	33	153
ZAK	- -	- -	- -	122	61.5	10.4	63	35	158
CATALDO	- -	- -	- -	122	61.2	10.4	0	32	153
WA008104	- -	- -	- -	122	62.7	10.7	30	37	156
WAKANZ	- -	- -	- -	120	61.9	10.8	35	34	159
EDEN	- -	- -	- -	118	62.4	10.3	5	35	156
WA008108	- -	- -	- -	118	62.3	10.3	50	31	153
EDEN (HSR)	- -	- -	- -	115	62.6	10.2	7	34	156
ALPOWA	- -	- -	- -	112	**63.5**	10.4	0	35	158
JD (HSR)	- -	- -	- -	112	**63.0**	11.4	70	36	157
WA008059	- -	- -	- -	110	61.7	11.8	88	35	155
WA008112	- -	- -	- -	110	61.0	10.0	63	32	158
BABE	- -	- -	- -	107	**63.0**	10.4	65	34	156
JD	- -	- -	- -	105	62.7	11.0	48	37	157
WA008058	- -	- -	- -	105	62.5	11.5	52	34	154
LOUISE	- -	- -	- -	104	61.3	10.5	78	35	156
WA008090	- -	- -	- -	100	61.9	10.8	47	34	156
C.V. %	- -	- -	- -	8	0.8	6.3	73	3	1
LSD '@ .10'	- -	- -	- -	13	0.7	0.9	41	2	1
Average	- -	- -	- -	118	62.2	10.7	41	35	156
Highest	- -	- -	- -	139	63.5	11.8	88	37	159
Lowest	- -	- -	- -	100	60.9	10.0	0	31	153

1. Grain yield in the Moses Lake irrigated soft white spring wheat trial averaged 118 bu/ac. The Moses Lake irrigated spring nursery was located about 6 miles east of Othello, WA on the WSU Othello Experimental Field Station and about 15 miles south of the Moses Lake winter wheat site.
2. This nursery was seeded on 27 March, 2009 following summer fallow. Seed was placed at a 90#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was 220#. Spring seeding conditions were adequate and spring growing conditions created good yield potential. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 8% compared to an RCBD design.
3. Yields ranged from 100 bu/ac to 139 bu/ac, with a CV of 8%. Yield values within the LSD range of the highest yield are shown in bold and 5 of the 24 entries are in this group. Club entries are listed in italicized print and some clubs are planted at a 20% higher seeding rate indicated by (HSR).
4. Test weights were good with an average of 62.2 lb/bu. Grain protein averaged 10.7% with a range of 10.0 to 11.8%. The average plant height was 35 inches. Lodging varied among cultivars, but all cultivars had some lodging and should give a good indication of straw strength.

2009 WSU EXTENSION SOFT WHITE SPRING WHEAT NURSERY AT PULLMAN, WA.

TABLE 71:

Variety Name *Club Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
WA008106				**85**	62.9	11.6	37	174
WA008112				**82**	60.7	11.8	33	180
ALTURAS	71	75	70	**81**	61.5	11.0	31	175
WA008041		76	71	**81**	60.7	11.5	34	177
BZ604-002				**81**	62.5	11.8	33	173
LOUISE	74	80	74	**80**	62.3	11.5	37	176
JD		77	74	**80**	**63.6**	11.7	33	176
WA008039HF				**80**	**63.4**	12.0	33	176
JD (HSR)				**79**	**63.8**	12.3	33	177
ALPOWA	72	78	75	78	62.6	11.5	33	179
NICK	72	75	73	78	62.0	12.4	31	174
EDEN (HSR)				78	63.3	11.5	30	175
ZAK	60	69	70	77	61.4	12.0	32	177
EDEN	70	78	73	77	62.8	11.5	31	175
BABE		80	73	77	63.0	11.7	32	176
WA008089			73	77	63.2	11.3	33	175
WAKANZ	71	76	75	75	61.7	12.0	31	180
WA008104				75	62.9	12.2	33	174
WHIT		75	70	74	61.7	11.9	31	173
CATALDO		71	66	73	60.4	11.7	29	172
WA008090			71	72	62.5	11.7	34	176
WA008108				72	62.7	12.3	33	172
WA008059		71	66	67	61.4	13.0	31	174
WA008058			64	64	62.2	13.0	32	175
C.V. %	7	6	6	7	0.6	2.6	3	0
LSD '@ .10'	3	4	4	7	0.5	0.4	1	1
Average	70	75	71	77	62.3	11.9	33	175
Highest	74	80	75	85	63.8	13.0	37	180
Lowest	60	69	64	64	60.4	11.0	29	172

1. Grain yield in the Pullman soft white spring wheat trial averaged 77 bu/ac, 7 bu/ac higher than the average 5-year yield for this location. The Pullman nursery was located about 2 miles south of Pullman, WA on the Spillman WSU Agronomy Farm (Ryan Davis, farm manager).
2. This nursery was seeded on 21 April, 2009 following dry pea. Seed was placed at an 80#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was applied at 90#N, 20#P and 20#S per acre, and a spring soil test showed adequate available nutrients. Spring seeding conditions were good and spring rain made the early outlook good for the spring crop. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 95% compared to an RCBD design.
3. Yields ranged from 64 bu/ac to 85 bu/ac, a narrow range. The CV was 7%. Yield values within the LSD range of the highest yield are shown in bold and 12 of the 24 entries are in this group. The top group is large in this trial due to the narrow range of yields and large number of high yielding lines and varieties. Club entries are listed in italicized print and the (HSR) designation is a 20% higher seeding rate for the club entries.
4. Test weights were good with an average of 62.3 lb/bu. Grain protein averaged 11.9% with a range of 11.0% to 13.0%. The average plant height was 33 inches. No lodging occurred.

2009 WSU EXTENSION SOFT WHITE SPRING WHEAT NURSERY AT REARDAN, WA.

TABLE 72: Variety Name *Club Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
ALTURAS	51	45	50	**66**	62.3	11.7	33	175
WA008106				**66**	62.6	11.8	37	174
ZAK	45	46	52	**63**	61.6	12.8	34	177
BABE		49	50	**63**	**62.9**	12.7	35	175
WHIT		46	49	**61**	62.1	12.2	33	172
BZ604-002				**61**	62.2	12.6	34	174
JD		41	45	**59**	**63.2**	12.9	34	174
WA008039HF				**59**	62.6	12.2	34	175
WA008104				58	**63.3**	12.7	35	174
JD (HSR)				58	**63.1**	12.9	35	174
LOUISE	53	44	50	57	62.1	11.9	38	176
CATALDO		39	41	56	61.4	12.3	30	171
WA008089			49	56	**63.1**	11.6	33	174
WA008090			45	55	62.2	12.7	35	175
ALPOWA	49	45	48	54	61.9	12.8	33	178
WA008112				53	61.3	12.1	33	177
WA008108				52	62.3	13.3	34	169
EDEN (HSR)				52	**63.1**	12.0	31	173
WAKANZ	53	41	46	50	60.5	13.1	32	178
NICK	49	41	43	50	61.8	13.2	32	172
WA008059		40	41	50	60.9	14.4	34	174
EDEN	47	38	38	44	62.6	12.3	29	173
WA008041		39	43	44	60.8	12.9	35	176
WA008058			36	39	60.8	14.3	33	174
C.V. %	9	10	10	11	0.8	2.0	4	1
LSD '@ .10'	3	4	5	8	0.7	0.4	2	1
Average	50	43	45	55	62.1	12.6	34	174
Highest	53	49	52	66	63.3	14.4	38	178
Lowest	45	38	36	39	60.5	11.6	29	169

1. Grain yield in the Reardan soft white spring wheat trial averaged 55 bu/ac, about 5 bu/ac higher than the average 5-year yield for this location. The Reardan nursery was located about 7 miles west of Reardan, WA (Hal Johnson, cooperator).
2. This nursery was seeded on 17 April, 2009 following winter wheat. Seed was placed at an 80#/acre seeding rate using a no-till plot drill fitted with Cross-slot openers set on 10-inch spacing. Base fertilizer included 65#N and 5#S applied in the fall and 20#N, 4#P, and 4#S per acre applied in the spring. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 32% compared to an RCBD design.
3. Yields ranged from 39 bu/ac to 66 bu/ac, with a CV of 11%. Yield values within the LSD range of the highest yield are shown in bold and 10 of the 24 entries are in this group. Club entries are listed in italicized print and the (HSR) designation is a 20% higher seeding rate for the club entries.
4. Test weights were good with an average of 62.1 lb/bu. Grain protein averaged 12.6% with a range of 11.6% to 14.4%. The average plant height was 34 inches.

2009 WSU EXTENSION SOFT WHITE SPRING WHEAT NURSERY AT ST. JOHN, WA.

TABLE 73: Variety Name *Club Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
LOUISE	72	75	75	**95**	61.7	10.6	33	173
WA008090			73	**94**	62.2	10.9	31	174
WHIT		74	77	**91**	61.2	10.8	30	171
BABE		70	70	**91**	62.2	10.7	29	173
BZ604-002				**91**	62.2	10.7	30	169
WA008089			67	89	62.7	10.4	31	174
JD (HSR)				89	**63.4**	11.3	31	172
ZAK	66	74	77	88	61.4	11.2	31	175
WAKANZ	71	75	78	88	61.5	11.1	28	176
ALTURAS	64	66	66	88	61.0	10.2	30	172
WA008112				88	60.8	10.7	31	176
WA008039HF				88	62.4	11.1	31	171
WA008041		70	73	87	60.7	11.2	31	173
WA008106				86	62.0	10.5	32	171
EDEN (HSR)				86	62.5	10.2	28	170
JD		66	64	85	63.0	11.1	29	173
EDEN	66	71	72	84	62.7	10.4	28	172
WA008104				84	62.8	11.5	31	173
ALPOWA	71	73	73	83	62.3	10.9	31	174
NICK	65	66	66	82	61.4	11.4	28	169
WA008059		67	68	78	61.7	12.1	31	170
WA008108				77	62.3	11.1	29	168
CATALDO		60	59	76	60.3	11.0	25	169
WA008058			59	73	61.8	12.3	29	171
C.V. %	7	8	8	4	0.4	2.6	5	1
LSD '@ .10'	3	4	6	5	0.3	0.4	2	2
Average	68	70	70	86	61.9	11.0	30	172
Highest	72	75	78	95	63.4	12.3	33	176
Lowest	64	60	59	73	60.3	10.2	25	168

1. Grain yield in the St. John soft white spring wheat trial averaged 86 bu/ac, 18 bu/ac higher than the average 5-year yield for this location. The St. John nursery was located about 3 miles east of St. John, WA (Mac Mills, cooperator).
2. This nursery was seeded on 20 April, 2009 following winter wheat. Seed was placed at an 80#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was applied at 70#N and 10#S per acre. Spring seeding conditions were good with moisture rated 7 out of 10 and spring rain made the early outlook good for the spring crop. For grain yield, the alpha lattice experimental design improved variation allocation during statistical analysis and the CV by 51% compared to an RCBD design.
3. Yields range was narrow and went from 73 bu/ac to 95 bu/ac, with a CV of 4%. Yield values within the LSD range of the highest yield are shown in bold and 5 of the 24 entries are in this group. Club entries are listed in italicized print and the (HSR) designation is a 20% higher seeding rate for the club entries.
4. Test weights were very good with an average of 61.9 lb/bu. Grain protein was good and averaged 11% with a range of 10.2% to 12.3%. The average plant height was 30 inches. No lodging occurred.

2009 WSU EXTENSION SOFT WHITE SPRING WHEAT NURSERY AT WALLA WALLA, WA.

TABLE 74: Variety Name *Club Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
BABE		63	74	**103**	60.6	10.4	36	166
WA008089			75	**103**	60.7	10.6	37	165
WA008039HF				**102**	61.1	10.7	35	164
WA008106				**101**	**61.8**	10.7	40	164
ALPOWA	53	61	70	**99**	60.9	10.6	35	168
WAKANZ	56	64	73	**99**	59.4	10.9	33	167
JD (HSR)				**98**	**62.2**	11.4	37	165
ALTURAS	50	60	68	**97**	60.5	10.7	33	165
EDEN	53	62	69	**97**	**61.8**	10.6	32	165
LOUISE	58	64	71	**96**	60.8	10.5	39	166
NICK	54	63	71	**96**	60.5	11.3	34	164
WA008041		63	71	**96**	58.7	10.9	36	166
ZAK	57	66	74	95	60.1	11.2	35	166
WHIT		62	69	95	60.2	10.8	34	163
BZ604-002				95	**61.8**	11.0	35	163
EDEN (HSR)				95	**61.7**	10.6	33	166
WA008090			71	94	61.0	10.6	36	166
WA008108				93	61.0	11.2	35	162
JD		59	66	92	**61.9**	11.4	39	165
WA008112				92	58.3	10.8	35	167
WA008104				92	61.3	11.1	37	165
WA008059		60	67	90	60.9	12.1	35	165
CATALDO		58	64	89	60.2	11.2	30	162
WA008058			63	89	60.9	12.1	35	165
C.V. %	8	6	7	6	0.9	2.0	3	0
LSD '@ .10'	3	3	5	8	0.7	0.3	2	1
Average	55	62	70	96	60.8	11.0	35	165
Highest	58	66	75	103	62.2	12.1	40	168
Lowest	50	58	63	89	58.3	10.4	30	162

1. Grain yield in the Walla Walla soft white spring wheat trial averaged 96 bu/ac, 41 bu/ac higher than the average 5-year yield for this location. The Walla Walla nursery was located about 5 miles south of Waitsburg, WA (Glen Smith, cooperator).
2. This nursery was seeded on 16 April, 2009 following winter wheat. Seed was placed at an 80#/acre seeding rate using a no-till plot drill equipped with Cross-slot openers set on 10-inch spacing. Base fertilizer was applied at 110#N, 15#P and 15#S per acre, and a spring soil test showed adequate available nutrients. Spring seeding conditions were rated 8 on a 1-10 scale and spring rain made the early outlook good for the spring crop. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 9% compared to an RCBD design.
3. Yields ranged from 89 bu/ac to 103 bu/ac, a very narrow yield spread. The CV was good at 6%. Yield values within the LSD range of the highest yield are shown in bold and 14 of the 24 entries are in this group, even though the LSD is 8 bu/ac. Club entries are listed in italicized print and the (HSR) designation is a 20% higher seeding rate for the club entries.
4. Test weights were good with an average of 60.8 lb/bu. Grain protein was good and averaged 11.0% with a range of 10.4% to 12.1%. The average plant height was 35 inches.

2009 Hard Spring Wheat

2009 Hard Spring Wheat

TABLE 75:

STRIPE RUST INFECTION TYPE (IT) AND SEVERITY (%) ON CULTIVARS AND LINES IN THE SPRING EXTENSION DISEASE NURSERY (EXP32) (COORDINATED BY STEVE GUY AS SPRING WHEAT VARIETY TRIAL NURSERIES) AT SPILLMAN (LOC 1), PLANT PATH FARM (LOC 3) AND WHITLOW (LOC 4) FARMS NEAR PULLMAN, MT VERNON (LOC 5); WALLA WALLA (LOC 6); AND LIND (LOC 7)*, WA WHEN RECORDED AT THE INDICATED DATES AND STAGES OF PLANT GROWTH IN 2009 UNDER NATURAL INFECTION

		Spillman Farm (Pullman)		Plant Path Farm (Pullman)		Whitlow Farm (Pullman)		Mt. Vernon, WA.				Walla Walla		Walla Walla	
		LOC1		LOC3		LOC4		LOC5				LOC6		LOC6	
		7/21/09		7/22/09		7/15/09		6/10/09		7/9/09		6/19/09		6/30/09	
		Milk		S. dough		Milk		Stem elong.		S. dough		L. flowering		Milk	
CLASS	**VARIETY**	**IT**	**%**	**IT**	**%**	**IT**	**%**	**IT**	**%**	**IT**	**%**	**IT**	**%**	**IT**	**%**
(S check)	**LEMHI**	**8**	**70**	**8**	**100**	**8**	**100**	**8**	**80**	**8**	**80**	**8**	**80**	**8**	**80**
HRS	**SCARLET**	8	5	8	40	8	30	8	20	8	30	5	20	8	30
HRS	**HOLLIS**	8	20	8	20	8	10	2	5	2	10	0	0	2	2
HRS	**TARA 2002**	8	20	8	20	8	50	3	10	2	20	0	0	3	5
HRS	**KELSE**	3	10	3	10	5	20	3	10	2	30	8	10	2	5
HRS	**WA008027**	2	10	2	10	5	20	2	5	2	10	2	2	0	0
HRS	**WA008072**	2	20	2	20	3	5	3	5	2	10	0	0	0	0
HRS	**WA008074**	2	20	2	20	2	1	2	5	2	10	0	0	2	5
HRS	**WA008075**	3	5	3	5	5	10	2	5	2	20	0	0	0	0
HRS	**WA008076**	3	2	3	2	3	1	5	10	6	10	0	0	2	5
HRS	**JEFFERSON**	8	5	8	5	8	5	3	10	8	30	0	0	0	0
HRS	**UI WINCHESTER**	2	10	2	10	2	5	2	10	2	10	0	0	0	0
HRS	**WESTBRED 926**	2	10	2	10	8	5	8	5	8	20	0	0	0	0
HRS	**HANK**	8	20	8	20	8	60	8	5	8	30	8	10	0	0
(S check)	**LEMHI**	**8**	**70**	**8**	**80**	**8**	**100**	**8**	**80**	**8**	**80**	**8**	**80**	**8**	**60**
HRS	**JEDD**	8	30	8	30	8	20	8	10	8	80	2	2	0	0
HRS	**VOLT**	2	1	2	1	2	1	2	5	1	5	0	0	0	0
HRS	**NPBHR70**	3	10	3	10	3	5	8	10	8	30	2	2	2	5
HRS	**LASSIK**	2	2	2	2	2	2	2	5	1	5	0	0	2	2
HRS	**BUCK PRONTO**	3	5	3	5	2	1	8	5	8	10	0	0	2	2
HRS	**BULLSEYE**	3	10	3	10	3	10	8	10	8	10	8	10	2	5
HRS	**OR4990114**	8	10	8	10	3	20	8	5	6	20	8	5	8	5
HDWH	**MACON**	8	30	8	30	8	30	8	40	8	20	8	10	8	30
HDWH	**OTIS**	5	20	5	20	3	10	8	20	2	20	5	10	2	2
HDWH	**WA008078**	8	30	8	30	8	20	5	20	8	30	8	5	0	0
HDWH	**WA008079**	3	30	3	30	3	30	8	10	8	30	5	5	0	0
HDWH	**WA008100**	3	2	3	2	2	1	2	10	8	10	0	0	0	0
HDWH	**WA008101**	2	10	2	10	2	10	8	5	2	20	0	0	0	0
HDWH	**BLANCA GRANDE**	2	10	2	10	2	1	8	5	2	5	3	2	0	0
HDWH	**RSI10348W**	3	10	3	10	5	20	8	10	2	10	0	0	0	0
HDWH	**CLEAR WHITE**	3	1	3	1	3	10	8	10	2	5	0	0	0	0
HDWH	**BZ903-445WP**	3	5	3	5	3	30	2	10	2	5	0	0	0	0
IRRIGATED ENTRIES															
(S check)	**LEMHI**	**8**	**70**	**8**	**70**	**8**	**100**	**8**	**80**	**8**	**80**	**8**	**80**	**8**	**80**
HRS	**SOLANO**	2	5	2	5	2	5	3	10	2	5	3	20	2	5
(S check)	**LEMHI**	**8**	**90**	**8**	**90**	**8**	**100**	**8**	**80**	**8**	**60**	**8**	**80**	**8**	**60**
HRS	**EXPRESSO**	2	1	2	1	2	1	2	10	1	5	2	1	2	2
HRS	**CABERNET**	2	10	3	5	2	10	2	10	1	5	2	1	2	2
HRS	**LARIAT**	2	1	2	1	2	1	2	5	1	5	2	1	2	2
HRS	**RSI50603**	3	5	2	5	3	5	8	10	8	5	3	5	2	2
SWH	**WHIT**	3	10	3	5	3	10	8	10	2	30	3	5	2	2
(S check)	**LEMHI**	**8**	**100**	**8**	**80**	**8**	**100**	**8**	**80**	**8**	**80**	**8**	**80**	**8**	**60**
(S check)	**LEMHI**	**8**	**100**	**8**	**80**	**8**	**100**	**8**	**80**	**8**	**60**	**8**	**80**	**8**	**80**
(S check)	**LEMHI**	**8**	**100**	**8**	**80**	**8**	**100**	**8**	**80**	**8**	**80**	**8**	**80**	**8**	**60**
(Barley Fill)	**STEPTOE**	0	0	0	0	0	0	8	10	8	50	0	0	0	0

* No rust was observed in Lind (LOC 07).

** Infection Type (IT) was recorded based on the 0-9 scale with ITs 8 and 9 combined as 8 (the most susceptible reaction) in field data. Generally IT 0-3 are considered resistant, 4-6 intermediate, and 7-9 susceptible. Heterogenous reactions of an entry were indicated by two or more ITs separated by "," for most plants with the first IT and few plants with the second IT or connected with "-" for entries containing plants with continuous ITs. Entries with a high IT in the first note, but a low IT in the second note may indicate that they have high-temperature, adult-plant (HTAP) resistance.

2009 WSU HARD SPRING WHEAT TRIAL SUMMARY
Precipitation Zone= >20"

TABLE 76:

VARIETY NAME	FARMINGTON	PULLMAN	AVERAGE YIELD	FARMINGTON	PULLMAN	AVERAGE TEST WEIGHT	FARMINGTON	PULLMAN	AVERAGE PROTEIN
Hard Red Spring	**YIELD (BU/A)**			**TW (LBS/BU)**			**PROTEIN (%)**		
SCARLET	83	68	75	60.0	60.0	60.0	14.5	15.6	15.1
BULLSEYE	82	69	75	62.6	63.1	**62.9**	13.9	14.9	14.4
UI WINCHESTER	85	65	75	60.9	62.0	61.5	13.5	14.8	14.2
WA008074	81	68	74	61.2	62.0	61.6	13.9	14.8	14.4
TARA 2002	84	61	73	60.9	61.3	61.1	14.2	15.1	14.7
LASSIK	77	68	73	60.6	62.0	61.3	13.7	14.8	14.3
JEFFERSON	81	64	73	61.0	61.8	61.4	14.3	15.7	15.0
HOLLIS	78	64	71	60.7	61.1	60.9	15.2	15.9	**15.6**
WESTBRED 926	80	61	71	60.2	60.2	60.2	14.4	15.8	15.1
BUCK PRONTO	76	65	70	59.8	60.7	60.3	15.1	16.2	**15.7**
NPBHR70	77	62	70	60.0	60.7	60.4	14.5	15.7	15.1
WA008027	80	59	70	60.7	60.7	60.7	15.4	16.3	**15.9**
HANK	77	61	69	59.1	60.6	59.9	13.8	15.0	14.4
KELSE	73	64	68	60.8	61.1	61.0	14.6	15.4	15.0
OR4990114	76	61	68	59.7	61.2	60.5	13.5	14.7	14.1
WA008072	77	59	68	60.4	61.7	61.1	14.1	15.3	14.7
JEDD	76	60	68	61.4	62.2	61.8	13.2	14.9	14.1
WA008075	76	59	68	61.0	61.6	61.3	14.8	15.9	15.4
VOLT	75	59	67	61.2	62.8	62.0	14.5	14.7	14.6
WA008076	72	61	67	61.5	61.8	61.7	14.2	15.3	14.8
Hard White Spring									
WA008079	82	80	**81**	60.2	61.2	60.7	11.9	12.7	12.3
WA008100	81	78	**79**	61.4	62.8	62.1	12.0	12.4	12.2
OTIS	88	70	**79**	61.6	62.5	62.1	11.8	13.3	12.6
WA008078	85	72	**78**	61.2	61.5	61.4	12.9	14.0	13.5
WA008101	83	69	**76**	61.1	61.6	61.4	12.3	13.0	12.7
BZ903-445WP	79	67	73	59.2	61.1	60.2	13.0	14.4	13.7
MACON	80	61	71	59.4	61.4	60.4	12.5	12.9	12.7
RSI10348W	80	59	69	59.5	61.6	60.6	13.2	14.0	13.6
CLEAR WHITE	73	59	66	60.0	60.8	60.4	12.6	13.4	13.0
BLANCA GRANDE	62	53	58	61.0	62.2	61.6	14.5	14.6	14.6
	STATISTICS			**STATISTICS**			**STATISTICS**		
CV (%)	7	10	8	0.9	0.8	0.8	3.0	2.3	2.7
LSD (0.10)	7	9	6	0.7	0.7	0.5	0.6	0.5	0.4
Average	79	64	71	60.6	61.5	61.1	13.7	14.7	14.2
Highest	88	80	81	62.6	63.1	62.9	15.4	16.3	15.8
Lowest	62	53	58	59.1	60.0	59.9	11.8	12.4	12.2

1. Hard spring wheat (including red and white) grain yield across two locations, 20 hard red entries, and 10 hard white entries in the >20" precipitation zone averaged 71 bu/ac, 13 bu/ac higher than the 2008 average. These trials were analyzed as alpha lattice designs that overall helped to account for within-replication variation and reduced LSD and CV values. The highest value and other values within the LSD range are shown in bold for yield, test weight, and protein. In 2009, the highest yielding cultivars were hard white, while in 2008 the hard red and white averaged nearly the same.
2. Test weight averaged 61.1 lb/bu across locations and entries, with a range of 59.9 lb/bu to 62.9 lb/bu. Test weights averaged 1.2 lb/bu higher than last year. Grain protein averaged 14.2% with a range of 12.2% to 15.8%, 1.7% higher than last year's average.

2009 WSU HARD SPRING WHEAT TRIAL SUMMARY
Precipitation Zone= 16"- 20"

TABLE 77:

VARIETY NAME	DAYTON	MAYVIEW	REARDAN	ST. JOHN	WALLA WALLA	AVERAGE YIELD	DAYTON	MAYVIEW	REARDAN	ST. JOHN	WALLA WALLA	AVERAGE TEST WEIGHT	DAYTON	MAYVIEW	REARDAN	ST. JOHN	WALLA WALLA	AVERAGE PROTEIN
Hard Red Spring	**YIELD (BU/A)**						**TEST WEIGHT (LBS/BU)**						**PROTEIN (%)**					
BULLSEYE	40	56	49	79	92	63	59.9	62.9	63.2	62.8	62.5	**62.3**	14.9	14.1	14.9	14.3	12.7	14.2
SCARLET	37	60	47	79	89	62	57.1	59.1	61.1	60.1	59.6	59.4	15.3	14.2	15.8	15.5	13.7	14.9
HANK	40	51	51	76	88	61	58.6	60.3	61.2	59.9	60.4	60.1	15.9	14.9	15.6	14.5	13.5	14.9
LASSIK	40	54	40	85	88	61	59.4	61.3	61.2	61.1	60.9	60.8	14.4	14.7	15.0	13.7	12.7	14.1
JEFFERSON	37	52	50	78	88	61	59.8	60.9	61.6	61.1	60.7	60.8	14.8	14.9	16.0	15.2	13.8	14.9
KELSE	40	47	48	79	89	60	58.5	60.9	61.6	60.7	61.1	60.6	16.0	15.4	16.1	15.7	14.0	15.4
JEDD	35	51	50	78	87	60	60.1	62.0	62.9	61.9	62.4	61.9	14.8	14.9	15.1	13.9	12.9	14.3
VOLT	36	54	49	72	88	60	59.0	61.9	61.7	62.0	61.9	61.3	14.2	14.7	15.5	14.7	12.8	14.4
UI WINCHESTER	32	54	49	76	85	59	60.1	61.4	62.0	61.1	61.7	61.3	15.4	14.5	15.1	14.3	13.3	14.5
BUCK PRONTO	33	51	47	75	82	58	58.1	60.1	60.9	60.2	60.4	59.9	17.0	16.2	17.1	16.2	15.2	**16.3**
WA008027	32	46	47	71	85	56	58.4	60.4	60.8	60.7	61.4	60.3	16.2	16.6	16.5	16.4	14.7	16.1
TARA 2002	25	47	47	74	87	56	58.1	61.0	60.9	61.0	60.6	60.3	16.0	15.3	15.7	14.8	14.1	15.2
WA008074	29	52	49	65	84	56	58.9	61.5	61.9	61.6	61.2	61.0	15.1	14.5	15.3	15.4	13.7	14.8
HOLLIS	32	48	45	74	79	56	58.8	60.2	61.1	60.5	60.8	60.3	15.6	15.8	15.7	16.0	14.4	15.5
WA008072	27	46	50	69	85	55	58.7	60.7	61.9	61.2	61.2	60.7	15.3	15.3	16.1	15.2	13.5	15.1
WESTBRED 926	27	48	47	67	83	54	58.0	60.2	60.5	60.0	60.4	59.8	16.6	15.8	16.0	15.6	14.2	15.6
NPBHR70	29	48	45	67	81	54	58.0	60.1	60.7	60.1	60.3	59.8	15.8	14.9	15.9	15.5	14.3	15.3
WA008075	30	46	47	66	80	54	59.1	61.1	62.1	61.5	61.9	61.1	16.3	16.1	16.2	15.8	14.4	15.8
WA008076	29	43	47	68	82	54	58.3	60.9	62.1	61.3	61.3	60.8	15.3	15.3	16.0	15.2	14.5	15.3
OR4990114	29	47	44	61	81	52	58.4	60.5	61.9	60.4	60.5	60.3	15.0	14.9	15.7	14.7	12.9	14.6
Hard White Spring																		
WA008079	43	61	60	84	100	**70**	57.9	61.0	62.0	61.0	61.0	60.6	13.6	12.8	13.8	13.0	11.5	12.9
BZ903-445WP	39	58	56	88	102	**68**	57.9	60.3	60.7	60.0	60.2	59.8	14.6	13.8	15.2	13.9	12.5	14.0
OTIS	42	60	56	87	95	**68**	58.5	61.3	62.6	61.8	61.3	61.1	13.8	13.4	14.1	13.3	11.5	13.2
WA008101	34	53	62	81	95	65	59.0	61.1	62.0	61.7	61.0	61.0	12.8	13.5	13.6	12.8	12.0	12.9
WA008100	36	52	59	87	89	64	57.3	61.4	61.5	61.2	61.1	60.5	12.6	13.1	13.6	12.8	11.3	12.7
WA008078	33	51	60	78	92	63	58.9	61.3	61.7	61.0	61.5	60.9	14.8	14.1	14.8	14.1	12.7	14.1
MACON	34	53	54	73	87	60	58.6	60.8	61.8	60.8	61.0	60.6	13.7	13.1	13.8	12.8	12.0	13.1
RSI10348W	34	53	50	75	85	59	59.7	61.8	62.1	60.9	61.7	61.2	14.1	13.9	14.8	13.6	12.4	13.8
CLEAR WHITE	29	47	54	71	86	57	58.6	61.1	62.0	60.9	61.1	60.7	13.5	13.1	13.6	13.2	12.1	13.1
BLANCA GRANDE	25	44	44	65	79	51	60.2	62.7	61.9	62.0	62.9	61.9	15.6	14.9	15.6	15.2	13.8	15.0
	STATISTICS						**STATISTICS**						**STATISTICS**					
CV (%)	10	7	10	8	4	7	0.8	0.9	0.5	0.8	0.6	0.7	2.0	2.7	2.9	2.9	2.4	2.6
LSD (0.10)	5	5	7	8	5	3	0.7	1.3	0.4	0.6	0.5	0.3	0.4	0.6	0.6	0.6	0.4	0.2
Average	34	51	50	75	87	59	58.7	61.0	61.7	61.0	61.1	60.7	15.0	14.6	15.3	14.6	13.2	14.5
Highest	43	61	62	88	102	70	60.2	62.9	63.2	62.8	62.9	62.3	17.0	16.6	17.1	16.4	15.2	16.3
Lowest	25	43	40	61	79	51	57.1	59.1	60.5	59.9	59.6	59.4	12.6	12.8	13.6	12.8	11.3	12.7

1. Hard spring wheat (including red and white) grain yield across five locations, 20 hard red entries, and 10 hard white entries in the 16”- 20” precipitation zone averaged 59 bu/ac, 12 bu/ac higher than the 2008 average. These trials were analyzed as alpha lattice designs that overall helped to account for within-replication variation and reduced LSD and CV values. The highest value and other values within the LSD range are shown in bold for yield, test weight, and protein. In 2009, the highest yielding cultivars were hard white, while in 2008 the hard red and white averaged the same.
2. Test weight averaged 60.7 lb/bu across locations and entries, with a range of 59.4 lb/bu to 62.3 lb/bu. Test weights averaged 0.9 lb/bu higher than last year. Grain protein averaged 14.5% with a range of 12.7% to 16.3%, 0.2% higher than last year’s average.

2009 WSU HARD SPRING WHEAT TRIAL SUMMARY
Precipitation Zone= 12"- 16"

TABLE 78:

VARIETY NAME	YIELD (BU/A)				TW (LBS/BU)				PROTEIN (%)			
	ALMIRA	ENDICOTT	LAMONT	AVERAGE YIELD	ALMIRA	ENDICOTT	LAMONT	AVERAGE TEST WEIGHT	ALMIRA	ENDICOTT	LAMONT	AVERAGE PROTEIN
Hard Red Spring												
SCARLET	56	73	57	**62**	58.4	61.1	59.7	59.7	15.4	15.6	15.3	15.4
LASSIK	55	63	47	55	60.2	61.7	60.2	60.7	13.9	15.0	15.0	14.6
HOLLIS	51	65	45	53	59.6	61.8	60.6	60.7	15.8	16.1	16.0	16.0
HANK	51	65	43	53	59.2	62.0	59.8	60.3	15.6	15.9	14.4	15.3
JEFFERSON	53	62	43	53	59.2	62.1	60.4	60.6	15.1	15.8	15.2	15.4
KELSE	50	64	43	52	60.0	61.1	59.6	60.2	16.1	16.9	15.5	16.2
WA008074	50	61	41	51	60.3	61.9	60.4	60.9	15.1	15.9	14.7	15.2
UI WINCHESTER	50	62	40	51	60.7	62.1	60.5	61.1	15.6	15.9	15.1	15.5
BULLSEYE	51	59	41	51	61.3	62.7	61.1	**61.7**	14.6	14.8	13.9	14.4
NPBHR70	49	55	44	49	59.2	61.1	59.5	59.9	16.0	16.3	15.9	16.1
VOLT	49	61	38	49	60.3	62.2	60.1	60.9	14.5	15.5	14.5	14.8
TARA 2002	49	59	39	49	59.3	61.2	59.4	60.0	15.7	16.8	15.6	16.0
WA008027	48	59	38	49	59.5	61.4	60.0	60.3	16.6	17.4	16.4	**16.8**
BUCK PRONTO	42	54	48	48	58.9	60.8	59.1	59.6	16.7	17.1	17.6	**17.1**
JEDD	48	61	33	47	60.5	63.0	60.9	**61.5**	14.9	15.2	15.3	15.1
WESTBRED 926	47	53	42	47	59.4	61.1	59.4	60.0	16.0	16.9	15.9	16.3
OR4990114	43	60	36	46	59.5	61.9	59.7	60.4	15.3	15.1	15.4	15.3
WA008072	48	55	36	46	60.2	61.8	60.0	60.7	15.7	15.7	15.3	15.6
WA008076	50	51	37	46	60.6	62.0	60.5	61.0	15.4	16.0	15.5	15.6
WA008075	47	55	36	46	60.8	62.2	60.7	61.2	16.4	16.7	15.6	16.2
Hard White Spring												
BZ903-445WP	54	77	50	**60**	58.8	61.0	60.0	59.9	14.4	15.2	13.8	14.5
OTIS	46	76	55	59	59.8	62.5	61.3	61.2	13.8	14.2	13.3	13.8
WA008100	52	77	48	59	58.7	62.9	60.8	60.8	13.7	12.5	13.4	13.2
WA008079	55	70	47	57	60.1	62.0	60.8	61.0	13.2	13.2	13.0	13.1
WA008078	55	61	50	55	59.9	61.7	59.8	60.5	14.2	15.3	14.1	14.5
WA008101	47	67	47	53	59.4	62.0	60.5	60.6	13.1	14.0	13.0	13.4
CLEAR WHITE	55	54	47	52	60.1	61.8	59.7	60.5	13.2	14.1	13.1	13.5
MACON	45	62	43	50	58.5	61.9	59.9	60.1	13.5	13.5	13.0	13.3
RSI10348W	47	56	44	49	59.6	61.9	60.0	60.5	14.1	14.9	13.9	14.3
BLANCA GRANDE	44	43	33	40	61.3	61.9	60.6	61.3	14.7	15.7	14.6	15.0
	STATISTICS				**STATISTICS**				**STATISTICS**			
CV (%)	8	7	10	8	0.9	0.4	0.8	0.7	2.2	1.6	3.7	2.6
LSD (0.10)	5	6	6	3	0.7	0.4	0.6	0.3	0.4	0.3	0.8	0.6
Average	50	61	43	51	59.8	61.8	60.2	60.6	14.9	15.4	14.8	15.1
Highest	56	77	57	62	61.3	63.0	61.3	61.7	16.7	17.4	17.6	17.1
Lowest	42	43	33	40	58.4	60.8	59.1	59.6	13.1	12.5	13.0	13.1

1. Hard spring wheat (including red and white) grain yield across three locations, 20 hard red entries, and 10 hard white entries in the 12”-16” precipitation zone averaged 51 bu/ac, 6 bu/ac higher than the 2008 average. These trials were analyzed as alpha lattice designs that overall helped to account for within-replication variation and reduced LSD and CV values. The highest value and other values within the LSD range are shown in bold for yield, test weight, and protein.
2. Test weight averaged 60.6 lb/bu across locations and entries, with a range of 59.6 lb/bu to 61.7 lb/bu. Test weights averaged 0.7 lb/bu higher than last year. Grain protein averaged 15.1% with a range of 13.1% to 17.1%, 1.2% higher than last year’s average.

2009 WSU HARD SPRING WHEAT TRIAL SUMMARY
Precipitation Zone= <12"

TABLE 79:

VARIETY NAME	BICKLETON	CONNELL	HORSE HEAVEN	LIND	AVERAGE YIELD	BICKLETON	CONNELL	HORSE HEAVEN	LIND	AVERAGE TEST WEIGHT	BICKLETON	CONNELL	HORSE HEAVEN	LIND	AVERAGE PROTEIN
Hard Red Spring	**YIELD (BU/A)**					**TW (LBS/BU)**					**PROTEIN (%)**				
SCARLET	22	30	13	26	**23**	59.3	61.3	60.1	60.1	60.2	14.3	16.0	15.4	16.1	15.5
VOLT	20	26	17	22	21	61.3	63.6	63.0	61.9	**62.5**	13.3	14.6	13.6	14.3	14.0
HANK	26	25	11	23	21	59.2	61.7	58.8	61.1	60.2	14.4	16.3	16.0	15.7	15.6
LASSIK	19	29	12	25	21	60.2	62.5	60.2	61.6	61.1	14.0	14.7	14.1	14.6	14.4
HOLLIS	23	26	13	22	21	60.4	61.3	61.0	61.2	61.0	14.0	16.0	15.7	15.5	15.3
UI WINCHESTER	23	26	13	21	21	60.3	62.6	60.9	61.4	61.3	13.8	15.2	14.9	15.3	14.8
WA008074	23	22	15	23	21	60.5	62.2	61.4	61.4	61.4	13.7	16.1	14.6	15.1	14.9
BULLSEYE	22	26	14	22	21	62.0	63.7	63.0	62.6	**62.8**	13.2	16.2	14.6	15.4	14.9
WA008072	20	25	14	22	20	59.6	62.1	61.3	60.9	61.0	14.6	15.8	15.5	15.7	15.4
KELSE	21	21	14	25	20	60.3	61.8	61.4	61.3	61.2	15.4	17.0	15.4	16.4	16.1
WA008075	22	23	14	21	20	60.3	62.4	61.5	61.3	61.4	14.7	16.3	15.3	16.0	15.6
JEDD	22	22	14	22	20	62.2	62.9	62.3	62.3	62.4	14.2	16.1	15.0	14.9	15.1
WA008076	18	25	13	23	20	60.1	62.3	61.2	61.7	61.3	14.0	15.8	14.3	14.9	14.8
TARA 2002	21	23	14	21	20	60.5	60.6	59.3	59.3	59.9	15.0	16.5	15.9	15.5	15.7
OR4990114	20	24	14	21	20	58.9	62.3	62.0	61.6	61.2	14.1	15.5	14.5	15.5	14.9
WA008027	20	23	13	22	19	60.1	60.8	59.8	60.0	60.2	15.1	16.9	16.0	16.5	16.1
JEFFERSON	19	25	13	20	19	59.4	62.1	61.4	61.0	61.0	14.5	16.6	15.6	16.2	15.7
WESTBRED 926	21	21	14	20	19	60.0	61.5	60.4	60.2	60.5	15.1	16.8	16.1	15.7	15.9
BUCK PRONTO	18	24	11	20	18	58.8	61.3	59.8	60.2	60.0	15.6	17.1	17.0	16.5	**16.6**
NPBHR70	18	21	13	20	18	59.0	61.3	60.6	60.6	60.4	15.4	16.7	15.8	16.1	16.0
Hard White Spring															
OTIS	27	31	13	24	**24**	61.5	62.6	61.3	61.5	61.7	13.0	14.6	14.1	14.2	14.0
BZ903-445WP	25	26	17	26	**23**	59.2	61.7	61.5	60.8	60.8	14.0	15.9	14.8	14.8	14.9
WA008100	22	31	12	27	**23**	60.1	61.7	60.5	61.5	61.0	13.3	14.3	15.4	13.9	14.2
WA008078	24	28	14	24	**23**	60.5	62.0	59.5	60.8	60.7	14.4	15.7	15.3	14.5	15.0
WA008079	26	25	13	26	22	60.0	62.1	61.3	61.3	61.2	13.2	15.6	14.0	14.0	14.2
CLEAR WHITE	27	24	14	23	22	61.0	62.4	61.8	61.5	61.7	13.1	14.2	13.8	13.5	13.7
WA008101	24	27	12	25	22	61.1	61.7	59.8	61.0	60.9	12.2	14.5	13.8	13.4	13.5
RSI10348W	22	26	12	22	20	61.0	62.9	60.4	61.4	61.4	13.5	14.4	13.7	14.2	14.0
MACON	19	23	13	24	20	59.0	61.6	59.5	61.0	60.3	13.2	15.8	14.5	14.2	14.4
BLANCA GRANDE	20	24	13	19	19	61.1	62.8	61.8	61.6	61.8	15.1	15.8	14.2	14.8	15.0
	STATISTICS					**STATISTICS**					**STATISTICS**				
CV (%)	14	9	14	7	11	1.5	0.5	1.1	0.6	1.0	3.6	3.2	3.5	1.8	3.1
LSD (0.10)	4	3	3	2	2	1.3	0.8	0.9	0.5	0.4	0.7	0.7	0.7	0.4	0.3
Average	22	25	13	23	21	60.2	62.1	60.9	61.1	61.1	14.1	15.8	15.0	15.1	15.0
Highest	27	31	17	27	24	62.2	63.7	63.0	62.6	62.8	15.6	17.1	17.0	16.5	16.5
Lowest	18	21	11	19	18	58.8	60.6	58.8	59.3	59.9	12.2	14.2	13.6	13.4	13.5

1. Hard spring wheat grain yield across four locations, 20 hard red entries, and 10 hard white entries, in the <12" precipitation zone averaged 21 bu/ac, 2 bu/ac lower than the 2008 average. These trials were analyzed as alpha lattice designs that overall helped to account for within-replication variation and reduced LSD and CV values. The highest value and other values within the LSD range are shown in bold for yield, test weight, and protein.
2. Four of the five cultivars in the top LSD group are hard white cultivars.
3. Test weight averaged 61.1 lb/bu across locations and entries, with a range of 59.9 lb/bu to 62.8 lb/bu. Test weights averaged 1.7 lb/bu higher than last year. Grain protein averaged 15.0% with a range of 13.5% to 16.5%, 0.2% higher than last year's average.

2009 WSU EXTENSION HARD SPRING WHEAT NURSERY AT ALMIRA, WA.

TABLE 80:

Variety Name *HDWH Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
SCARLET	52	52	55	**56**	58.4	15.4	32	174
CLEAR WHITE				**55**	60.1	13.2	28	170
WA008078				**55**	59.9	14.2	32	172
WA008079				**55**	60.1	13.2	34	173
LASSIK				**55**	60.2	13.9	27	174
BZ903-445WP				**54**	58.8	14.4	29	173
JEFFERSON	50	48	51	**53**	59.2	15.1	29	173
WA008100				**52**	58.7	13.7	33	177
HOLLIS	49	46	49	51	59.6	15.8	36	174
HANK	51	47	51	51	59.2	15.6	30	172
BULLSEYE			51	51	**61.3**	14.6	27	175
KELSE		50	54	50	60.0	16.1	33	174
UI WINCHESTER			49	50	**60.7**	15.6	28	171
WA008076				50	60.6	15.4	38	168
WA008074				50	60.3	15.1	31	173
TARA 2002	50	48	51	49	59.3	15.7	32	170
VOLT		47	51	49	60.3	14.5	28	176
NPBHR70			48	49	59.2	16.0	30	171
JEDD		46	50	48	60.5	14.9	26	171
WA008027		48	53	48	59.5	16.6	33	175
WA008072				48	60.2	15.7	30	172
WESTBRED 926	50	46	51	47	59.4	16.0	29	170
RSI10348W				47	59.6	14.1	29	170
WA008075				47	**60.8**	16.4	31	171
WA008101				47	59.4	13.1	33	172
OTIS				46	59.8	13.8	34	175
MACON				45	58.5	13.5	30	172
BLANCA GRANDE				44	**61.3**	14.7	27	169
OR4990114				43	59.5	15.3	28	171
BUCK PRONTO	47	42	45	42	58.9	16.7	29	169
C.V. %	9	10	8	8	0.9	2.2	4	1
LSD '@ .10'	3	4	4	5	0.7	0.4	2	2
Average	50	47	51	50	59.8	14.9	31	172
Highest	52	52	55	56	61.3	16.7	38	177
Lowest	47	42	45	42	58.4	13.1	26	168

1. Grain yield in the Almira hard spring wheat trial averaged 50 bu/ac, equal to the average 5-year yield for this location. The Almira nursery was located about 10 miles north of Almira, WA (Dan McKay, cooperator).
2. This nursery was seeded on 20 April, 2009 following summer fallow. Seed was placed at a 60#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was applied in the fall as 80#N and 10#S per acre, and a spring soil test showed more than adequate available nutrients for hard wheat. Spring seeding conditions were rated 7 on a 1-10 scale and spring rain made the outlook good for the spring crop. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 51% compared to an RCBD design.
3. Yields ranged from 42 bu/ac to 56 bu/ac, with a CV of 8%. Yield values within the LSD range of the highest yield are shown in bold and 11 of the 30 entries are in this group. Hard white entries are listed in italicized print.
4. Test weights were good with an average of 59.8 lb/bu. Grain protein averaged 14.9% with a range of 13.1% to 16.7% and is high due to the high available N at this site. The average plant height was 31 inches.

2009 WSU EXTENSION HARD SPRING WHEAT NURSERY AT BICKLETON, WA.

TABLE 81:

Variety Name *HDWH Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT
OTIS	- -	- -		**27**	**61.5**	13.0	23
CLEAR WHITE	- -	- -		**27**	**61.0**	13.1	20
HANK	- -	- -	29	**26**	59.2	14.4	21
WA008079	- -	- -		**26**	60.0	13.2	23
BZ903-445WP	- -	- -		**25**	59.2	14.0	22
WA008078	- -	- -		**24**	60.5	14.4	23
HOLLIS	- -	- -	28	23	60.4	14.0	26
UI WINCHESTER	- -	- -	26	23	60.3	13.8	18
WA008101	- -	- -		23	**61.1**	12.2	21
SCARLET	- -	- -	27	22	59.3	14.3	23
JEDD	- -	- -	26	22	**62.2**	14.2	20
RSI10348W	- -	- -		22	**61.0**	13.5	19
BULLSEYE	- -	- -	28	22	**62.0**	13.2	19
WA008075	- -	- -		22	60.3	14.7	21
WA008074	- -	- -		22	60.5	13.7	22
WA008100	- -	- -		22	60.1	13.3	22
TARA 2002	- -	- -	25	21	60.5	15.0	23
WESTBRED 926	- -	- -	26	21	60.0	15.1	22
KELSE	- -	- -	27	21	60.3	15.4	24
VOLT	- -	- -	25	20	**61.3**	13.3	21
WA008027	- -	- -	25	20	60.1	15.1	24
WA008072	- -	- -		20	59.6	14.6	21
OR4990114	- -	- -		20	58.9	14.1	21
MACON	- -	- -		19	59.0	13.2	20
BLANCA GRANDE	- -	- -		19	**61.1**	15.1	20
JEFFERSON	- -	- -	26	19	59.4	14.5	20
LASSIK	- -	- -		19	60.2	14.0	20
BUCK PRONTO	- -	- -	22	18	58.8	15.6	21
NPBHR70	- -	- -	24	18	59.0	15.4	20
WA008076	- -	- -		18	60.1	14.0	23
C.V. %	- -	- -	11	14	1.5	3.6	8
LSD '@ .10'	- -	- -	3	4	1.3	0.7	2
Average	- -	- -	26	22	60.2	14.1	21
Highest	- -	- -	29	27	62.2	15.6	26
Lowest	- -	- -	22	18	58.8	12.2	18

1. Grain yield in the Bickleton hard spring wheat trial averaged 22 bu/ac, about 9 bu/ac lower than the 2008 average yield for this location. The Bickleton nursery was located about 3 miles east of Bickleton, WA (Steve Matsen, cooperator).
2. This nursery was seeded on 21 April, 2009 following spring wheat. Seed was placed at a 60#/acre seeding rate using a no-till plot drill fitted with Cross-slot openers set on 10-inch spacing. Spring seeding conditions were good with moisture rated 7 out of 10. Base fertilizer was 30#N, 5#P, and 5#S per acre applied in the spring, and an additional 25#N, 5#P, and 5#S of fertilizer was applied at planting for this hard trial. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 71% compared to an RCBD design.
3. Yields ranged from 18 bu/ac to 27 bu/ac. The CV was larger than desirable, 14%, but is not uncommon in low yielding trials. Yield values within the LSD range of the highest yield are shown in bold and 8 of the 30 entries are in this group. Hard white entries are listed in italicized print and the six of the top seven yielding cultivars are hard whites cultivars.
4. Test weights were good with an average of 60.2 lb/bu. Grain protein averaged 14.1% with a range of 12.2% to 15.6%. The average plant height was 21 inches.

2009 WSU EXTENSION HARD SPRING WHEAT NURSERY AT CONNELL, WA.

TABLE 82: Variety Name *HDWH Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
OTIS				**31**	62.6	14.6	27	154
WA008100				**31**	61.7	14.3	26	155
SCARLET	25	25	24	**30**	61.3	16.0	24	154
LASSIK				**29**	62.5	14.7	19	153
WA008078				28	62.0	15.7	24	151
WA008101				27	61.7	14.5	23	152
HOLLIS	24	22	21	26	61.3	16.0	26	153
VOLT		22	23	26	**63.6**	14.6	21	154
RSI10348W				26	62.9	14.4	20	152
BULLSEYE			21	26	**63.7**	16.2	19	153
UI WINCHESTER			20	26	62.6	15.2	20	152
BZ903-445WP				26	61.7	15.9	22	153
JEFFERSON	24	22	21	25	62.1	16.6	21	151
WA008079				25	62.1	15.6	24	153
WA008076				25	62.3	15.8	27	151
WA008072				25	62.1	15.8	22	151
BLANCA GRANDE				24	62.8	15.8	19	149
HANK	23	21	21	24	61.7	16.3	21	152
BUCK PRONTO	21	20	20	24	61.3	17.1	21	150
CLEAR WHITE				24	62.4	14.2	19	151
OR4990114				24	62.3	15.5	21	152
MACON				23	61.6	15.8	21	152
TARA 2002	22	20	19	23	60.6	16.5	22	150
WA008027		21	21	23	60.8	16.9	26	153
WA008075				23	62.4	16.3	22	151
JEDD		18	18	22	62.9	16.1	19	152
WA008074				22	62.2	16.1	21	150
WESTBRED 926	21	18	18	21	61.5	16.8	21	151
KELSE		20	20	21	61.8	17.0	24	154
NPBHR70			18	21	61.3	16.7	21	151
C.V. %	8	8	9	9	0.5	3.2	5	1
LSD '@ .10'	1	1	2	3	0.8	0.7	2	2
Average	23	21	20	25	62.1	15.8	22	152
Highest	25	25	24	31	63.7	17.1	27	155
Lowest	21	18	18	21	60.6	14.2	19	149

1. Grain yield in the Connell hard spring wheat trial averaged 25 bu/ac, 9% higher than the average 5-year yield for this location. The Connell spring nursery was located about 5 miles east of Connell, WA (D. Bauermeister farm).
2. This nursery was seeded on 18 March, 2009 following summer fallow. Seed was placed at a 60#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was 45#N and 15#S fall applied and soil test analysis showed an additional 165#N available. Spring seeding conditions were adequate and some spring rain made the outlook good for the spring crop until heading, when lack of moisture limited yield. The alpha lattice experimental design did not improve variation accountability compared to an RCBD design in this trial.
3. Yields ranged from 21 bu/ac to 31 bu/ac, with a CV of 9%. Yield values within the LSD range of the highest yield are shown in bold and 4 of the 30 entries are in this group. Hard white entries are listed in italicized print.
4. Test weights were very good with an average of 62.1 lb/bu. Grain protein averaged 15.8% with a range of 14.2% to 17.1% and is high due to the yield level and the available N at this site. The average plant height was 22 inches.

2009 WSU EXTENSION HARD SPRING WHEAT NURSERY AT DAYTON, WA.

TABLE 83: Variety Name *HDWH Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
WA008079				**43**	57.9	13.6	28	167
OTIS				**42**	58.5	13.8	27	166
HANK	53	56	49	**40**	58.6	15.9	23	162
KELSE		56	50	**40**	58.5	16.0	27	165
BULLSEYE			50	**40**	**59.9**	14.9	23	166
LASSIK				**40**	59.4	14.4	23	167
BZ903-445WP				38	57.9	14.6	25	164
SCARLET	53	58	51	37	57.1	15.3	24	167
JEFFERSON	52	54	49	37	**59.8**	14.8	24	165
VOLT		54	49	36	59.0	14.2	23	167
WA008100				36	57.3	12.6	26	167
JEDD		52	46	35	**60.1**	14.8	21	162
MACON				34	58.6	13.7	24	163
RSI10348W				34	**59.7**	14.1	22	163
WA008101				34	59.0	12.8	26	164
BUCK PRONTO	48	50	43	33	58.1	17.0	24	159
WA008078				33	58.9	14.8	27	165
HOLLIS	49	52	45	32	58.8	15.6	26	165
WA008027		51	43	32	58.4	16.2	26	166
UI WINCHESTER			43	32	**60.1**	15.4	22	161
WA008075				30	59.1	16.3	25	164
CLEAR WHITE				29	58.6	13.5	21	162
NPBHR70			43	29	58.0	15.8	22	163
WA008076				29	58.3	15.3	27	162
WA008074				29	58.9	15.1	23	165
OR4990114				29	58.4	15.0	22	164
WESTBRED 926	50	50	42	27	58.0	16.6	23	161
WA008072				27	58.7	15.3	22	165
BLANCA GRANDE				25	**60.2**	15.6	18	160
TARA 2002	49	51	43	25	58.1	16.0	24	160
C.V. %	7	7	7	10	0.8	2.0	6	1
LSD '@ .10'	2	3	3	5	0.7	0.4	2	2
Average	50	53	46	34	58.7	15.0	24	164
Highest	53	58	51	43	60.2	17.0	28	167
Lowest	48	50	42	25	57.1	12.6	18	159

1. Grain yield in the Dayton hard spring wheat trial averaged 34 bu/ac, 16 bu/ac lower than the average 5-year yield for this location. The low yields at this site indicate below average conditions that were evident from emergence through harvest. Soil compaction is suspected to have contributed to limiting yield potential. The Dayton nursery was located about 6 miles north of Dayton, WA (Jay Penner, cooperator).
2. This nursery was seeded on 16 April, 2009 following winter wheat. Seed was placed at an 80#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was applied at 137#N, 10#P and 15#S per acre, and a spring soil test showed that no additional fertilizer was needed for the hard wheat trial to meet university fertilization guidelines. Spring seeding conditions were good with moisture rated 6 out of 10 and spring rain made the early outlook good for the spring crop. For grain yield, the alpha lattice experimental design did not improve variation allocation during statistical analysis and the CV compared to an RCBD design.
3. Yields ranged from 25 bu/ac to 43 bu/ac, with a CV of 10%. Yield values within the LSD range of the highest yield are shown in bold and 7 of the 30 entries are in this group. Hard white entries are listed in italicized print.
4. Average test weights were lower than usual at 58.7 lb/bu. Grain protein was high and averaged 15.0% with a range of 12.6% to 17.0%. The average plant height was 24 inches, showing the limited plant growth at this site. No lodging occurred.

2009 WSU EXTENSION HARD SPRING WHEAT NURSERY AT ENDICOTT, WA.

TABLE 84:

Variety Name *HDWH Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
WA008100	- -			**77**	**62.9**	12.5	32	168
BZ903-445WP	- -			**77**	61.0	15.2	30	165
OTIS	- -			**76**	62.5	14.2	34	167
SCARLET	- -	62	67	**73**	61.1	15.6	33	166
WA008079	- -			70	62.0	13.2	34	166
WA008101	- -			66	62.0	14.0	33	164
HOLLIS	- -	55	60	65	61.8	16.1	37	165
HANK	- -	56	60	65	62.0	15.9	29	164
KELSE	- -	57	62	64	61.1	16.9	31	165
LASSIK	- -			63	61.7	15.0	26	167
MACON	- -			62	61.9	13.5	30	163
JEFFERSON	- -	57	61	62	62.1	15.8	29	165
UI WINCHESTER	- -		59	62	62.1	15.9	30	164
JEDD	- -	53	56	61	**63.0**	15.2	25	164
VOLT	- -	52	55	61	62.2	15.5	27	167
WA008078	- -			61	61.7	15.3	31	166
WA008074	- -			61	61.9	15.9	30	165
OR4990114	- -			60	61.9	15.1	27	165
TARA 2002	- -	55	59	59	61.2	16.8	31	163
WA008027	- -	53	56	59	61.4	17.4	33	165
BULLSEYE	- -		54	59	**62.7**	14.8	26	166
RSI10348W	- -			56	61.9	14.9	26	164
NPBHR70	- -		50	55	61.1	16.3	27	165
WA008075	- -			55	62.2	16.7	29	164
WA008072	- -			55	61.8	15.7	29	164
BUCK PRONTO	- -	48	50	54	60.8	17.1	28	164
CLEAR WHITE	- -			54	61.8	14.1	26	163
WESTBRED 926	- -	50	51	53	61.1	16.9	28	163
WA008076	- -			51	62.0	16.0	35	163
BLANCA GRANDE	- -			43	61.9	15.7	26	163
C.V. %	- -	7	8	7	0.4	1.6	3	1
LSD '@ .10'	- -	3	4	6	0.4	0.3	1	1
Average	- -	54	57	61	61.8	15.4	30	165
Highest	- -	62	67	77	63.0	17.4	37	168
Lowest	- -	48	50	43	60.8	12.5	25	163

1. Grain yield in the Endicott hard spring wheat trial averaged 61 bu/ac, about 13% higher than the average 3-year yield for this location. The Endicott nursery was located about 10 miles west of Colfax, WA (Mark Richter, cooperator).
2. This nursery was seeded on 7 April, 2009 following winter wheat. Seed was placed at an 80#/acre seeding rate using a no-till, Cross-slot plot drill set on 10-inch spacing. Base fertilizer was applied as 85#N, 16#P, and 16#S per acre, and a spring soil test showed more than adequate available nutrients, thus no additional fertilizer was added for the hard trial. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 120% compared to an RCBD design.
3. Yields ranged from 43 bu/ac to 77 bu/ac, with a CV of 7%. Yield values within the LSD range of the highest yield are shown in bold and 4 of the 30 entries are in this group. Hard white entries are listed in italicized print and five of the top six yielding cultivars are hard white cultivars.
4. Test weights were good with an average of 61.8 lb/bu. Grain protein averaged 15.4% with a range of 12.5% to 17.4% and is due to high available N at this site. The average plant height was 30 inches.

2009 WSU EXTENSION HARD SPRING WHEAT NURSERY AT FARMINGTON, WA.

TABLE 85: Variety Name *HDWH Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
OTIS				**88**	61.6	11.8	35	183
WA008078				**85**	61.2	12.9	32	180
UI WINCHESTER			65	**85**	60.9	13.5	29	181
TARA 2002	73	74	68	**84**	60.9	14.2	33	179
SCARLET	70	72	65	**83**	60.0	14.5	30	182
WA008101				**83**	61.1	12.3	32	181
WA008079				**82**	60.2	11.9	33	183
BULLSEYE			63	**82**	**62.6**	13.9	28	182
JEFFERSON	70	71	63	81	61.0	14.3	29	182
WA008074				81	61.2	13.9	31	183
WA008100				81	61.4	12.0	33	186
MACON				80	59.4	12.5	31	181
WESTBRED 926	74	71	64	80	60.2	14.4	30	180
WA008027		71	62	80	60.7	15.4	34	182
RSI10348W				80	59.5	13.2	27	180
BZ903-445WP				79	59.2	13.0	30	183
HOLLIS	67	66	61	78	60.7	15.2	37	181
HANK	72	71	62	77	59.1	13.8	29	181
NPBHR70			61	77	60.0	14.5	29	181
WA008072				77	60.4	14.1	28	183
LASSIK				77	60.6	13.7	26	184
JEDD		73	67	76	61.4	13.2	27	180
WA008075				76	61.0	14.8	31	185
BUCK PRONTO	71	68	58	75	59.8	15.1	30	179
VOLT		66	61	75	61.2	14.5	28	186
OR4990114				75	59.7	13.5	30	180
KELSE		66	58	73	60.8	14.6	32	182
CLEAR WHITE				73	60.0	12.6	26	179
WA008076				72	61.5	14.2	35	179
BLANCA GRANDE				62	61.0	14.5	26	179
C.V. %	7	8	6	7	0.9	3.0	4	1
LSD '@ .10'	3	4	4	7	0.7	0.6	2	2
Average	71	70	63	79	60.6	13.7	30	182
Highest	74	74	68	88	62.6	15.4	37	186
Lowest	67	66	58	62	59.1	11.8	26	179

1. Grain yield in the Farmington hard spring wheat trial averaged 79 bu/ac, 8 bu/ac higher than the 5-year yield average for this location. The Farmington nursery was located about 4 miles south of Farmington, WA (Bruce Nelson, cooperator).
2. This nursery was seeded on 4 May, 2009 following winter wheat. Seed was placed at an 80#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was applied at 115#N and 17#S per acre, and a spring soil test showed that 40#N and 6#S additional fertilizer was needed for the hard wheat trial to meet university fertilization guidelines. Spring seeding conditions were good with moisture rated 9 out of 10 and spring rain made the early outlook good for the spring crop. For grain yield, the alpha lattice experimental design improved variation allocation during statistical analysis and the CV by 43% compared to an RCBD design.
3. Yields ranged from 62 bu/ac to 88 bu/ac, with a CV of 7%. Yield values within the LSD range of the highest yield are shown in bold and 10 of the 30 entries are in this group. Hard white entries are listed in italicized print.
4. Average test weights were 60.6 lb/bu. Grain protein was good and averaged 13.7% with a range of 11.8% to 15.4%. The average plant height was 30 inches. No lodging occurred.

2009 WSU EXTENSION HARD SPRING WHEAT NURSERY AT HORSE HEAVEN, WA.

TABLE 86: Variety Name *HDWH Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
VOLT		21	20	**17**	**63.0**	13.6	16	150
BZ903-445WP				**17**	61.5	14.8	15	149
WA008074				**15**	61.4	14.6	18	147
TARA 2002	23	19	19	14	59.3	15.9	18	149
WESTBRED 926	22	18	17	14	60.4	16.1	15	150
KELSE		19	18	14	61.4	15.4	18	150
JEDD		20	18	14	**62.3**	15.0	16	150
CLEAR WHITE				14	61.8	13.8	17	149
WA008078				14	59.5	15.3	18	149
BULLSEYE			20	14	**63.0**	14.6	16	151
WA008075				14	61.5	15.3	18	148
WA008072				14	61.3	15.5	17	149
OR4990114				14	62.0	14.5	16	149
MACON				13	59.5	14.5	17	149
OTIS				13	61.3	14.1	19	151
BLANCA GRANDE				13	61.8	14.2	17	149
SCARLET	24	24	23	13	60.1	15.4	19	151
HOLLIS	24	21	18	13	61.0	15.7	19	148
JEFFERSON	25	21	17	13	61.4	15.6	14	151
WA008027		21	20	13	59.8	16.0	17	150
WA008079				13	61.3	14.0	19	151
NPBHR70			18	13	60.6	15.8	17	149
UI WINCHESTER			16	13	60.9	14.9	15	149
WA008076				13	61.2	14.3	20	148
RSI10348W				12	60.4	13.7	15	149
LASSIK				12	60.2	14.1	16	150
WA008101				12	59.8	13.8	16	149
WA008100				12	60.5	15.4	17	154
HANK	25	21	19	11	58.8	16.0	17	150
BUCK PRONTO	21	18	16	11	59.8	17.0	16	149
C.V. %	11	14	14	14	1.1	3.5	10	1
LSD '@ .10'	1	2	2	3	0.9	0.7	2	1
Average	23	20	18	13	60.9	15.0	17	150
Highest	25	24	23	17	63.0	17.0	20	154
Lowest	21	18	16	11	58.8	13.6	14	147

1. Grain yield in the Horse Heaven hard spring wheat trial averaged 13 bu/ac, 10 bu/ac less than the average 5-year yield for this location. The Horse Heaven spring nursery was located about 5 miles southwest of Prosser, WA (M. Schmitt, cooperator).
2. This nursery was seeded on 20 March, 2009 following summer fallow. Seed was placed at a 60#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was 40#N and soil test analysis showed an additional 110#N available. Spring seeding conditions were adequate and some spring rain made the outlook good for the spring crop until heading, when lack of moisture limited yield. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 150% compared to an RCBD design.
3. Yields ranged from 11 bu/ac to 17bu/ac, with a CV of 14%. Yield values within the LSD range of the highest yield are shown in bold and 3 of the 30 entries are in this group. Hard white entries are listed in italicized print.
4. Test weights were good with an average of 60.9 lb/bu. Grain protein averaged 15.0% with a range of 13.6 to 17.0% and is high due to low yield and the available N at this site. The average plant height was 17 inches.

2009 WSU EXTENSION HARD SPRING WHEAT NURSERY AT LAMONT, WA.

TABLE 87: Variety Name *HDWH Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
SCARLET	50	46	45	**57**	59.7	15.3	30	169
OTIS				**55**	**61.3**	13.3	32	169
WA008078				50	59.8	14.1	29	166
BZ903-445WP				50	60.0	13.8	26	167
BUCK PRONTO	47	38	36	48	59.1	17.6	26	164
WA008100				48	**60.8**	13.4	27	173
CLEAR WHITE				47	59.7	13.1	24	164
WA008079				47	**60.8**	13.0	29	167
LASSIK				47	60.2	15.0	24	167
WA008101				47	60.5	13.0	29	166
HOLLIS	51	40	37	45	60.6	16.0	30	166
RSI10348W				44	60.0	13.9	24	164
NPBHR70			36	44	59.5	15.9	26	166
MACON				43	59.9	13.0	28	165
JEFFERSON	50	39	36	43	60.4	15.2	24	167
HANK	48	38	37	43	59.8	14.4	26	166
KELSE		38	36	43	59.6	15.5	29	166
WESTBRED 926	46	37	36	42	59.4	15.9	25	164
BULLSEYE			33	41	**61.1**	13.9	24	166
WA008074				41	60.4	14.7	27	166
UI WINCHESTER			33	40	60.5	15.1	24	165
TARA 2002	45	37	33	39	59.4	15.6	28	164
VOLT		33	32	38	60.1	14.5	24	169
WA008027		34	32	38	60.0	16.4	30	168
WA008076				37	60.5	15.5	33	164
WA008075				36	60.7	15.6	27	165
WA008072				36	60.0	15.3	24	166
OR4990114				36	59.7	15.4	25	165
BLANCA GRANDE				33	60.6	14.6	22	164
JEDD		33	30	33	**60.9**	15.3	22	166
C.V. %	10	9	9	10	0.8	3.7	6	0
LSD '@ .10'	3	3	3	6	0.6	0.8	2	1
Average	48	37	35	43	60.2	14.8	27	166
Highest	51	46	45	57	61.3	17.6	33	173
Lowest	45	33	30	33	59.1	13.0	22	164

1. Grain yield in the Lamont hard spring wheat trial averaged 43 bu/ac, 5 bu/ac lower than the average 5-year yield for this location. The Lamont nursery was located about 4 miles southeast of Lamont, WA (Gil White, cooperator).
2. This nursery was seeded on 15 April, 2009 following winter wheat. Seed was placed at a 70#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was applied at 70#N and 10#S per acre, and a spring soil test showed more than adequate available nutrients for hard wheat. Spring seeding conditions were rated 8 on a 1-10 scale and spring rain made the early outlook good for the spring crop. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 307% compared to an RCBD design.
3. Yields ranged from 33 bu/ac to 57 bu/ac, with a CV of 10%. Yield values within the LSD range of the highest yield are shown in bold and 2 of the 30 entries are in this group. Hard white entries are listed in italicized print.
4. Test weights were good with an average of 60.2 lb/bu. Grain protein was high and averaged 14.8% with a range of 13.0% to 17.6%. The average plant height was 27 inches.

2009 WSU EXTENSION HARD SPRING WHEAT NURSERY AT LIND, WA.

TABLE 88:

Variety Name *HDWH Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
WA008100				**27**	61.5	13.9	25	161
SCARLET	25	22	21	**26**	60.1	16.1	24	158
WA008079				**26**	61.3	14.0	26	157
BZ903-445WP				**26**	60.8	14.8	22	156
KELSE		21	21	25	61.3	16.4	26	157
LASSIK				25	61.6	14.6	20	157
WA008101				25	61.0	13.4	24	155
MACON				24	61.0	14.2	21	155
OTIS				24	61.5	14.2	25	158
WA008078				24	60.8	14.5	23	156
HANK	24	20	19	23	61.1	15.7	20	154
CLEAR WHITE				23	61.5	13.5	19	152
WA008076				23	61.7	14.9	26	153
WA008074				23	61.4	15.1	21	154
HOLLIS	23	19	19	22	61.2	15.5	26	157
JEDD		19	18	22	**62.3**	14.9	18	154
VOLT		19	18	22	61.9	14.3	20	157
RSI10348W				22	61.4	14.2	18	154
BULLSEYE			19	22	**62.6**	15.4	19	156
WA008072				22	60.9	15.7	22	153
TARA 2002	22	18	18	21	59.3	15.5	22	154
WA008027		20	19	21	60.0	16.5	26	157
UI WINCHESTER			18	21	61.4	15.3	19	153
WA008075				21	61.3	16.0	23	153
OR4990114				21	61.6	15.5	21	154
JEFFERSON	23	19	18	20	61.0	16.2	21	155
WESTBRED 926	21	17	16	20	60.2	15.7	20	154
BUCK PRONTO	21	18	17	20	60.2	16.5	20	152
NPBHR70			17	20	60.6	16.1	21	155
BLANCA GRANDE				19	61.6	14.8	17	152
C.V. %	7	7	7	7	0.6	1.8	5	1
LSD '@ .10'	1	1	1	2	0.5	0.4	1	1
Average	23	19	18	23	61.1	15.1	22	155
Highest	25	22	21	27	62.6	16.5	26	161
Lowest	21	17	16	19	59.3	13.4	17	152

1. Grain yield in the Lind hard spring wheat trial averaged 23 bu/ac, equal to the average 5-year yield for this location. The Connell spring nursery was located about 3 miles northeast of Lind, WA on the WSU Lind Dryland Research Station.
2. This nursery was seeded on 19 March, 2009 following summer fallow. Seed was placed at a 60#/acre seeding rate using a double disc plot drill set on 6-inch spacing. No fertilizer was applied based on soil tests that showed adequate fertility. Spring seeding conditions were adequate and some spring rain made the outlook good for the spring crop until heading, when lack of moisture limited yield. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 26% compared to an RCBD design.
3. Yields ranged from 19 bu/ac to 27 bu/ac, with a CV of 7%. Yield values within the LSD range of the highest yield are shown in bold and 5 of the 30 entries are in this group. Hard white entries are listed in italicized print.
4. Test weights were good with an average of 61.1 lb/bu. Grain protein averaged 15.1% with a range of 13.4% to 16.5% and is high due to the yield level and the available N at this site. The average plant height was 22 inches.

2009 WSU EXTENSION HARD SPRING WHEAT NURSERY AT MAYVIEW, WA.

TABLE 89:

Variety Name *HDWH Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
WA008079				**61**	61.0	12.8	29	177
OTIS				**60**	61.3	13.4	30	177
SCARLET	46	54	55	**60**	59.1	14.2	29	174
BZ903-445WP				**58**	60.3	13.8	26	175
BULLSEYE			53	56	**62.9**	14.1	24	173
VOLT		53	53	54	**61.9**	14.7	26	178
UI WINCHESTER			51	54	61.4	14.5	24	171
LASSIK				54	61.3	14.7	23	174
MACON				53	60.8	13.1	26	173
RSI10348W				53	**61.8**	13.9	23	170
WA008101				53	61.1	13.5	30	175
JEFFERSON	48	53	51	52	60.9	14.9	25	174
WA008074				52	61.5	14.5	26	176
WA008100				52	61.4	13.1	28	179
HANK	45	50	50	51	60.3	14.9	24	171
BUCK PRONTO	46	51	51	51	60.1	16.2	26	171
JEDD		51	51	51	**62.0**	14.9	23	171
WA008078				51	61.3	14.1	27	173
HOLLIS	41	48	49	48	60.2	15.8	31	174
WESTBRED 926	45	49	47	48	60.2	15.8	25	170
NPBHR70			48	48	60.1	14.9	25	173
TARA 2002	45	51	50	47	61.0	15.3	27	170
KELSE		50	51	47	60.9	15.4	28	175
CLEAR WHITE				47	61.1	13.1	24	169
OR4990114				47	60.5	14.9	25	175
WA008027		48	47	46	60.4	16.6	29	177
WA008075				46	61.1	16.1	25	174
WA008072				46	60.7	15.3	25	175
BLANCA GRANDE				44	**62.7**	14.9	23	169
WA008076				43	60.9	15.3	32	171
C.V. %	6	6	6	7	0.9	2.7	4	1
LSD '@ .10'	2	2	3	5	1.3	0.6	2	1
Average	45	51	50	51	61.0	14.6	26	173
Highest	48	54	55	61	62.9	16.6	32	179
Lowest	41	48	47	43	59.1	12.8	23	169

1. Grain yield in the Mayview hard spring wheat trial averaged 51 bu/ac, 6 bu/ac higher than the average 5-year yield for this location. The Mayview nursery was located about 5 miles south of the Lower Granite Dam on the Snake River, WA or 12 miles northeast of Pomeroy, WA (Roger and Randy Koller, cooperators).
2. This nursery was seeded on 24 April, 2009 following winter wheat. Seed was placed at a 70#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was applied at 64#N and 10#S per acre, and a spring soil test showed that an additional 20#N and 3#S fertilizer was needed for the hard wheat trial to meet university fertilization guidelines and it was applied at seeding. Spring seeding moisture conditions were rated 4 out of 10 and spring rain made the early outlook good for the spring crop. For grain yield, the alpha lattice experimental design improved variation allocation during statistical analysis and the CV by 102% compared to an RCBD design.
3. Yields ranged from 43 bu/ac to 61 bu/ac, with a CV of 7%. Yield values within the LSD range of the highest yield are shown in bold and 5 of the 30 entries are in this group. Hard white entries are listed in italicized print.
4. Test weights were good with an average of 61.0 lb/bu. Grain protein was good and averaged 14.6% with a range of 12.8% to 16.6%. The average plant height was 26 inches. No lodging occurred.

2009 WSU EXTENSION IRR. ONLY HARD SPRING WHEAT NURSERY AT MOSES LAKE, WA.

TABLE 90:

Variety Name *HDWH Italicized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 LODGING (%)	2009 PLANT HT	2009 HEAD DATE
WA008078	- -	- -	- -	**134**	62.8	13.8	20	37	155
OTIS	- -	- -	- -	**131**	63.3	13.3	17	39	157
CLEAR WHITE	- -	- -	- -	**130**	62.8	12.3	0	28	153
LASSIK	- -	- -	- -	**130**	62.9	12.9	7	30	156
RSI10348W	- -	- -	- -	**129**	**63.6**	13.1	0	31	154
OR4990114	- -	- -	- -	**126**	62.3	13.5	0	33	153
BZ903-445WP	- -	- -	- -	**125**	61.0	14.1	0	34	155
BLANCA GRANDE	- -	- -	- -	**124**	**64.4**	13.1	7	30	153
WA008100	- -	- -	- -	**124**	**63.7**	12.4	62	37	159
HANK	- -	- -	- -	123	60.9	14.8	13	33	154
CABERNET	- -	- -	- -	123	**63.6**	13.3	0	28	156
BULLSEYE	- -	- -	- -	123	**64.4**	13.6	27	32	156
WHIT (SWS check)	- -	- -	- -	122	61.8	12.3	37	33	154
EXPRESSO	- -	- -	- -	121	63.3	14.7	0	31	157
WA008079	- -	- -	- -	121	62.1	12.6	43	38	156
WA008074	- -	- -	- -	121	63.1	13.8	23	34	153
WA008072	- -	- -	- -	121	62.6	13.9	20	33	155
SOLANO	- -	- -	- -	120	63.1	15.1	0	27	156
KELSE	- -	- -	- -	119	62.5	15.4	0	37	156
NPBHR70	- -	- -	- -	119	61.7	14.2	2	33	154
JEDD	- -	- -	- -	118	**64.1**	14.1	0	30	154
VOLT	- -	- -	- -	118	**64.2**	13.9	7	33	158
LARIAT	- -	- -	- -	118	60.9	13.0	0	28	155
WA008076	- -	- -	- -	118	63.2	14.6	13	42	152
JEFFERSON	- -	- -	- -	117	62.5	14.4	22	34	154
BUCK PRONTO	- -	- -	- -	117	62.3	15.0	50	33	153
RSI50603	- -	- -	- -	117	63.4	14.3	0	30	155
WA008075	- -	- -	- -	117	63.3	14.7	0	36	153
TARA 2002	- -	- -	- -	116	62.1	14.6	3	35	153
UI WINCHESTER	- -	- -	- -	115	62.5	14.1	47	32	155
WA008101	- -	- -	- -	112	61.5	12.5	83	36	154
WESTBRED 926	- -	- -	- -	110	61.6	14.8	2	32	152
SCARLET	- -	- -	- -	109	60.6	14.4	58	36	158
MACON	- -	- -	- -	106	61.3	12.5	53	31	153
WA008027	- -	- -	- -	102	62.1	15.5	5	36	156
HOLLIS	- -	- -	- -	93	62.7	15.3	20	42	156
C.V. %	- -	- -	- -	7	1.1	4.4	109	3	1
LSD '@ .10'	- -	- -	- -	11	0.9	0.8	26	2	2
Average	- -	- -	- -	119	62.6	13.9	18	33	155
Highest	- -	- -	- -	134	64.4	15.5	83	42	159
Lowest	- -	- -	- -	93	60.6	12.3	0	27	152

1. Grain yield in the Moses Lake irrigated hard spring wheat trial averaged 119 bu/ac. The Moses Lake irrigated spring nursery was located about 6 miles east of Othello, WA on the WSU Othello Experimental Field Station and about 15 miles south of the Moses Lake winter wheat site.
2. This nursery was seeded on 27 March, 2009 following summer fallow. Seed was placed at a 90#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was 220#N and an additional 50#N and 7#S was applied for higher hard wheat fertility. Spring seeding conditions were adequate and spring growing conditions created good yield potential. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 16% compared to an RCBD design.
3. Yields ranged from 93 bu/ac to 134 bu/ac, with a CV of 7%. Yield values within the LSD range of the highest yield are shown in bold and 11 of the 36 entries are in this group. Hard white entries are listed in italicized print.
4. Test weights were good with an average of 62.6 lb/bu. Grain protein averaged 13.9% with a range of 12.3% to 15.5%. The average plant height was 33 inches. Lodging varied among cultivars and should give a good indication of straw strength.

2009 WSU EXTENSION HARD SPRING WHEAT NURSERY AT PULLMAN, WA.

TABLE 91: Variety Name *HDWH Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
WA008079				**80**	61.2	12.7	37	174
WA008100				**78**	**62.8**	12.4	35	179
WA008078				72	61.5	14.0	35	174
OTIS				70	**62.5**	13.3	34	175
BULLSEYE			67	69	**63.1**	14.9	27	175
WA008101				69	61.6	13.0	35	172
SCARLET	65	72	68	68	60.0	15.6	32	174
WA008074				68	62.0	14.8	32	174
LASSIK				68	62.0	14.8	27	176
BZ903-445WP				67	61.1	14.4	31	174
BUCK PRONTO	67	69	65	65	60.7	16.2	32	172
UI WINCHESTER			67	65	62.0	14.8	31	173
HOLLIS	66	66	63	64	61.1	15.9	41	174
JEFFERSON	68	69	65	64	61.8	15.7	31	173
KELSE		71	67	64	61.1	15.4	33	175
NPBHR70			64	62	60.7	15.7	31	173
MACON				61	61.4	12.9	31	174
TARA 2002	71	70	67	61	61.3	15.1	34	172
WESTBRED 926	67	67	64	61	60.2	15.8	31	172
HANK	69	69	65	61	60.6	15.0	30	173
WA008076				61	61.8	15.3	40	172
OR4990114				61	61.2	14.7	30	172
JEDD		68	65	60	62.2	14.9	26	172
VOLT		67	63	59	**62.8**	14.7	29	177
CLEAR WHITE				59	60.8	13.4	27	172
WA008027		70	66	59	60.7	16.3	36	175
RSI10348W				59	61.6	14.0	27	172
WA008075				59	61.6	15.9	33	173
WA008072				59	61.7	15.3	30	173
BLANCA GRANDE				53	62.2	14.6	27	170
C.V. %	6	7	7	10	0.8	2.3	4	0
LSD '@ .10'	2	4	5	9	0.7	0.5	2	1
Average	68	69	65	64	61.5	14.7	32	174
Highest	71	72	68	80	63.1	16.3	41	179
Lowest	65	66	63	53	60.0	12.4	26	170

1. Grain yield in the Pullman hard spring wheat trial averaged 64 bu/ac, 4 bu/ac lower than the average 5-year yield for this location. The Pullman nursery was located about 2 miles south of Pullman, WA on the Spillman WSU Agronomy Farm (Ryan Davis, farm manager).
2. This nursery was seeded on 21 April, 2009 following dry pea. Seed was placed at an 80#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was applied at 90#N, 20#P and 20#S per acre, and a spring soil test showed adequate available nutrients for hard wheat. Spring seeding conditions were good and spring rain made the early outlook good for the spring crop. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 34% compared to an RCBD design.
3. Yields ranged from 53 bu/ac to 80 bu/ac, with a CV of 10%. Yield values within the LSD range of the highest yield are shown in bold and 3 of the 30 entries are in this group. Hard white entries are listed in italicized print.
4. Test weights were good with an average of 61.5 lb/bu. Grain protein was high and averaged 14.7% with a range of 12.4% to 16.3%. The average plant height was 32 inches. No lodging occurred.

2009 WSU EXTENSION HARD SPRING WHEAT NURSERY AT REARDAN, WA.

TABLE 92:

Variety Name *HDWH Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
WA008101				**62**	62.0	13.6	38	173
WA008078				**60**	61.7	14.8	35	173
WA008079				**60**	62.0	13.8	37	174
WA008100				**59**	61.5	13.6	38	178
OTIS				**56**	62.6	14.1	36	174
BZ903-445WP				**56**	60.7	15.2	34	175
MACON				54	61.8	13.8	35	173
CLEAR WHITE				54	62.0	13.6	30	169
HANK	49	39	41	51	61.2	15.6	32	174
JEFFERSON	47	37	42	50	61.6	16.0	34	174
RSI10348W				50	62.1	14.8	31	170
WA008072				50	61.9	16.1	33	173
JEDD		39	41	49	**62.9**	15.1	29	172
VOLT		41	43	49	61.7	15.5	31	176
BULLSEYE			43	49	**63.2**	14.9	30	174
UI WINCHESTER			41	49	62.0	15.1	32	172
WA008074				49	61.9	15.3	35	173
KELSE		41	43	48	61.6	16.1	35	175
SCARLET	45	38	42	47	61.1	15.8	34	175
TARA 2002	46	35	34	47	60.9	15.7	36	169
WESTBRED 926	47	37	38	47	60.5	16.0	32	172
BUCK PRONTO	46	37	40	47	60.9	17.1	32	169
WA008027		37	43	47	60.8	16.5	38	176
WA008076				47	62.1	16.0	40	170
WA008075				47	62.1	16.2	35	171
HOLLIS	46	37	38	45	61.1	15.7	41	175
NPBHR70			36	45	60.7	15.9	34	174
BLANCA GRANDE				44	61.9	15.6	31	168
OR4990114				44	61.9	15.7	31	171
LASSIK				40	61.2	15.0	30	174
C.V. %	8	9	9	10	0.5	2.9	4	1
LSD '@ .10'	2	3	4	7	0.4	0.6	2	2
Average	46	38	40	50	61.7	15.3	34	173
Highest	49	41	43	62	63.2	17.1	41	178
Lowest	45	35	34	40	60.5	13.6	29	168

1. Grain yield in the Reardan hard spring wheat trial averaged 50 bu/ac, 4 bu/ac higher than the average 5-year yield for this location. The Reardan nursery was located about 7 miles west of Reardan, WA (Hal Johnson, cooperator).
2. This nursery was seeded on 17 April, 2009 following winter wheat. Seed was placed at an 80#/acre seeding rate using a no-till plot drill fitted with Cross-slot openers set on 10-inch spacing. Base fertilizer included 65#N and 5#S applied in the fall and 20#N, 4#P, and 4#S per acre applied in the spring, and a spring soil test showed an additional 40#N, 7#P, and 7#S of fertilizer was needed and applied at planting for this hard trial. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 37% compared to an RCBD design.
3. Yields ranged from 40 bu/ac to 62 bu/ac, with a CV of 10%. Yield values within the LSD range of the highest yield are shown in bold and 6 of the 30 entries are in this group. Hard white entries are listed in italicized print and the eight top yielding cultivars are hard whites cultivars.
4. Test weights were good with an average of 61.7 lb/bu. Grain protein averaged 15.3% with a range of 13.6% to 17.1%. The average plant height was 34 inches.

2009 WSU EXTENSION HARD SPRING WHEAT NURSERY AT ST. JOHN, WA.

TABLE 93: Variety Name *HDWH Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
BZ903-445WP				**88**	60.0	13.9	31	172
OTIS				**87**	61.8	13.3	33	173
WA008100				**87**	61.2	12.8	34	175
LASSIK				**85**	61.1	13.7	26	170
WA008079				**84**	61.0	13.0	35	174
WA008101				**81**	61.7	12.8	31	170
SCARLET	65	68	68	79	60.1	15.5	32	171
KELSE		64	66	79	60.7	15.7	33	172
BULLSEYE			66	79	**62.8**	14.3	27	171
JEFFERSON	65	65	65	78	61.1	15.2	30	170
JEDD		64	64	78	61.9	13.9	24	169
WA008078				78	61.0	14.1	32	171
HANK	65	64	64	76	59.9	14.5	31	169
UI WINCHESTER			62	76	61.1	14.3	29	168
BUCK PRONTO	64	64	63	75	60.2	16.2	29	166
RSI10348W				75	60.9	13.6	27	168
HOLLIS	65	66	67	74	60.5	16.0	38	170
TARA 2002	65	66	65	74	61.0	14.8	32	166
MACON				73	60.8	12.8	28	169
VOLT		62	63	72	62.0	14.7	27	174
CLEAR WHITE				71	60.9	13.2	27	168
WA008027		60	59	71	60.7	16.4	35	173
WA008072				69	61.2	15.2	29	170
WA008076				68	61.3	15.2	35	167
WESTBRED 926	63	62	61	67	60.0	15.6	29	167
NPBHR70			60	67	60.1	15.5	30	170
WA008075				66	61.5	15.8	31	169
BLANCA GRANDE				65	62.0	15.2	27	166
WA008074				65	61.6	15.4	29	171
OR4990114				61	60.4	14.7	27	170
C.V. %	8	8	8	8	0.8	2.9	6	1
LSD '@ .10'	3	4	5	8	0.6	0.6	3	1
Average	65	64	64	75	61.0	14.6	30	170
Highest	65	68	68	88	62.8	16.4	38	175
Lowest	63	60	59	61	59.9	12.8	24	166

1. Grain yield in the St. John hard spring wheat trial averaged 75 bu/ac, 10 bu/ac higher than the average 5-year yield for this location. The St. John nursery was located about 3 miles east of St. John, WA (Mac Mills, cooperator).
2. This nursery was seeded on 20 April, 2009 following winter wheat. Seed was placed at an 80#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was applied at 70#N and 10#S per acre, and a spring soil test showed that an additional 65#N and 11#S fertilizer was needed for the hard wheat trial to meet university fertilization guidelines and it was applied at seeding. Spring seeding conditions were good with moisture rated 7 out of 10 and spring rain made the early outlook good for the spring crop. For grain yield, the alpha lattice experimental design improved variation allocation during statistical analysis and the CV by 150% compared to an RCBD design.
3. Yields ranged from 61 bu/ac to 88 bu/ac, with a CV of 8%.Yield values within the LSD range of the highest yield are shown in bold and 6 of the 30 entries are in this group. Hard white entries are listed in italicized print.
4. Test weights were good with an average of 61.0 lb/bu. Grain protein was high and averaged 14.6% with a range of 12.8% to 16.4%. The average plant height was 30 inches. No lodging occurred.

2009 WSU EXTENSION HARD SPRING WHEAT NURSERY AT WALLA WALLA, WA.

TABLE 94:

Variety Name *HDWH Italized	5 YEAR AVERAGE (BU/A)	3 YEAR AVERAGE (BU/A)	2 YEAR AVERAGE (BU/A)	2009 YIELD (BU/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLANT HT	2009 HEAD DATE
BZ903-445WP				**102**	60.2	12.5	33	165
WA008079				**100**	61.0	11.5	40	165
OTIS				95	61.3	11.5	40	165
WA008101				95	61.0	12.0	38	163
WA008078				92	61.5	12.7	37	163
BULLSEYE			63	92	**62.5**	12.7	30	165
KELSE		60	68	89	61.1	14.0	35	165
WA008100				89	61.1	11.3	36	166
SCARLET	55	62	69	88	59.6	13.7	35	164
JEFFERSON	55	60	67	88	60.7	13.8	34	165
HANK	58	58	65	88	60.4	13.5	33	163
VOLT		55	60	88	61.9	12.8	31	166
LASSIK				88	60.9	12.7	29	165
MACON				87	61.0	12.0	35	163
TARA 2002	58	57	62	87	60.6	14.1	36	161
JEDD		55	61	87	62.4	12.9	29	162
CLEAR WHITE				86	61.1	12.1	30	162
WA008027		56	62	85	61.4	14.7	39	165
RSI10348W				85	61.7	12.4	29	162
UI WINCHESTER			62	85	61.7	13.3	32	162
WA008072				85	61.2	13.5	32	163
WA008074				84	61.2	13.7	33	162
WESTBRED 926	53	54	58	83	60.4	14.2	32	161
BUCK PRONTO	53	56	60	82	60.4	15.2	32	161
WA008076				82	61.3	14.5	44	162
NPBHR70			60	81	60.3	14.3	31	161
OR4990114				81	60.5	12.9	32	163
WA008075				80	61.9	14.4	34	162
BLANCA GRANDE				79	**62.9**	13.8	28	160
HOLLIS	53	54	58	79	60.8	14.4	43	164
C.V. %	8	5	5	4	0.6	2.4	4	0
LSD '@ .10'	3	3	4	5	0.5	0.4	2	1
Average	55	57	63	87	61.1	13.2	34	163
Highest	58	62	69	102	62.9	15.2	44	166
Lowest	53	54	58	79	59.6	11.3	28	160

1. Grain yield in the Walla Walla hard spring wheat trial averaged 87 bu/ac, 32 bu/ac higher than the average 5-year yield for this location. The Walla Walla nursery was located about 5 miles south of Waitsburg, WA (Glen Smith, cooperator).
2. This nursery was seeded on 16 April, 2009 following winter wheat. Seed was placed at an 80#/acre seeding rate using a no-till plot drill equipped with Cross-Slot openers set on 10-inch spacing. Base fertilizer was applied at 110#N, 15#P and 15#S per acre, and a spring soil test showed adequate available nutrients for hard wheat. Spring seeding conditions were rated 8 on a 1-10 scale and spring rain made the early outlook good for the spring crop. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 56% compared to an RCBD design. Yield values within the LSD range of the highest yield are shown in bold and 2 of the 30 entries are in this group. Hard white entries are listed in italicized print.
3. Yields ranged from 79 bu/ac to 102 bu/ac. The CV was very good at 4%.
4. Test weights were good with an average of 61.1 lb/bu. Grain protein was good and averaged 13.2% with a range of 11.3% to 15.2%. The average plant height was 34 inches.

2009 Spring Barley

2009 Spring Barley

TABLE 95:

STRIPE RUST INFECTION TYPE (IT*) AND PERCENT (%) ON CULTIVARS AND LINES IN THE SPRING BARLEY EXTENSION NURSERY (EXP52) AT SPILLMAN (LOC01), PLANT PATH FRAM (LOC03) AND WHITLOW FARM (LOC04) NEAR PULLMAN AND MT VERNON (LOC05), WALLA WALLA (LOC06), AND LIND (LOC07), WA WHEN RECORDED AT THE INDICATED DATES AND STAGES OF PLANT GROWTH, IN 2009 UNDER NATURAL INFECTION EXCEPT LOC04 THAT WAS INOCULATED.

NOTE: STRIPE RUST DATA WERE ADEQUATE IN LOC05 AND LOC04, BUT NOT ADEQUATE IN OTHER LOC01 AND LOC02 AND NO RUST OBSERVED IN LOC06 AND LOC07

		Spillman Farm (Pullman)		Plant Path Farm (Pullman)		Whitlow Farm (Pullman)		Mt. Vernon, WA.			
		LOC01		LOC03		LOC04		LOC05			
		7/17/09		7/17/09		7/16/09		6/10/09		7/10/09	
		Dough		S. Dough		S. Dough		Jointing		S. Dough	
CLASS	VARIETY	IT	%	IT	%	IT	%	IT	%	IT	%
2-Row	**BOB**	0	0	2	1	2	2	2	2	5	30
2-Row	**RADIANT**	0	0	2	1	5	5	8	5	8	80
2-Row	**BARONESSE**	0	0	2	1	8	20	8	10	8	80
2-Row	**CHAMPION**	8	5	2	1	8	10	5	20	8	60
2-Row	**RWA 1758**	0	0	8	1	8	15	5	10	8	80
2-Row	**KENT**	0	0	2	5	8	20	8	10	8	50
2-Row	**HARRINGTON**	0	0	2	1	8	20	8	20	8	60
2-Row	**AC METCALFE**	0	0	2	1	2	5	2	2	8	50
2-Row	**SPAULDING**	8	20	5	20	8	40	5	10	8	80
6-Row	**LEGACY**	8	5	2	1	8	30	5	10	8	80
2-Row	**CDC COPELAND**	0	0	2	1	8	20	8	10	8	60
2-Row	**HAXBY**	0	0	2	1	5	10	8	20	8	80
2-Row	**LENETAH**	0	0	2	1	5	10	8	20	8	80
2-Row	**CLEARWATER**	0	0	2	1	8	10	5	10	8	80
2-Row	**TETONIA**	0	0	2	1	8	10	8	20	8	80
2-Row	**PINNACLE**	0	0	2	1	8	20	8	20	8	80
2-Row	**2004NZ151**	0	0	2	1	8	10	5	10	8	80
2-Row	**2004NZ163**	0	0	2	1	8	10	8	20	8	30
2-Row	**2004NZ052**	0	0	2	1	8	40	0	0	8	80
2-Row	**2004NZ160**	0	0	2	1	8	50	0	0	8	60
	STEPTOE	**8**	**30**	**8**	**30**	**8**	**100**	**8**	**5**	**8**	**60**
2-Row	**05WA-316.K**	0	0	8	20	8	80	0	0	8	60
6-Row	**05WA-328.8**	2	2	2	1	8	30	8	10	8	60
2-Row	**05WA-329.49**	0	0	2	1	5	10	0	0	8	50
2-Row	**05WA-325.18**	0	0	2	1	3	10	8	20	8	60
2-Row	**05WA-357.14**	0	0	2	1	5	10	8	10	8	60
2-Row	**05WA-316.99**	0	0	2	1	8	20	8	20	8	60
2-Row	**05WA-360.24**	0	0	2	1	8	10	5	10	8	60
2-Row	**04WNZ-286**	0	0	2	1	5	10	8	20	8	60
2-Row	**04WA-113.22**	0	0	2	1	3	5	8	20	8	60
2-Row	**04WA-122.9**	0	0	2	1	3	5	5	20	8	80
2-Row	**04WNZ-124**	0	0	2	1	8	20	8	20	8	60
2-Row	**04WA-102.49**	0	0	2	1	5	10	2	2	0	0
2-Rowwx	**03WA-204.22H**	0	0	3	5	8	15	8	20	8	60
2-Rowwx	**01WA-13860.5**	0	0	2	1	5	15	5	20	8	60
2-Rowwx	**WA 9820-98**	0	0	2	1	2	5	2	2	8	60
2-Row	**MERESSE**	0	0	2	1	8	20	5	20	8	80
	STEPTOE	**8**	**10**	**0**	**0**	**8**	**10**	**8**	**20**	**8**	**60**
	STEPTOE	**8**	**10**	**0**	**0**	**8**	**20**	**8**	**30**	**8**	**60**
	LEMHI	8	80	8	100	8	100	8	60	8	80

* Infection Type (IT) was recorded based on the 0-9 scale with ITs 8 and 9 combined as 8 (the most susceptible reaction) in field data. Generally IT 0-3 are considered resistant, 4-6 intermediate, and 7-9 susceptible. Heterogenous reactions of an entry were indicated by two or more ITs separated by "," for most plants with the first IT and few plants with the second IT or connected with "-" for entries containing plants with continuous ITs.

2009 WSU SPRING BARLEY TRIAL SUMMARY
Precipitation Zone= >20"

TABLE 96:

VARIETY NAME (6-row in italics)	YIELD (LBS/A)				TW (LBS/BU)				PROTEIN (%)			
	FARMINGTON	COLFAX	PULLMAN	AVERAGE YIELD	FARMINGTON	COLFAX	PULLMAN	AVERAGE TEST WEIGHT	FARMINGTON	COLFAX	PULLMAN	AVERAGE PROTEIN
LENETAH	6690	4520	5700	**5640**	50.2	51.2	53.0	51.5	13.1	12.6	12.5	12.7
CHAMPION	6900	4700	5030	**5540**	51.6	51.7	53.1	52.1	13.0	12.7	12.7	12.8
SPAULDING	5680	5010	5480	**5390**	51.4	52.7	54.2	52.8	12.5	12.4	12.0	12.3
RWA 1758	6440	4350	5320	**5370**	51.1	51.0	52.1	51.4	13.2	12.8	12.8	12.9
04WNZ-124	6590	4360	5120	**5360**	49.8	49.8	50.7	50.1	13.7	12.9	13.7	13.4
04WA-113.22	6320	4420	5120	5290	49.8	50.7	51.8	50.8	13.9	13.5	13.2	13.5
05WA-316.99	6300	4570	4980	5280	48.7	50.5	51.2	50.1	12.8	12.8	11.8	12.5
KENT	6610	4240	4950	5270	50.4	49.7	51.1	50.4	12.9	12.8	11.6	12.4
TETONIA	6620	4660	4480	5250	51.2	51.3	52.0	51.5	12.9	12.7	10.8	12.1
BARONESSE	6350	4370	4940	5220	50.2	51.0	51.1	50.8	13.5	12.9	12.2	12.9
04WA-102.49	6610	4160	4770	5180	50.6	50.5	51.3	50.8	13.3	13.1	12.9	13.1
05WA-316.K	5750	4600	5120	5160	49.9	50.5	51.0	50.5	13.1	12.8	12.3	12.7
RADIANT	6200	4370	4880	5150	50.1	50.5	50.7	50.4	13.2	12.7	11.5	12.5
HARRINGTON	6040	4190	5130	5120	50.0	50.4	52.3	50.9	13.5	13.0	12.5	13.0
CDC COPELAND	6110	4220	4900	5080	49.7	49.5	52.6	50.6	13.3	12.9	12.1	12.8
04WA-122.9	5910	4120	4760	4930	50.9	51.1	52.6	51.5	13.6	13.0	12.6	13.1
2004NZ223	5710	4200	4750	4890	50.8	51.4	52.9	51.7	14.7	13.7	12.8	13.7
2004NZ170	5570	3990	5090	4880	49.7	49.9	51.3	50.3	13.8	13.1	11.5	12.8
05WA-325.18	5900	4040	4630	4860	49.4	49.7	51.0	50.0	14.2	13.4	13.2	13.6
05WA-357.14	5800	3990	4670	4820	50.9	51.2	51.7	51.3	14.1	13.1	12.2	13.1
05WA-329.49	5850	4030	4510	4800	50.6	50.5	52.0	51.0	13.7	13.8	13.1	13.5
04WNZ-286	6080	3930	4400	4800	50.4	51.6	52.4	51.5	13.2	13.4	12.5	13.0
05WA-360.24	5490	3920	4890	4770	49.8	50.8	51.3	50.6	13.4	13.6	12.5	13.2
BOB	5460	3930	4780	4720	50.4	51.2	51.2	50.9	13.8	13.4	12.9	13.4
LEGACY	5480	3780	4220	4490	48.5	49.3	49.1	49.0	13.2	12.6	12.0	12.6
2004NZ160	5540	4090	3530	4390	51.0	52.1	52.4	51.8	14.1	13.3	11.5	13.0
2004NZ052	5150	3860	4050	4350	50.3	50.4	52.4	51.0	14.5	13.4	13.0	13.6
AC METCALFE	5100	3650	4280	4340	49.5	50.3	51.7	50.5	14.6	13.5	12.6	13.6
PINNACLE	4250	4040	4340	4210	48.1	51.3	52.1	50.5	12.5	12.1	11.4	12.0
HAXBY	3380	4180	4720	4090	50.4	52.6	54.0	52.3	14.4	13.0	11.8	13.1
05WA-328.8	4350	3430	4180	3990	47.2	48.6	49.0	48.3	14.6	13.7	13.4	13.9
Waxy Hulless												
CLEARWATER	4920	3820	4330	4360	52.5	57.1	57.3	55.6	14.3	13.3	12.2	13.3
WA 9820-98	4920	3890	3890	4230	56.0	56.6	57.1	56.6	15.1	13.6	12.9	13.9
03WA-204.22H	4870	3100	4490	4150	57.5	58.0	58.9	**58.1**	14.4	14.2	13.3	14.0
01WA-13860.5	4780	3630	3690	4030	50.9	57.7	57.1	55.2	14.7	13.7	13.2	13.9
MERESSE	3910	3060	3720	3560	56.4	57.3	54.9	56.2	15.0	14.9	14.6	**14.8**
	STATISTICS				STATISTICS				STATISTICS			
CV (%)	7	7	10	8	1.2	0.8	1.3	1.1	3.1	2.9	3.9	3.3
LSD (0.10)	520	420	650	310	0.9	0.6	0.9	0.5	0.6	0.5	0.7	0.3
Average	5660	4100	4660	4800	50.7	51.7	52.5	51.6	13.7	13.2	12.5	13.1
Highest	6900	5010	5700	5640	57.5	58.0	58.9	58.1	15.1	14.9	14.6	14.9
Lowest	3380	3060	3530	3560	47.2	48.6	49.0	48.3	12.5	12.1	10.8	12.0

1. Spring barley grain yield across three locations in the >20” precipitation zone averaged 4800 lb/ac, 650 lb/ac higher than the 2008 average. These trials were analyzed as alpha lattice designs that overall helped to account for within-replication variation and reduced LSD and CV values. The highest value and other values within the LSD range are shown in bold for yield, test weight, and protein. In 2009, the two highest yielding cultivars were relatively recent releases and were significantly higher yielding than Baronesse.
2. Test weight averaged 51.6 lb/bu across locations and entries, with a range of 48.3 lb/bu to 58.1 lb/bu. Test weights averaged 2.7 lb/bu higher than last year. Grain protein averaged 13.1%.

2009 WSU SPRING BARLEY TRIAL SUMMARY
Precipitation Zone= 16"- 20"

TABLE 97:

VARIETY NAME (6-row in italics)	YIELD (LBS/A)						TEST WEIGHT (LBS/BU)						PROTEIN (%)					
	DAYTON	MAYVIEW	REARDAN	ST. JOHN	WALLA WALLA	AVERAGE YIELD	DAYTON	MAYVIEW	REARDAN	ST. JOHN	WALLA WALLA	AVERAGE TEST WEIGHT	DAYTON	MAYVIEW	REARDAN	ST. JOHN	WALLA WALLA	AVERAGE PROTEIN
CHAMPION	2940	4480	4960	5620	7250	**5050**	50.1	52.3	51.2	50.3	52.9	51.4	13.3	12.9	14.2	12.7	13.0	13.2
LENETAH	3240	4130	5420	5160	7020	**4990**	49.3	51.6	51.9	50.1	51.9	51.0	13.2	12.6	13.8	12.9	12.7	13.0
TETONIA	3260	4410	4080	5390	7070	**4840**	48.2	51.9	50.7	49.7	52.4	50.6	12.7	12.9	14.0	13.1	12.7	13.1
SPAULDING	2520	3860	5170	5340	7200	4820	49.9	52.8	52.6	52.1	52.6	52.0	12.6	12.3	13.4	12.9	12.4	12.7
RADIANT	3120	4340	4400	5260	6930	4810	48.4	50.9	50.8	48.8	51.0	50.0	12.5	12.7	13.8	12.8	12.4	12.8
05WA-316.K	2940	3910	4940	5070	6810	4730	48.7	51.4	49.8	47.1	51.6	49.7	13.5	13.0	14.0	12.9	12.9	13.3
05WA-329.49	3180	3870	4120	5330	6910	4680	49.1	51.8	50.7	49.6	51.6	50.6	13.3	13.7	14.5	12.8	12.9	13.4
05WA-316.99	2410	3680	4570	5490	7170	4660	47.2	49.9	49.9	48.0	50.3	49.1	13.1	13.6	14.0	13.1	13.0	13.4
2004NZ170	2770	3990	4680	4940	6940	4660	48.0	51.0	49.6	48.6	50.0	49.4	13.0	13.6	14.1	13.5	12.4	13.3
04WA-113.22	2640	3750	4780	5210	6920	4660	49.5	51.7	50.2	49.5	50.9	50.4	13.9	13.3	14.8	13.2	13.3	13.7
BOB	3340	3720	4670	4960	6490	4640	49.2	52.0	51.1	49.2	51.3	50.6	13.2	13.1	14.3	13.2	13.0	13.4
RWA 1758	2990	4030	4780	4690	6620	4620	49.6	52.1	50.5	49.3	51.5	50.6	13.3	13.5	14.3	13.2	12.9	13.4
HAXBY	2860	3660	4240	5320	6800	4580	51.2	52.7	52.5	51.2	52.7	52.1	13.0	12.5	14.0	12.7	12.5	12.9
BARONESSE	3170	3810	4670	4820	6310	4560	48.3	51.8	50.8	47.6	50.6	49.8	13.3	12.8	13.9	13.3	12.8	13.2
KENT	3050	3950	4620	4670	6480	4550	47.9	51.3	50.0	47.5	48.5	49.0	12.6	12.5	13.7	12.5	12.7	12.8
04WA-122.9	2610	4260	4330	4880	6680	4550	49.0	52.3	50.5	50.4	51.4	50.7	13.3	12.8	14.1	13.5	13.3	13.4
04WNZ-286	3140	3490	4350	5060	6650	4540	50.2	52.2	51.4	50.9	52.4	51.4	13.5	13.9	15.0	13.6	13.1	13.8
04WNZ-124	2700	3750	4860	4870	6410	4520	48.5	50.3	49.5	48.4	49.7	49.3	14.2	14.0	15.0	13.6	13.0	14.0
05WA-325.18	3270	3880	4110	4950	6110	4460	46.9	50.6	48.8	48.8	49.7	49.0	13.1	13.2	14.7	13.8	13.5	13.7
2004NZ160	2860	3600	4170	4980	6600	4440	49.9	52.7	52.0	50.8	52.6	51.6	13.6	13.0	14.6	13.2	12.8	13.4
CDC COPELAND	2150	4130	4210	4770	6950	4440	45.8	49.8	50.4	48.6	50.8	49.1	13.5	12.7	13.8	13.2	13.2	13.3
05WA-360.24	2860	3630	4690	4420	6510	4420	48.1	51.4	51.0	49.5	52.2	50.4	13.4	13.8	14.5	13.6	13.0	13.7
05WA-357.14	3120	3820	3940	4510	6660	4410	49.7	51.9	51.0	49.6	53.0	51.0	13.9	13.1	14.5	13.3	13.1	13.6
04WA-102.49	2570	3470	4780	4820	6400	4410	48.9	50.8	50.0	48.3	49.8	49.6	13.6	14.1	14.2	13.4	12.8	13.6
2004NZ223	2750	3900	3970	4900	6400	4380	51.0	52.4	51.5	50.8	51.1	51.4	13.3	13.5	15.0	13.9	13.0	13.7
HARRINGTON	2440	4110	4270	4640	6230	4340	46.6	50.7	50.1	48.7	49.5	49.1	13.4	13.5	14.2	13.7	13.3	13.6
AC METCALFE	2110	3500	4300	4190	6630	4150	47.9	51.2	50.9	49.4	53.1	50.5	13.7	13.4	14.8	13.4	13.1	13.7
PINNACLE	1810	3160	3910	4750	6550	4040	50.0	52.3	51.6	48.8	51.3	50.8	12.4	12.4	12.6	12.2	11.9	12.3
LEGACY	2200	3460	3980	3990	6450	4020	48.0	50.6	49.1	47.1	48.7	48.7	12.6	12.8	14.6	12.5	12.9	13.1
2004NZ052	2250	3410	3480	4370	6250	3950	49.5	51.1	49.8	49.2	51.5	50.2	14.0	14.0	14.9	13.8	13.4	14.0
05WA-328.8	1640	2750	3660	4250	5760	3610	48.2	50.2	49.1	47.2	49.2	48.8	13.7	13.2	14.9	13.5	13.5	13.8
Waxy Hulless																		
CLEARWATER	1930	3360	4090	4360	5890	3930	55.5	60.2	56.7	54.5	57.5	56.9	13.6	13.0	14.2	13.2	12.9	13.4
01WA-13860.5	2170	2930	4110	3800	6110	3820	56.9	60.0	55.7	55.3	58.9	**57.4**	14.9	13.7	15.0	13.8	13.6	14.2
03WA-204.22H	2270	2900	3900	3950	6100	3820	55.5	60.4	56.2	55.7	58.2	**57.2**	14.2	13.8	15.4	13.6	13.9	14.2
WA 9820-98	1980	3160	4160	4070	5350	3740	56.6	59.0	57.1	53.4	55.1	56.2	14.5	14.5	14.9	13.8	13.0	14.1
MERESSE	1960	2990	3200	3680	5200	3410	56.0	61.0	55.9	53.8	59.4	**57.2**	15.1	14.2	16.4	14.4	14.6	**15.0**
	STATISTICS						STATISTICS						STATISTICS					
CV (%)	11	9	9	8	5	8	1.4	0.9	1.4	2.7	1.8	1.7	2.9	4.3	1.7	3.9	2.3	3.1
LSD (0.10)	400	550	550	530	490	210	0.9	0.7	1.0	1.8	1.3	0.5	0.5	0.8	0.3	0.7	0.4	0.3
Average	2650	3700	4350	4760	6520	4400	49.8	52.7	51.4	49.9	52.1	51.2	13.4	13.3	14.4	13.3	13.0	13.5
Highest	3340	4480	5420	5620	7250	5050	56.9	61.0	57.1	55.7	59.4	57.4	15.1	14.5	16.4	14.4	14.6	15.0
Lowest	1640	2750	3200	3680	5200	3410	45.8	49.8	48.8	47.1	48.5	48.7	12.4	12.3	12.6	12.2	11.9	12.3

1. Spring barley grain yield across five locations in the 16”- 20” precipitation zone averaged 4400 lb/ac, 1340 lb/ac higher than the 2008 average. These trials were analyzed as alpha lattice designs that overall helped to account for within-replication variation and reduced LSD and CV values. The highest value and other values within the LSD range are shown in bold for yield, test weight, and protein. In 2009, the highest yielding cultivars were relatively recent releases and were significantly higher yielding than Baronesse, by up to 10%.
2. Test weight averaged 51.2 lb/bu across locations and entries, with a range of 48.7 lb/bu to 57.4 lb/bu. Test weights averaged 2.2 lb/bu higher than last year. Grain protein averaged 13.5%.

2009 WSU SPRING BARLEY TRIAL SUMMARY
Precipitation Zone= <16"

TABLE 98:

VARIETY NAME (6-row in italics)	YIELD (LBS/A)				TW (LBS/BU)				PROTEIN (%)			
	ALMIRA	BICKLETON	LAMONT	AVERAGE YIELD	ALMIRA	BICKLETON	LAMONT	AVERAGE TEST WEIGHT	ALMIRA	BICKLETON	LAMONT	AVERAGE PROTEIN
CHAMPION	3750	1940	3890	**3190**	49.6	50.2	49.9	49.9	13.9	12.9	13.9	13.6
SPAULDING	4490	2010	2950	**3150**	50.2	50.4	50.4	50.3	13.6	12.5	13.9	13.3
05WA-316.K	4070	1620	3730	**3140**	47.9	48.3	47.9	48.0	14.1	13.7	13.6	13.8
04WA-113.22	4360	1460	3550	**3120**	48.6	48.5	48.6	48.6	14.6	15.5	14.6	14.9
LENETAH	4520	1520	3300	**3110**	49.5	48.9	48.0	48.8	14.0	13.2	13.9	13.7
BARONESSE	4120	1550	3480	**3050**	48.0	47.7	48.6	48.1	14.1	13.8	14.3	14.1
04WA-122.9	3770	1840	3520	**3040**	48.6	48.3	49.6	48.8	13.8	14.0	13.6	13.8
04WNZ-286	4030	1320	3740	**3030**	48.5	48.0	49.0	48.5	14.2	14.0	14.3	14.2
KENT	3650	1600	3820	**3020**	46.6	47.2	47.5	47.1	13.8	13.3	13.5	13.5
RADIANT	3740	1750	3540	**3010**	47.1	47.6	47.8	47.5	13.6	12.3	13.5	13.1
RWA 1758	3730	1570	3620	**2970**	48.1	48.8	48.6	48.5	13.9	13.8	13.8	13.8
TETONIA	3790	1540	3510	**2950**	48.0	47.8	47.8	47.9	14.0	13.5	13.6	13.7
HAXBY	3640	1900	3280	**2940**	50.0	50.1	49.4	49.8	13.9	13.3	13.8	13.7
05WA-316.99	4050	1790	2950	**2930**	47.8	47.1	47.0	47.3	13.6	13.6	13.7	13.6
05WA-329.49	3840	1590	3330	**2920**	49.1	48.7	48.6	48.8	14.1	13.8	14.2	14.0
05WA-360.24	3740	1220	3780	**2910**	47.9	48.0	49.6	48.5	14.3	15.0	14.0	14.4
BOB	4040	1480	3110	**2880**	48.6	48.4	49.5	48.8	14.3	14.0	14.1	14.1
05WA-357.14	4180	1600	2840	2870	49.3	47.9	48.0	48.4	13.8	13.4	14.4	13.9
HARRINGTON	3700	1530	3250	2830	46.7	47.6	47.8	47.4	14.2	13.6	13.6	13.8
04WA-102.49	3770	1360	3300	2810	47.5	47.9	47.1	47.5	14.2	14.1	14.2	14.2
2004NZ160	3860	1530	3050	2810	48.5	49.4	49.4	49.1	14.3	13.6	14.2	14.0
05WA-325.18	3630	1320	3380	2780	46.8	46.8	47.1	46.9	14.1	14.0	13.8	14.0
04WNZ-124	3560	1540	3080	2730	46.7	47.9	46.4	47.0	14.7	14.8	15.1	14.9
2004NZ223	3600	1410	3180	2730	49.4	49.4	50.2	49.7	14.3	14.5	14.7	14.5
2004NZ170	3970	1270	2760	2670	47.2	48.5	47.0	47.6	14.1	14.3	14.3	14.2
LEGACY	3410	1680	2790	2630	45.2	47.5	47.6	46.8	13.8	12.7	13.5	13.3
AC METCALFE	3400	1390	2910	2570	47.9	47.6	48.5	48.0	14.3	14.4	14.1	14.3
CDC COPELAND	2970	1580	3020	2520	45.4	47.0	47.7	46.7	14.2	13.4	13.8	13.8
2004NZ052	3390	1350	2500	2410	47.8	48.9	47.4	48.0	14.1	14.3	14.6	14.3
PINNACLE	3290	1330	2480	2370	49.4	48.7	49.5	49.2	12.8	11.9	12.7	12.5
05WA-328.8	3340	1270	2420	2340	47.5	47.0	46.9	47.1	14.2	14.2	14.0	14.1
Waxy Hulless												
CLEARWATER	3580	1590	3520	**2900**	54.3	56.7	54.9	**55.3**	14.3	11.9	14.1	13.4
WA 9820-98	3230	1540	3640	2800	52.6	55.6	54.9	54.4	14.7	14.4	15.4	14.8
03WA-204.22H	3520	1250	2870	2550	54.8	56.6	56.2	**55.9**	14.8	15.7	14.8	15.1
MERESSE	2760	1680	2110	2180	52.5	55.4	53.3	53.7	15.7	15.9	15.9	**15.8**
01WA-13860.5	3020	1230	2140	2130	52.3	55.7	55.1	54.4	14.6	14.1	14.5	14.4
	STATISTICS				**STATISTICS**				**STATISTICS**			
CV (%)	11	17	16	15	2.2	1.9	1.7	2.0	2.1	5.1	3.3	3.7
LSD (0.10)	580	370	700	320	1.5	1.3	1.1	0.7	0.4	1.0	0.6	0.4
Average	3710	1530	3180	2810	48.8	49.3	49.2	49.1	14.1	13.8	14.1	14.0
Highest	4520	2010	3890	3190	54.8	56.7	56.2	55.9	15.7	15.9	15.9	15.8
Lowest	2760	1220	2110	2130	45.2	46.8	46.4	46.7	12.8	11.9	12.7	12.5

1. Spring barley grain yield across three locations in the <16” precipitation zone averaged 2810 lb/ac, 250 lb/ac lower than the 2008 average. These trials were analyzed as alpha lattice designs that overall helped to account for within-replication variation and reduced LSD and CV values. The highest value and other values within the LSD range are shown in bold for yield, test weight, and protein. There were 18 of the 36 cultivars within the top LSD group.
2. Hulless cultivars are listed separately at the bottom of the table, and ‘Clearwater’ is included in the top LSD group. Clearwater also has the low phytic acid trait that reduces phosphorus pass-through and increases phosphorus adsorption in monogastrics. Hulless cultivars usually yield less than hulled cultivars because their loose hulls are not harvested with the grain.
3. Test weight averaged 49.1 lb/bu across locations and entries, with a range of 46.7 lb/bu to 55.9 lb/bu. Test weights averaged 1.0 lb/bu higher than last year. Grain protein averaged 14.0%.

2009 WSU EXTENSION SPRING BARLEY NURSERY AT ALMIRA, WA.

TABLE 99:

Variety Name *6-Row Italicized	5 YEAR AVERAGE (LBS/A)	3 YEAR AVERAGE (LBS/A)	2 YEAR AVERAGE (LBS/A)	2009 YIELD (LBS/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLUMP (%)	2009 THIN (%)	2009 PLANT HT	2009 HEAD DATE
LENETAH			4010	**4520**	49.5	14.0	90	3	27	176
SPAULDING	3860	3530	3800	**4490**	50.2	13.6	86	5	27	174
04WA-113.22			3990	**4360**	48.6	14.6	93	2	24	174
05WA-357.14				**4180**	49.3	13.8	92	2	26	173
BARONESSE	3670	3260	3700	**4120**	48.0	14.1	88	3	23	174
05WA-316.K				**4070**	47.9	14.1	91	3	25	173
05WA-316.99				**4050**	47.8	13.6	89	3	23	174
BOB	3940	3620	3860	**4040**	48.6	14.3	90	3	25	174
04WNZ-286		3380	3750	**4030**	48.5	14.2	88	3	25	174
2004NZ170				**3970**	47.2	14.1	86	3	23	178
2004NZ160				3860	48.5	14.3	89	3	22	176
05WA-329.49				3840	49.1	14.1	91	2	26	174
TETONIA				3790	48.0	14.0	85	3	22	176
04WA-122.9			3710	3770	48.6	13.8	88	3	25	174
04WA-102.49			3530	3770	47.5	14.2	87	3	21	177
CHAMPION	3920	3570	3890	3750	49.6	13.9	85	4	26	174
RADIANT	3680	3340	3730	3740	47.1	13.6	70	6	24	175
05WA-360.24				3740	47.9	14.3	92	2	25	175
RWA 1758			3440	3730	48.1	13.9	89	3	22	174
HARRINGTON	3500	3130	3310	3700	46.7	14.2	78	7	25	175
KENT		3050	3530	3650	46.6	13.8	87	4	22	177
HAXBY		3470	3690	3640	50.0	13.9	82	4	25	173
05WA-325.18				3630	46.8	14.1	88	3	24	175
2004NZ223				3600	49.4	14.3	88	3	23	178
CLEARWATER (Hulless)				3580	**54.3**	14.3	54	18	24	174
04WNZ-124			3600	3560	46.7	14.7	81	4	21	178
03WA-204.22H (Hulless)				3520	**54.8**	14.8	64	8	23	173
LEGACY	3220	2950	3240	3410	45.2	13.8	63	12	32	171
AC METCALFE	3230	2790	3170	3400	47.9	14.3	93	2	25	174
2004NZ052				3390	47.8	14.1	92	2	22	175
05WA-328.8				3340	47.5	14.2	87	2	32	171
PINNACLE				3290	49.4	12.8	96	1	26	171
WA 9820-98 (Hulless)		2760	3160	3230	52.6	14.7	42	19	22	177
01WA-13860.5 (Hulless)		2760	2960	3020	52.3	14.6	50	15	24	174
CDC COPELAND			2880	2970	45.4	14.2	83	5	28	177
MERESSE (Hulless)		2570	2780	2760	52.5	15.7	57	15	23	172
C.V. %	9	10	9	11	2.2	2.1	10	103	7	0
LSD '@ .10'	200	280	320	580	1.5	0.4	12	7	2	1
Average	3630	3160	3510	3710	48.8	14.1	82	5	25	175
Highest	3940	3620	4010	4520	54.8	15.7	96	19	32	178
Lowest	3220	2570	2780	2760	45.2	12.8	42	1	21	171

1. Grain yield in the Almira spring barley trial averaged 3710 lb/ac, just 2% higher than the average 5-year yield for this location. The Almira nursery was located about 10 miles north of Almira, WA (Dan McKay, cooperator).
2. This nursery was seeded on 20 April, 2009 following summer fallow. Seed was placed at a 70#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was applied in the fall as 80#N and 10#S per acre, and a spring soil test showed more than adequate available nutrients. Spring seeding conditions were rated 7 on a 1-10 scale and spring rain made the outlook good for the spring crop. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 50% compared to an RCBD design.
3. Yields ranged from 2760 lb/ac to 4520 lb/ac, with a CV of 11%. Yield values within the LSD range of the highest yield are shown in bold and 10 of the 36 entries are in this group. Six-row entries are listed in italicized print and hulless cultivars are noted.
4. Test weights were good with an average of 48.8 lb/bu. Plump grain (>6/64" screen) averaged 82%. Grain protein was high averaging 14.1% and is higher than desired due to high available N at this site. The average plant height was only 25 inches.

2009 WSU EXTENSION SPRING BARLEY NURSERY AT BICKLETON, WA.

TABLE 100:

Variety Name *6-Row Italicized	5 YEAR AVERAGE (LBS/A)	3 YEAR AVERAGE (LBS/A)	2 YEAR AVERAGE (LBS/A)	2009 YIELD (LBS/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLUMP (%)	2009 THIN (%)	2009 PLANT HT
SPAULDING	--	--	2310	**2010**	50.4	12.5	63	16	15
CHAMPION	--	--	2810	**1940**	50.2	12.9	66	12	17
HAXBY	--	--	2480	**1900**	50.1	13.3	60	15	16
04WA-122.9	--	--	2440	**1840**	48.3	14.0	60	13	16
05WA-316.99	--	--		**1790**	47.1	13.6	73	8	16
RADIANT	--	--	2460	**1750**	47.6	12.3	54	22	15
MERESSE (Hulless)	--	--	2100	**1680**	55.4	15.9	46	19	13
LEGACY	--	--	2210	**1680**	47.5	12.7	72	8	19
05WA-316.K	--	--		1620	48.3	13.7	72	9	13
05WA-357.14	--	--		1600	47.9	13.4	68	11	16
KENT	--	--	2410	1600	47.2	13.3	60	13	13
CLEARWATER (Hulless)	--	--		1590	**56.7**	11.9	40	27	16
05WA-329.49	--	--		1590	48.7	13.8	70	11	15
CDC COPELAND	--	--	2100	1580	47.0	13.4	71	10	17
RWA 1758	--	--	2340	1570	48.8	13.8	70	11	14
BARONESSE	--	--	2340	1550	47.7	13.8	53	18	14
04WNZ-124	--	--	2290	1540	47.9	14.8	62	11	15
TETONIA	--	--		1540	47.8	13.5	59	16	14
WA 9820-98 (Hulless)	--	--	1930	1540	**55.6**	14.4	23	37	14
2004NZ160	--	--		1530	49.4	13.6	79	7	13
HARRINGTON	--	--	2100	1530	47.6	13.6	72	9	14
LENETAH	--	--	2440	1520	48.9	13.2	72	7	16
BOB	--	--	2460	1480	48.4	14.0	68	11	15
04WA-113.22	--	--	2280	1460	48.5	15.5	62	12	15
2004NZ223	--	--		1410	49.4	14.5	70	10	16
AC METCALFE	--	--	2040	1390	47.6	14.4	70	10	16
04WA-102.49	--	--	2100	1360	47.9	14.1	68	11	14
2004NZ052	--	--		1350	48.9	14.3	75	8	14
PINNACLE	--	--		1330	48.7	11.9	79	8	16
04WNZ-286	--	--	2170	1320	48.0	14.0	63	13	13
05WA-325.18	--	--		1320	46.8	14.0	72	8	15
05WA-328.8	--	--		1270	47.0	14.2	68	8	17
2004NZ170	--	--		1270	48.5	14.3	61	14	14
03WA-204.22H (Hulless)	--	--		1250	**56.6**	15.7	30	34	15
01WA-13860.5 (Hulless)	--	--	1660	1230	**55.7**	14.1	24	40	14
05WA-360.24	--	--		1220	48.0	15.0	71	10	15
C.V. %	--	--	14	17	1.9	5.1	15	41	8
LSD '@ .10'	--	--	280	370	1.3	1.0	13	8	2
Average	--	--	2260	1530	49.3	13.8	62	14	15
Highest	--	--	2810	2010	56.7	15.9	79	40	19
Lowest	--	--	1660	1220	46.8	11.9	23	7	13

1. Grain yield in the Bickleton spring barley trial averaged 1530 lb/ac, about 1330 lb/ac lower than the 2008 average yield for this location. The Bickleton nursery was located about 3 miles east of Bickleton, WA (Steve Matsen, cooperator).
2. This nursery was seeded on 21 April, 2009 following spring wheat. Seed was placed at a 70#/acre seeding rate using a no-till plot drill fitted with Cross-slot openers set on 10-inch spacing. Spring seeding conditions were good with moisture rated 7 out of 10. Base fertilizer was 30#N, 5#P, and 5#S per acre applied in the spring. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 69% compared to an RCBD design.
3. Yields ranged from 1220 lb/ac to 2010 lb/ac. The CV was larger than desirable, 17%, but is not uncommon in low yielding trials. Yield values within the LSD range of the highest yield are shown in bold and 8 of the 36 entries are in this group. Six-row entries are listed in italicized print and the hulless cultivars are designated.
4. Test weights were good with an average of 49.3 lb/bu and ranged from 46.8 lb/bu to 56.7 lb/bu. The hulless cultivars produce the highest test weights. Plump grain (>6/64" screen) averaged 62%. Grain protein averaged 13.8%. The average plant height was 15 inches.

2009 WSU EXTENSION SPRING BARLEY NURSERY AT COLFAX, WA.

TABLE 101:

Variety Name *6-Row Italicized	5 YEAR AVERAGE (LBS/A)	3 YEAR AVERAGE (LBS/A)	2 YEAR AVERAGE (LBS/A)	2009 YIELD (LBS/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLUMP (%)	2009 THIN (%)	2009 PLANT HT	2009 HEAD DATE
SPAULDING	- -	- -	- -	**5010**	52.7	12.4	97	1	28	183
CHAMPION	- -	- -	- -	**4700**	51.7	12.7	98	1	30	184
TETONIA	- -	- -	- -	**4660**	51.3	12.7	98	1	27	186
05WA-316.K	- -	- -	- -	**4600**	50.5	12.8	98	1	28	183
05WA-316.99	- -	- -	- -	4570	50.5	12.8	98	1	31	183
LENETAH	- -	- -	- -	4520	51.2	12.6	97	1	28	184
04WA-113.22	- -	- -	- -	4420	50.7	13.5	98	1	29	183
RADIANT	- -	- -	- -	4370	50.5	12.7	97	1	28	185
BARONESSE	- -	- -	- -	4370	51.0	12.9	98	1	27	185
04WNZ-124	- -	- -	- -	4360	49.8	12.9	98	1	25	188
RWA 1758	- -	- -	- -	4350	51.0	12.8	98	1	26	184
KENT	- -	- -	- -	4240	49.7	12.8	98	1	26	187
CDC COPELAND	- -	- -	- -	4220	49.5	12.9	98	1	33	186
2004NZ223	- -	- -	- -	4200	51.4	13.7	98	1	26	188
HARRINGTON	- -	- -	- -	4190	50.4	13.0	98	1	31	185
HAXBY	- -	- -	- -	4180	52.6	13.0	98	1	29	183
04WA-102.49	- -	- -	- -	4160	50.5	13.1	98	1	25	187
04WA-122.9	- -	- -	- -	4120	51.1	13.0	98	1	30	185
2004NZ160	- -	- -	- -	4090	52.1	13.3	99	1	25	187
PINNACLE	- -	- -	- -	4040	51.3	12.1	99	1	29	184
05WA-325.18	- -	- -	- -	4040	49.7	13.4	98	1	29	185
05WA-329.49	- -	- -	- -	4030	50.5	13.8	98	1	30	185
05WA-357.14	- -	- -	- -	3990	51.2	13.1	98	1	30	185
2004NZ170	- -	- -	- -	3990	49.9	13.1	98	1	25	187
BOB	- -	- -	- -	3930	51.2	13.4	98	1	30	184
04WNZ-286	- -	- -	- -	3930	51.6	13.4	98	1	29	185
05WA-360.24	- -	- -	- -	3920	50.8	13.6	98	1	30	185
WA 9820-98 (Hulless)	- -	- -	- -	3890	56.6	13.6	81	3	27	186
2004NZ052	- -	- -	- -	3860	50.4	13.4	99	1	27	187
CLEARWATER (Hulless)	- -	- -	- -	3820	57.1	13.3	90	2	32	185
LEGACY	- -	- -	- -	3780	49.3	12.6	97	1	31	184
AC METCALFE	- -	- -	- -	3650	50.3	13.5	98	1	31	186
01WA-13860.5 (Hulless)	- -	- -	- -	3630	**57.7**	13.7	86	3	28	185
05WA-328.8	- -	- -	- -	3430	48.6	13.7	98	1	31	183
03WA-204.22H (Hulless)	- -	- -	- -	3100	**58.0**	14.2	93	2	29	185
MERESSE (Hulless)	- -	- -	- -	3060	57.3	14.9	88	3	27	183
C.V. %	- -	- -	- -	7	0.8	2.9	1	27	5	0
LSD '@ .10'	- -	- -	- -	420	0.6	0.5	1	0	2	1
Average	- -	- -	- -	4100	51.7	13.2	97	1	29	185
Highest	- -	- -	- -	5010	58.0	14.9	99	3	33	188
Lowest	- -	- -	- -	3060	48.6	12.1	81	1	25	183

1. Grain yield in the Colfax spring barley trial averaged 4100 lb/ac. This is a new location for a spring barley trial. The Colfax nursery was located between Colfax and Palouse about 3 miles west of Palouse, WA (Craig Walters, cooperator).
2. This nursery was seeded on 4 May, 2009 following winter wheat. Seed was placed at a 90#/acre seeding rate using a no-till plot drill fitted with Cross-slot openers set on 10-inch spacing. Spring seeding conditions were good with moisture rated 10 out of 10. Base fertilizer was 90#N, 16#P, and 16#S per acre applied in the spring. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 53% compared to an RCBD design.
3. Yields ranged from 3060 lb/ac to 5010 lb/ac, with a CV of 7%. Yield values within the LSD range of the highest yield are shown in bold and 4 of the 36 entries are in this group. Six-row entries are listed in italicized print and the hulless cultivars are designated.
4. Test weights were good with an average of 51.7 lb/bu and ranged from 48.6 lb/bu to 58.0 lb/bu. The hulless cultivars produce the highest test weights. Plump grain (>6/64" screen) averaged 97%. Grain protein averaged 13.2%. The average plant height was 29 inches.

2009 WSU EXTENSION SPRING BARLEY NURSERY AT DAYTON, WA.

TABLE 102:

Variety Name *6-Row Italicized	5 YEAR AVERAGE (LBS/A)	3 YEAR AVERAGE (LBS/A)	2 YEAR AVERAGE (LBS/A)	2009 YIELD (LBS/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLUMP (%)	2009 THIN (%)	2009 PLANT HT	2009 HEAD DATE
BOB	3540	3760	3120	**3340**	49.2	13.2	87	5	21	166
05WA-325.18				**3270**	46.9	13.1	80	7	21	168
TETONIA				**3260**	48.2	12.7	64	14	20	169
LENETAH			3200	**3240**	49.3	13.2	77	9	21	168
05WA-329.49				**3180**	49.1	13.3	85	4	21	167
BARONESSE	3680	3660	3090	**3170**	48.3	13.3	78	8	21	168
04WNZ-286		3590	2950	**3140**	50.2	13.5	84	6	21	166
RADIANT	3820	3910	3190	**3120**	48.4	12.5	67	12	21	167
05WA-357.14				**3120**	49.7	13.9	87	4	21	167
KENT		3710	3100	**3050**	47.9	12.6	78	8	19	168
RWA 1758			3040	**2990**	49.6	13.3	84	6	19	167
CHAMPION	3830	3930	3140	2940	50.1	13.3	76	8	21	167
05WA-316.K				2940	48.7	13.5	85	5	21	165
HAXBY		3440	3110	2860	51.2	13.0	81	8	20	166
2004NZ160				2860	49.9	13.6	82	6	18	168
05WA-360.24				2860	48.1	13.4	81	7	20	167
2004NZ170				2770	48.0	13.0	79	7	19	168
2004NZ223				2750	51.0	13.3	86	5	19	169
04WNZ-124			2620	2700	48.5	14.2	81	6	21	169
04WA-113.22			2840	2640	49.5	13.9	80	6	20	167
04WA-122.9			2730	2610	49.0	13.3	78	7	22	167
04WA-102.49			2580	2570	48.9	13.6	84	5	19	168
SPAULDING	3470	3670	2770	2520	49.9	12.6	78	8	21	168
HARRINGTON	3210	3290	2580	2440	46.6	13.4	74	10	21	168
05WA-316.99				2410	47.2	13.1	77	7	20	167
03WA-204.22H (Hulless)				2270	55.5	14.2	59	18	18	167
2004NZ052				2250	49.5	14.0	89	4	17	169
LEGACY	2970	3050	2370	2200	48.0	12.6	72	10	25	167
01WA-13860.5 (Hulless)		2890	2200	2170	**56.9**	14.9	46	20	20	168
CDC COPELAND			2390	2150	45.8	13.5	73	10	23	169
AC METCALFE	2900	2870	2160	2110	47.9	13.7	81	7	22	168
WA 9820-98 (Hulless)		2790	2230	1980	**56.6**	14.5	23	33	18	168
MERESSE (Hulless)		2700	2130	1960	56.0	15.1	61	12	21	166
CLEARWATER (Hulless)				1930	55.5	13.6	40	25	22	168
PINNACLE				1810	50.0	12.4	89	4	20	167
05WA-328.8				1640	48.2	13.7	80	6	21	166
C.V. %	11	9	11	11	1.4	2.9	6	25	6	0
LSD '@ .10'	200	220	270	400	0.9	0.5	6	3	2	1
Average	3430	3380	2740	2650	49.8	13.4	75	9	20	167
Highest	3830	3930	3200	3340	56.9	15.1	89	33	25	169
Lowest	2900	2700	2130	1640	45.8	12.4	23	4	17	165

1. Grain yield in the Dayton spring Barley trial averaged 2650 lb/ac, 23% lower than the average 5-year yield for this location. The low yields at this site indicate below average conditions that were evident from emergence through harvest. Soil compaction is suspected to have contributed to limiting yield potential. The Dayton nursery was located about 6 miles north of Dayton, WA (Jay Penner, cooperator).
2. This nursery was seeded on 16 April, 2009 following winter wheat. Seed was placed at a 90#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was applied at 137#N, 10#P and 15#S per acre, and a spring soil test showed adequate available nutrients. Spring seeding conditions were good with moisture rated 6 out of 10 and spring rain made the early outlook good for the spring crop. For grain yield, the alpha lattice experimental design improved variation allocation during statistical analysis and the CV by 12% compared to an RCBD design.
3. Yields ranged from 1640 lb/ac to 3340 lb/ac, with a CV of 11%. Yield values within the LSD range of the highest yield are shown in bold and 12 of the 36 entries are in this group. Six-row entries are listed in italicized print and the hulless cultivars are designated.
4. Average test weights were good at 49.8 lb/bu. Plump grain (>6/64" screen) averaged 75%. Grain protein was high and averaged 13.4%. The average plant height was 20 inches, showing the limited plant growth at this site. No lodging occurred.

2009 WSU EXTENSION SPRING BARLEY NURSERY AT FARMINGTON, WA.

TABLE 103:

Variety Name *6-Row Italicized	5 YEAR AVERAGE (LBS/A)	3 YEAR AVERAGE (LBS/A)	2 YEAR AVERAGE (LBS/A)	2009 YIELD (LBS/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLUMP (%)	2009 THIN (%)	2009 PLANT HT	2009 HEAD DATE
CHAMPION	6280	6290	5640	**6900**	51.6	13.0	97	1	28	183
LENETAH			4660	**6690**	50.2	13.1	95	2	26	186
TETONIA				**6620**	51.2	12.9	97	1	24	186
KENT		6030	5610	**6610**	50.4	12.9	98	1	24	186
04WA-102.49			5050	**6610**	50.6	13.3	98	1	24	186
04WNZ-124			5540	**6590**	49.8	13.7	98	1	25	187
RWA 1758			5080	**6440**	51.1	13.2	96	2	23	183
BARONESSE	4930	5260	4950	6350	50.2	13.5	97	1	24	184
04WA-113.22			5480	6320	49.8	13.9	96	1	24	182
05WA-316.99				6300	48.7	12.8	96	1	24	183
RADIANT	5400	5430	4720	6200	50.1	13.2	97	1	24	185
CDC COPELAND			4650	6110	49.7	13.3	99	1	30	187
04WNZ-286		5680	5210	6080	50.4	13.2	96	2	24	184
HARRINGTON	5280	5370	5020	6040	50.0	13.5	98	1	25	183
04WA-122.9			5010	5910	50.9	13.6	98	1	25	184
05WA-325.18				5900	49.4	14.2	98	1	26	185
05WA-329.49				5850	50.6	13.7	98	1	26	184
05WA-357.14				5800	50.9	14.1	97	1	27	184
05WA-316.K				5750	49.9	13.1	96	1	23	183
2004NZ223				5710	50.8	14.7	98	1	24	187
SPAULDING	4590	4450	3910	5680	51.4	12.5	95	2	26	183
2004NZ170				5570	49.7	13.8	97	1	22	187
2004NZ160				5540	51.0	14.1	98	1	22	185
05WA-360.24				5490	49.8	13.4	95	2	25	185
LEGACY	5190	5130	4510	5480	48.5	13.2	98	1	26	182
BOB	4800	5110	4500	5460	50.4	13.8	95	2	23	184
2004NZ052				5150	50.3	14.5	97	2	23	186
AC METCALFE	4710	4680	4250	5100	49.5	14.6	98	1	30	185
WA 9820-98 (Hulless)		4330	3780	4920	56.0	15.1	82	5	23	184
CLEARWATER (Hulless)				4920	52.5	14.3	84	7	27	186
03WA-204.22H (Hulless)				4870	**57.5**	14.4	93	3	25	185
01WA-13860.5 (Hulless)		4430	4040	4780	50.9	14.7	87	4	25	185
05WA-328.8				4350	47.2	14.6	97	1	25	181
PINNACLE				4250	48.1	12.5	97	1	23	184
MERESSE (Hulless)		3790	3310	3910	56.4	15.0	89	3	23	182
HAXBY		3590	2610	3380	50.4	14.4	97	2	21	185
C.V. %	11	9	9	7	1.2	3.1	2	45	5	0
LSD '@ .10'	350	340	410	520	0.9	0.6	2	1	2	1
Average	5150	4970	4640	5660	50.7	13.7	96	2	25	184
Highest	6280	6290	5640	6900	57.5	15.1	99	7	30	187
Lowest	4590	3590	2610	3380	47.2	12.5	82	1	21	181

1. Grain yield in the Farmington spring barley trial averaged 5660 lb/ac about 510 lb/ac higher than the previous 5-year average. The Farmington nursery was located about 4 miles south of Farmington, WA (Bruce Nelson, cooperator).
2. This nursery was seeded on 4 May, 2009 following winter wheat. Seed was placed at a 90#/acre seeding rate using a double disc plot drill fitted with seven openers set on 6-inch spacing. Spring seeding conditions were good. Base fertilizer was 115#N and 17#S per acre applied in the spring and a soil test shows adequate nutrients. The alpha lattice experimental design improved variation allocation during statistical analysis and the CV by 49% compared to an RCBD design.
3. Yields ranged from 3380 lb/ac to 6900 lb/ac, with a CV of 7%. Yield values within the LSD range of the highest yield are shown in bold and 7 of the 36 entries are in this group. Six-row entries are listed in italicized print and the hulless cultivars are designated.
4. Test weights were good with an average of 50.7 lb/bu and ranged from 47.2 lb/bu to 57.5 lb/bu. The hulless cultivars produce the highest test weights. Plump grain (>6/64" screen) averaged 96%. Grain protein averaged 13.7%. The average plant height was 25 inches.

2009 WSU EXTENSION SPRING BARLEY NURSERY AT LAMONT, WA.

TABLE 104:

Variety Name *6-Row Italicized	5 YEAR AVERAGE (LBS/A)	3 YEAR AVERAGE (LBS/A)	2 YEAR AVERAGE (LBS/A)	2009 YIELD (LBS/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLUMP (%)	2009 THIN (%)	2009 PLANT HT	2009 HEAD DATE
CHAMPION	- -	- -	- -	**3890**	49.9	13.9	91	2	27	170
KENT	- -	- -	- -	**3820**	47.5	13.5	91	3	24	173
05WA-360.24	- -	- -	- -	**3780**	49.6	14.0	90	3	25	170
04WNZ-286	- -	- -	- -	**3740**	49.0	14.3	88	4	23	171
05WA-316.K	- -	- -	- -	**3730**	47.9	13.6	92	3	23	170
WA 9820-98 (Hulless)	- -	- -	- -	**3640**	54.9	15.4	33	24	22	170
RWA 1758	- -	- -	- -	**3620**	48.6	13.8	92	3	22	171
04WA-113.22	- -	- -	- -	**3550**	48.6	14.6	87	4	23	171
RADIANT	- -	- -	- -	**3540**	47.8	13.5	82	6	21	171
04WA-122.9	- -	- -	- -	**3520**	49.6	13.6	92	3	25	171
CLEARWATER(Hulless)	- -	- -	- -	**3520**	54.9	14.1	59	13	26	170
TETONIA	- -	- -	- -	**3510**	47.8	13.6	81	6	22	173
BARONESSE	- -	- -	- -	**3480**	48.6	14.3	93	3	24	171
05WA-325.18	- -	- -	- -	**3380**	47.1	13.8	95	2	25	170
05WA-329.49	- -	- -	- -	**3330**	48.6	14.2	87	4	23	171
04WA-102.49	- -	- -	- -	**3300**	47.1	14.2	90	3	22	172
LENETAH	- -	- -	- -	**3300**	48.0	13.9	83	6	26	172
HAXBY	- -	- -	- -	**3280**	49.4	13.8	81	6	23	171
HARRINGTON	- -	- -	- -	**3250**	47.8	13.6	91	3	24	172
2004NZ223	- -	- -	- -	3180	50.2	14.7	93	2	22	174
BOB	- -	- -	- -	3110	49.5	14.1	86	4	26	170
04WNZ-124	- -	- -	- -	3080	46.4	15.1	85	4	20	174
2004NZ160	- -	- -	- -	3050	49.4	14.2	92	2	20	172
CDC COPELAND	- -	- -	- -	3020	47.7	13.8	90	4	25	172
SPAULDING	- -	- -	- -	2950	50.4	13.9	85	5	23	172
05WA-316.99	- -	- -	- -	2950	47.0	13.7	88	4	21	170
AC METCALFE	- -	- -	- -	2910	48.5	14.1	90	4	24	170
03WA-204.22H (Hulless)	- -	- -	- -	2870	**56.2**	14.8	59	14	21	171
05WA-357.14	- -	- -	- -	2840	48.0	14.4	92	3	24	170
LEGACY	- -	- -	- -	2790	47.6	13.5	85	5	23	167
2004NZ170	- -	- -	- -	2760	47.0	14.3	80	6	21	173
2004NZ052	- -	- -	- -	2500	47.4	14.6	83	5	20	172
PINNACLE	- -	- -	- -	2480	49.5	12.7	93	3	23	167
05WA-328.8	- -	- -	- -	2420	46.9	14.0	88	3	26	167
01WA-13860.5 (Hulless)	- -	- -	- -	2140	55.1	14.5	48	16	24	170
MERESSE (Hulless)	- -	- -	- -	2110	53.3	15.9	44	20	21	170
C.V. %	- -	- -	- -	16	1.7	3.3	7	50	9	0
LSD '@ .10'	- -	- -	- -	700	1.1	0.6	7	4	3	1
Average	- -	- -	- -	3180	49.2	14.1	83	6	23	171
Highest	- -	- -	- -	3890	56.2	15.9	95	24	27	174
Lowest	- -	- -	- -	2110	46.4	12.7	33	2	20	167

1. Grain yield in the Lamont spring barley trial averaged 3180 lb/ac. The Lamont nursery was located about 10 miles north of Lamont, WA (Gil White, cooperator). This nursery was seeded on 15 April, 2009 following winter wheat. Seed was placed at an 80#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was applied as 70#N and 10#S per acre, and a spring soil test showed more than adequate available nutrients. Spring seeding conditions were rated 8 on a 1-10 scale and spring rain made the outlook good for the spring crop. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 153% compared to an RCBD design.
2. Yields ranged from 2110 lb/ac to 3890 lb/ac, with a CV of 16% indicating there was more variability than desirable within this trial. Yield values within the LSD range of the highest yield are shown in bold and 19 of the 36 entries are in this group. There was a lot of variability at this location and that contributes to a wide LSD. Six-row entries are listed in italicized print and hulless cultivars are noted.
3. Test weights were good with an average of 49.2 lb/bu. Plump grain (>6/64" screen) averaged 83%. Grain protein was high averaging 14.1% and is higher than desired due to high available N at this site. The average plant height was only 23 inches.

2009 WSU EXTENSION SPRING BARLEY NURSERY AT MAYVIEW, WA.

TABLE 105:

Variety Name *6-Row Italicized	5 YEAR AVERAGE (LBS/A)	3 YEAR AVERAGE (LBS/A)	2 YEAR AVERAGE (LBS/A)	2009 YIELD (LBS/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLUMP (%)	2009 THIN (%)	2009 PLANT HT	2009 HEAD DATE
CHAMPION	4110	4630	4460	**4480**	52.3	12.9	95	2	27	177
TETONIA				**4410**	51.9	12.9	93	3	23	179
RADIANT	3870	4340	4070	**4340**	50.9	12.7	95	2	23	178
04WA-122.9			4080	**4260**	52.3	12.8	97	2	25	178
LENETAH			4120	**4130**	51.6	12.6	94	3	26	177
CDC COPELAND			3680	**4130**	49.8	12.7	96	2	27	180
HARRINGTON	3470	3950	3810	**4110**	50.7	13.5	94	3	25	179
RWA 1758			3940	4030	52.1	13.5	98	1	24	177
2004NZ170				3990	51.0	13.6	95	2	22	180
KENT		4170	3990	3950	51.3	12.5	97	1	23	179
05WA-316.K				3910	51.4	13.0	96	2	23	176
2004NZ223				3900	52.4	13.5	97	1	23	180
05WA-325.18				3880	50.6	13.2	95	2	26	178
05WA-329.49				3870	51.8	13.7	98	1	26	177
SPAULDING	3530	4000	3740	3860	52.8	12.3	90	4	24	178
05WA-357.14				3820	51.9	13.1	97	2	25	178
BARONESSE	3680	4110	3920	3810	51.8	12.8	96	2	24	178
04WNZ-124			3670	3750	50.3	14.0	94	2	23	180
04WA-113.22			3560	3750	51.7	13.3	95	1	24	177
BOB	3530	3920	3720	3720	52.0	13.1	96	2	25	176
05WA-316.99				3680	49.9	13.6	92	3	25	179
HAXBY		4000	3770	3660	52.7	12.5	92	3	24	175
05WA-360.24				3630	51.4	13.8	96	2	26	176
2004NZ160				3600	52.7	13.0	97	1	20	179
AC METCALFE	3070	3470	3350	3500	51.2	13.4	96	2	27	179
04WNZ-286		3680	3540	3490	52.2	13.9	95	2	24	177
04WA-102.49			3580	3470	50.8	14.1	95	2	22	178
LEGACY	3210	3660	3410	3460	50.6	12.8	93	2	27	176
2004NZ052				3410	51.1	14.0	97	1	23	180
CLEARWATER(Hulless)				3360	60.2	13.0	84	5	25	178
PINNACLE				3160	52.3	12.4	96	2	24	177
WA 9820-98 (Hulless)		3270	3170	3160	59.0	14.5	66	6	23	178
MERESSE (Hulless)		3000	2860	2990	**61.0**	14.2	81	5	23	175
01WA-13860.5 (Hulless)		3190	2970	2930	60.0	13.7	78	5	24	179
03WA-204.22H (Hulless)				2900	**60.4**	13.8	87	5	23	177
05WA-328.8				2750	50.2	13.2	94	2	29	174
C.V. %	8	8	7	9	0.9	4.3	3	38	5	1
LSD '@ .10'	180	230	260	450	0.7	0.8	4	1	2	1
Average	3560	3810	3690	3700	52.7	13.3	93	2	24	178
Highest	4110	4630	4460	4480	61.0	14.5	98	6	29	180
Lowest	3070	3000	2860	2750	49.8	12.3	66	1	20	174

1. Grain yield in the Mayview spring barley trial averaged 3700 lb/ac, 4% higher than the 5-year yield average for this location. The Mayview nursery was located about 5 miles south of the Lower Granite Dam on the Snake River, WA or 12 miles northeast of Pomeroy, WA (Roger and Randy Koller, cooperators).
2. This nursery was seeded on 24 April, 2009 following winter wheat. Seed was placed at an 80#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was applied at 64#N and 10#S per acre. Spring seeding moisture conditions were rated 4 out of 10 and spring rain made the early outlook good for the spring crop. For grain yield, the alpha lattice experimental design improved variation allocation during statistical analysis and the CV by 54% compared to an RCBD design.
3. Yields ranged from 2750 lb/ac to 4480 lb/ac, with a CV of 9%. Yield values within the LSD range of the highest yield are shown in bold and 7 of the 36 entries are in this group. Six-row entries are listed in italicized print and the hulless cultivars are designated.
4. Test weights were good with an average of 52.7 lb/bu and most of the hulless cultivars were over 60.0 lb/bu. Plump grain (>6/64" screen) averaged 93%. Grain protein was high and averaged 13.3%. The average plant height was 24 inches. No lodging occurred.

2009 WSU EXTENSION SPRING BARLEY NURSERY AT PULLMAN, WA.

TABLE 106:

Variety Name *6-Row Italicized	5 YEAR AVERAGE (LBS/A)	3 YEAR AVERAGE (LBS/A)	2 YEAR AVERAGE (LBS/A)	2009 YIELD (LBS/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLUMP (%)	2009 THIN (%)	2009 PLANT HT	2009 HEAD DATE
LENETAH			5230	**5700**	53.0	12.5	97	1	30	176
SPAULDING	5060	5180	4800	**5480**	54.2	12.0	98	1	28	174
RWA 1758			5280	**5320**	52.1	12.8	97	1	26	173
HARRINGTON	4540	4770	4740	**5130**	52.3	12.5	97	2	30	173
04WA-113.22			5070	**5120**	51.8	13.2	96	1	27	172
04WNZ-124			5020	**5120**	50.7	13.7	93	2	24	178
05WA-316.K				**5120**	51.0	12.3	96	1	24	171
2004NZ170				**5090**	51.3	11.5	97	1	22	180
CHAMPION	5380	5320	5270	5030	53.1	12.7	98	1	27	171
05WA-316.99				4980	51.2	11.8	97	2	26	173
KENT		4950	5020	4950	51.1	11.6	96	2	26	179
BARONESSE	4920	4920	5000	4940	51.1	12.2	94	3	25	173
CDC COPELAND			4500	4900	52.6	12.1	97	1	33	175
05WA-360.24				4890	51.3	12.5	95	1	27	173
RADIANT	4650	4680	4750	4880	50.7	11.5	90	3	27	174
BOB	4830	4830	4960	4780	51.2	12.9	92	2	26	173
04WA-102.49			4820	4770	51.3	12.9	97	1	23	177
04WA-122.9			4670	4760	52.6	12.6	96	3	27	173
2004NZ223				4750	52.9	12.8	97	1	24	180
HAXBY		4860	4580	4720	54.0	11.8	97	1	27	171
05WA-357.14				4670	51.7	12.2	98	2	26	173
05WA-325.18				4630	51.0	13.2	97	3	28	175
05WA-329.49				4510	52.0	13.1	98	1	27	174
03WA-204.22H (Hulless)				4490	**58.9**	13.3	90	3	27	173
TETONIA				4480	52.0	10.8	96	2	24	175
04WNZ-286		4500	4330	4400	52.4	12.5	97	2	24	174
PINNACLE				4340	52.1	11.4	99	1	28	172
CLEARWATER(Hulless)				4330	57.3	12.2	89	2	28	174
AC METCALFE	4350	4470	4350	4280	51.7	12.6	97	1	28	173
LEGACY	4450	4520	4360	4220	49.1	12.0	97	1	30	171
05WA-328.8				4180	49.0	13.4	97	1	30	169
2004NZ052				4050	52.4	13.0	98	1	24	176
WA 9820-98 (Hulless)		4210	4120	3890	57.1	12.9	71	5	25	174
MERESSE (Hulless)		4130	4150	3720	54.9	14.6	89	2	24	171
01WA-13860.5 (Hulless)		4030	3900	3690	57.1	13.2	88	3	25	174
2004NZ160				3530	52.4	11.5	99	0	21	179
C.V. %	8	9	10	10	1.3	3.9	2	70	5	1
LSD '@ .10'	240	330	430	650	0.9	0.7	3	2	2	1
Average	4770	4670	4710	4660	52.5	12.5	95	2	26	174
Highest	5380	5320	5280	5700	58.9	14.6	99	5	33	180
Lowest	4350	4030	3900	3530	49.0	10.8	71	0	21	169

1. Grain yield in the Pullman spring barley trial averaged 4660 lb/ac about 110 lb/ac lower than the 5-year average. The Pullman nursery was located about 2 miles south of Pullman, WA on the Spillman WSU Agronomy Farm (Ryan Davis, farm manager).
2. This nursery was seeded on 21 April, 2009 following dry pea. Seed was placed at a 90#/acre seeding rate using a double disc plot drill fitted with seven openers set on 6-inch spacing. Spring seeding conditions were good. Base fertilizer was 90#N, 20#P, and 20#S per acre applied in the spring and a soil test shows adequate nutrients. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 12% compared to an RCBD design.
3. Yields ranged from 3530 lb/ac to 5700 lb/ac, with a CV of 10%. Yield values within the LSD range of the highest yield are shown in bold and 8 of the 36 entries are in this group. Six-row entries are listed in italicized print and the hulless cultivars are designated.
4. Test weights were good with an average of 52.5 lb/bu and ranged from 49.0 lb/bu to 58.9 lb/bu. Plump grain (>6/64" screen), was high and averaged 95%, indicating good grain filling. The hulless cultivars produce the highest test weights and lower plump percentages due to lack of hulls. Grain protein averaged 12.5%. The average plant height was 26 inches.

2009 WSU EXTENSION SPRING BARLEY NURSERY AT REARDAN, WA.

TABLE 100:

Variety Name *6-Row Italicized	5 YEAR AVERAGE (LBS/A)	3 YEAR AVERAGE (LBS/A)	2 YEAR AVERAGE (LBS/A)	2009 YIELD (LBS/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLUMP (%)	2009 THIN (%)	2009 PLANT HT	2009 HEAD DATE
LENETAH	- -	- -	3960	**5420**	51.9	13.8	96	1	23	177
SPAULDING	- -	- -	4020	**5170**	52.6	13.4	95	2	23	175
CHAMPION	- -	- -	3850	**4960**	51.2	14.2	97	1	24	174
05WA-316.K	- -	- -		**4940**	49.8	14.0	97	1	21	174
04WNZ-124	- -	- -	3800	4860	49.5	15.0	96	2	21	177
RWA 1758	- -	- -	3500	4780	50.5	14.3	96	2	19	175
04WA-102.49	- -	- -	3670	4780	50.0	14.2	97	1	20	176
04WA-113.22	- -	- -	3520	4780	50.2	14.8	96	1	22	174
05WA-360.24	- -	- -		4690	51.0	14.5	97	1	23	175
2004NZ170	- -	- -		4680	49.6	14.1	96	2	18	177
BOB	- -	- -	3620	4670	51.1	14.3	97	1	19	174
BARONESSE	- -	- -	3510	4670	50.8	13.9	97	1	20	175
KENT	- -	- -	3830	4620	50.0	13.7	96	2	18	177
05WA-316.99	- -	- -		4570	49.9	14.0	96	1	22	174
RADIANT	- -	- -	3300	4400	50.8	13.8	94	1	19	176
04WNZ-286	- -	- -	3430	4350	51.4	15.0	96	1	16	175
04WA-122.9	- -	- -	3400	4330	50.5	14.1	96	1	21	174
AC METCALFE	- -	- -	3250	4300	50.9	14.8	97	1	23	174
HARRINGTON	- -	- -	3190	4270	50.1	14.2	95	2	20	176
HAXBY	- -	- -	3120	4240	52.5	14.0	96	2	22	174
CDC COPELAND	- -	- -	3280	4210	50.4	13.8	97	1	26	177
2004NZ160	- -	- -		4170	52.0	14.6	98	1	19	176
WA 9820-98 (Hulless)	- -	- -	3150	4160	**57.1**	14.9	77	5	20	175
05WA-329.49	- -	- -		4120	50.7	14.5	97	1	21	175
05WA-325.18	- -	- -		4110	48.8	14.7	96	1	20	175
01WA-13860.5 (Hulless)	- -	- -	3150	4110	55.7	15.0	78	4	20	174
CLEARWATER (Hulless)	- -	- -		4090	**56.7**	14.2	79	6	19	175
TETONIA	- -	- -		4080	50.7	14.0	94	2	20	176
LEGACY	- -	- -	2640	3980	49.1	14.6	95	1	30	172
2004NZ223	- -	- -		3970	51.5	15.0	97	1	19	177
05WA-357.14	- -	- -		3940	51.0	14.5	96	2	22	175
PINNACLE	- -	- -		3910	51.6	12.6	98	1	25	173
03WA-204.22H (Hulless)	- -	- -		3900	**56.2**	15.4	87	4	20	175
05WA-328.8	- -	- -		3660	49.1	14.9	95	2	26	172
2004NZ052	- -	- -		3480	49.8	14.9	97	1	19	175
MERESSE (Hulless)	- -	- -	2350	3200	55.9	16.4	80	5	21	174
C.V. %	- -	- -	9	9	1.4	1.7	2	29	9	0
LSD '@ .10'	- -	- -	310	550	1.0	0.3	2	1	3	1
Average	- -	- -	3410	4350	51.4	14.4	94	2	21	175
Highest	- -	- -	4020	5420	57.1	16.4	98	6	30	177
Lowest	- -	- -	2350	3200	48.8	12.6	77	1	16	172

1. Grain yield in the Reardan spring barley trial averaged 4350 lb/ac, about 28% higher than the average 2-year yield for this location. The Reardan nursery was located about 7 miles west of Reardan, WA (Hal Johnson, cooperator).
2. This nursery was seeded on 17 April, 2009 following winter wheat. Seed was placed at a 90#/acre seeding rate using a no-till plot drill fitted with Cross-slot openers set on 10-inch spacing. Base fertilizer included 65#N and 5#S applied in the fall and 20#N, 4#P, and 4#S per acre applied in the spring. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 68% compared to an RCBD design.
3. Yields ranged from 3200 lb/ac to 5420 lb/ac, with a CV of 9%. Yield values within the LSD range of the highest yield are shown in bold and 4 of the 36 entries are in this group. Six-row entries are listed in italicized print and the hulless cultivars are designated.
4. Test weights were good with an average of 51.4 lb/bu with a range of 48.8 lb/bu to 57.1 lb/bu. Plump grain (>6/64" screen) averaged 94%. Grain protein was high and averaged 14.4%. The average plant height was 21inches.

2009 WSU EXTENSION SPRING BARLEY NURSERY AT ST. JOHN, WA.

TABLE 108:

Variety Name *6-Row Italicized	5 YEAR AVERAGE (LBS/A)	3 YEAR AVERAGE (LBS/A)	2 YEAR AVERAGE (LBS/A)	2009 YIELD (LBS/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLUMP (%)	2009 THIN (%)	2009 PLANT HT	2009 HEAD DATE
CHAMPION	5060	5130	5260	**5620**	50.3	12.7	94	2	25	174
05WA-316.99				**5490**	48.0	13.1	95	1	24	174
TETONIA				**5390**	49.7	13.1	92	2	23	176
SPAULDING	4580	4680	4550	**5340**	52.1	12.9	96	1	25	174
05WA-329.49				**5330**	49.6	12.8	98	1	23	174
HAXBY		4920	4970	**5320**	51.2	12.7	83	8	25	173
RADIANT	4780	4890	5010	**5260**	48.8	12.8	87	3	23	174
04WA-113.22			4840	**5210**	49.5	13.2	89	3	22	173
LENETAH			5100	**5160**	50.1	12.9	95	2	24	175
05WA-316.K				5070	47.1	12.9	84	7	23	173
04WNZ-286		4840	5030	5060	50.9	13.6	96	1	22	174
2004NZ160				4980	50.8	13.2	98	1	21	175
BOB	4900	5000	5050	4960	49.2	13.2	87	5	24	174
05WA-325.18				4950	48.8	13.8	97	1	23	175
2004NZ170				4940	48.6	13.5	97	1	21	176
2004NZ223				4900	50.8	13.9	97	1	22	177
04WA-122.9			4650	4880	50.4	13.5	96	1	22	174
04WNZ-124			5060	4870	48.4	13.6	91	2	23	177
04WA-102.49			4390	4820	48.3	13.4	95	2	21	176
BARONESSE	4740	4760	4810	4820	47.6	13.3	88	5	24	174
CDC COPELAND			4730	4770	48.6	13.2	96	2	27	176
PINNACLE				4750	48.8	12.2	94	2	26	172
RWA 1758			4730	4690	49.3	13.2	96	1	22	174
KENT		4300	4250	4670	47.5	12.5	94	2	23	176
HARRINGTON	4260	4350	4480	4640	48.7	13.7	89	3	23	174
05WA-357.14				4510	49.6	13.3	94	2	24	174
05WA-360.24				4420	49.5	13.6	92	2	23	174
2004NZ052				4370	49.2	13.8	98	0	22	175
CLEARWATER (Hulless)				4360	**54.5**	13.2	81	5	24	174
05WA-328.8				4250	47.2	13.5	94	1	27	171
AC METCALFE	4030	4020	4000	4190	49.4	13.4	96	1	25	175
WA 9820-98 (Hulless)		3620	3790	4070	53.4	13.8	49	17	22	175
LEGACY	4000	4110	4030	3990	47.1	12.5	93	1	29	170
03WA-204.22H (Hulless)				3950	**55.7**	13.6	79	5	23	174
01WA-13860.5 (Hulless)		3460	3340	3800	**55.3**	13.8	76	6	22	175
MERESSE (Hulless)		3210	3150	3680	53.8	14.4	75	7	23	172
C.V. %	10	9	10	8	2.7	3.9	8	113	7	1
LSD '@ .10'	280	320	440	530	1.8	0.7	10	5	2	1
Average	4540	4380	4530	4760	49.9	13.3	90	3	23	174
Highest	5060	5130	5260	5620	55.7	14.4	98	17	29	177
Lowest	4000	3210	3150	3680	47.1	12.2	49	0	21	170

1. Grain yield in the St. John spring barley trial averaged 4760 lb/ac, 5% higher than the average 5-year yield for this location. The St. John nursery was located about 3 miles east of St. John, WA (Mac Mills, cooperator).
2. This nursery was seeded on 20 April, 2009 following winter wheat. Seed was placed at a 90#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was applied at 70#N and 10#S per acre. Spring seeding conditions were good with moisture rated 7 out of 10 and spring rain made the early outlook good for the spring crop. For grain yield, the alpha lattice experimental design improved variation allocation during statistical analysis and the CV by 51% compared to an RCBD design.
3. Yields ranged from 3680 lb/ac to 5620 lb/ac, with a CV of 8%. Yield values within the LSD range of the highest yield are shown in bold and 9 of the 36 entries are in this group. Six-row barley entries are listed in italicized print and hulless cultivars are noted.
4. Test weights were good with an average of 49.9 lb/bu. Plump grain (>6/64" screen) averaged 90%. Grain protein was high and averaged 13.3%. The average plant height was 23 inches. No lodging occurred.

2009 WSU EXTENSION SPRING BARLEY NURSERY AT WALLA WALLA, WA.

TABLE 109:

Variety Name *6-Row Italicized	5 YEAR AVERAGE (LBS/A)	3 YEAR AVERAGE (LBS/A)	2 YEAR AVERAGE (LBS/A)	2009 YIELD (LBS/A)	2009 TEST WT (LBS/BU)	2009 PROTEIN (%)	2009 PLUMP (%)	2009 THIN (%)	2009 PLANT HT	2009 HEAD DATE
CHAMPION	- -	4630	4970	**7250**	52.9	13.0	96	2	32	163
SPAULDING	- -	4490	5010	**7200**	52.6	12.4	97	1	33	163
05WA-316.99	- -			**7170**	50.3	13.0	96	1	33	163
TETONIA	- -			**7070**	52.4	12.7	95	2	32	165
LENETAH	- -		4890	**7020**	51.9	12.7	95	2	34	164
CDC COPELAND	- -		4960	**6950**	50.8	13.2	95	2	38	165
2004NZ170	- -			**6940**	50.0	12.4	97	1	26	166
RADIANT	- -	4370	4840	**6930**	51.0	12.4	91	4	32	164
04WA-113.22	- -		5110	**6920**	50.9	13.3	96	2	29	163
05WA-329.49	- -			**6910**	51.6	12.9	98	1	32	163
05WA-316.K	- -			**6810**	51.6	12.9	96	2	30	162
HAXBY	- -	4190	4660	**6800**	52.7	12.5	96	2	34	163
04WA-122.9	- -		4730	6680	51.4	13.3	97	1	33	163
05WA-357.14	- -			6660	53.0	13.1	97	1	31	164
04WNZ-286	- -	4230	4640	6650	52.4	13.1	98	1	32	163
AC METCALFE	- -	3910	4530	6630	53.1	13.1	97	1	37	164
RWA 1758	- -		4890	6620	51.5	12.9	98	1	28	163
2004NZ160	- -			6600	52.6	12.8	98	1	27	165
PINNACLE	- -			6550	51.3	11.9	99	1	36	162
05WA-360.24	- -			6510	52.2	13.0	97	1	31	163
BOB	- -	4450	4790	6490	51.3	13.0	97	1	32	162
KENT	- -	4310	4690	6480	48.5	12.7	90	4	30	166
LEGACY	- -	4090	4610	6450	48.7	12.9	97	1	39	162
04WNZ-124	- -		4620	6410	49.7	13.0	95	2	29	166
04WA-102.49	- -		4750	6400	49.8	12.8	97	1	28	165
2004NZ223	- -			6400	51.1	13.0	97	1	30	166
BARONESSE	- -	4210	4410	6310	50.6	12.8	94	2	31	164
2004NZ052	- -			6250	51.5	13.4	98	1	27	165
HARRINGTON	- -	3620	4070	6230	49.5	13.3	96	1	33	164
05WA-325.18	- -			6110	49.7	13.5	97	1	32	164
01WA-13860.5 (Hulless)	- -	3170	3770	6110	**58.9**	13.6	92	3	32	164
03WA-204.22H (Hulless)	- -			6100	**58.2**	13.9	94	2	29	163
CLEARWATER(Hulless)	- -			5890	57.5	12.9	90	3	32	165
05WA-328.8	- -			5760	49.2	13.5	97	1	36	161
WA 9820-98 (Hulless)	- -	3100	3700	5350	55.1	13.0	75	5	26	164
MERESSE (Hulless)	- -	2830	3500	5200	**59.4**	14.6	93	2	29	162
C.V. %	- -	7	7	5	1.8	2.3	2	44	4	0
LSD '@ .10'	- -	270	360	490	1.3	0.4	3	1	2	1
Average	- -	3970	4580	6520	52.1	13.0	95	2	32	164
Highest	- -	4630	5110	7250	59.4	14.6	99	5	39	166
Lowest	- -	2830	3500	5200	48.5	11.9	75	1	26	161

1. Grain yield in the Walla Walla spring barley trial averaged 6520 lb/ac, 64% higher than the 3-year average for this location. The Walla Walla nursery was located about 5 miles south of Waitsburg, WA (Glen Smith, cooperator).
2. This nursery was seeded on 16 April, 2009 following winter wheat. Seed was placed at a 90#/acre seeding rate using a double disc plot drill set on 6-inch spacing. Base fertilizer was applied as 110#N, 15# P and 10#S per acre, and a spring soil test showed adequate available nutrients. Spring seeding conditions were rated 8 on a 1-10 scale and spring rain made the outlook good for the spring crop. The alpha lattice experimental designs improved variation allocation during statistical analysis and the CV by 21% compared to an RCBD design.
3. Yields ranged from 5200 lb/ac to 7250 lb/ac, with a CV of 5%. Yield values within the LSD range of the highest yield are shown in bold and 12 of the 36 entries are in this group. Six-row entries are listed in italicized print and hulless cultivars are noted.
4. Test weights were excellent with an average of 52.1 lb/bu. Plump grain (>6/64" screen) averaged 95%. Grain protein was high averaging 13.0%. The average plant height was 32 inches.

Julian Date Calendar

Year: 2009

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	1	32	60	91	121	152	182	213	244	274	305	335
2	2	33	61	92	122	153	183	214	245	275	306	336
3	3	34	62	93	123	154	184	215	246	276	307	337
4	4	35	63	94	124	155	185	216	247	277	308	338
5	5	36	64	95	125	156	186	217	248	278	309	339
6	6	37	65	96	126	157	187	218	249	279	310	340
7	7	38	66	97	127	158	188	219	250	280	311	341
8	8	39	67	98	128	159	189	220	251	281	312	342
9	9	40	68	99	129	160	190	221	252	282	313	343
10	10	41	69	100	130	161	191	222	253	283	314	344
11	11	42	70	101	131	162	192	223	254	284	315	345
12	12	43	71	102	132	163	193	224	255	285	316	346
13	13	44	72	103	133	164	194	225	256	286	317	347
14	14	45	73	104	134	165	195	226	257	287	318	348
15	15	46	74	105	135	166	196	227	258	288	319	349
16	16	47	75	106	136	167	197	228	259	289	320	350
17	17	48	76	107	137	168	198	229	260	290	321	351
18	18	49	77	108	138	169	199	230	261	291	322	352
19	19	50	78	109	139	170	200	231	262	292	323	353
20	20	51	79	110	140	171	201	232	263	293	324	354
21	21	52	80	111	141	172	202	233	264	294	325	355
22	22	53	81	112	142	173	203	234	265	295	326	356
23	23	54	82	113	143	174	204	235	266	296	327	357
24	24	55	83	114	144	175	205	236	267	297	328	358
25	25	56	84	115	145	176	206	237	268	298	329	359
26	26	57	85	116	146	177	207	238	269	299	330	360
27	27	58	86	117	147	178	208	239	270	300	331	361
28	28	59	87	118	148	179	209	240	271	301	332	362
29	29		88	119	149	180	210	241	272	302	333	363
30	30		89	120	150	181	211	242	273	303	334	364
31	31		90		151		212	243		304		365