



# The Cereal Sentinel

*A newsletter for Treasure Valley cereal producers*

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## Upcoming Events

Oregon/Idaho Grain Conference, Couer d 'Alene, ID. December 1-3

The goal of this newsletter is to serve the best interests of Treasure Valley cereal producers. It will be issued periodically as information warrants and resources allow. Correspondence and inquiries should be addressed to: **Brad Brown, Extension Soil and Crop Management Specialist, Parma Research and Extension Center, 29603 U of I Lane, Parma, ID 83660 (208-722-6701 Ext. 216) (Fax-208-722-6708) (Email [bradb@uidaho.edu](mailto:bradb@uidaho.edu)).**

**University of Idaho**  
Extension

# Winter Cereal Variety Performance

## Irrigated Trials

The 2009 season marked the 25th season of the Southwestern Idaho Cooperative Extension Winter Wheat and Barley Performance Trials. The trials, supported by the *Idaho Wheat Commission* and *Idaho Barley Commission*, enable the testing of public and private varieties and advanced lines under the irrigated and dryland conditions of western Idaho.

Four irrigated winter trials were planted for the 2009 season. The earliest trials were planted at the Parma R & E Center on October 8 and at Weiser on October 20. Later planted trials were located at the Parma R & E Center on November 17 and Mtn Home on November 19.

Above normal rainfall occurred in June during early grain filling and caused extensive lodging at the early planted Parma trial. There was minimal lodging at any of the off-station winter trials. Rain occurred again during ripening of the later planted trials and reduced test weight. Test weight overall was lower than usual, particularly where lodging occurred. Stripe rust was not evident in 2009 trials.

Grain protein for soft white wheat ranged widely across 2009 irrigated sites. Protein averaged the lowest of all sites at Mtn Home (10.8%). Protein averaged the highest at Parma (12.3%). Excessive N was available at three of the four SWW sites. For the soft whites the protein concentrations are greater than what most export customers would like.

Plant heights were lower than normal at Mtn Home which suggested that wheat was moisture stressed during stem extension. Despite plants that were 6-8 inches shorter than usual, the average yield for the Mtn Home site was 143 bu/A. As usual, early plantings at Parma yielded better than the later planting.

## Soft White Winter Wheat

The irrigated soft white winter wheat results for the 2009 trials are given in Tables 1-3.

**Stephens** is the oldest variety in the trials, and still the most commonly grown winter wheat in southwestern Idaho. Its primary weaknesses are test weight (it's only fair) and straw strength, which was especially evident this year as it lodged worse than some of the more recently released varieties. It is too tall for some wheel

Table 1. Irrigated Early October Planted Soft White Winter Wheat. 2009

Entry	Yield <sup>1</sup> bu/A	Protein %	Test Wt. lb/bu	Height in	Lodging %
<i>Parma (planted Oct. 8)</i>					
<b>Bitterroot</b>	144	11.1	57.7	43.4	46
<b>Bruneau</b>	152	10.7	57.4	41.8	84
<b>CF Brundage</b>	141	12.2	55.8	38.5	90
<b>CF Lambert</b>	153	12.2	56.3	44.0	45
<b>Goetze</b>	136	11.9	56.4	37.5	0
<b>ID00-475-2dh</b>	143	11.4	58.8	38.2	68
<b>ID0663</b>	151	12.1	57.8	41.8	66
<b>ID98-19010A</b>	170	10.5	59.2	38.3	49
<b>ID-D-05</b>	147	12.4	58.0	39.5	63
<b>KW08021</b>	139	11.8	57.2	41.3	68
<b>Legion</b>	132	11.5	55.8	43.4	89
<b>ORCF102</b>	151	11.3	58.4	41.7	16
<b>Salute</b>	143	12.1	56.3	42.5	56
<b>Skiles</b>	145	12.6	58.1	38.0	36
<b>Stephens</b>	134	12.2	56.6	39.5	90
<b>Tubbs 06</b>	149	11.4	57.7	43.4	75
<b>WB 528</b>	153	11.9	59.0	39.5	35
<b>Average</b>	146	11.7	57.4	40.8	57
<b>LSD<sub>.10</sub></b>	13	0.6	1.3	0.8	29
<i>Weiser (planted Oct. 20)</i>					
<b>Bitterroot</b>	136	10.5	60.3	40.3	0
<b>Bruneau</b>	141	10.9	59.6	36.4	0
<b>CF Brundage</b>	116	12.5	57.3	33.5	0
<b>CF-Lambert</b>	131	11.6	59.3	39.0	5
<b>Goetze</b>	132	11.1	58.2	31.0	0
<b>ID00-475-2dh</b>	140	11.5	61.1	37.2	0
<b>ID0663</b>	131	11.6	58.1	35.3	0
<b>ID98-19010A</b>	143	11.3	59.1	31.9	0
<b>ID-D-05</b>	133	11.6	61.9	34.4	0
<b>Legion</b>	133	11.2	59.2	39.6	11
<b>ORCF102</b>	129	11.6	60.0	38.3	0
<b>Salute</b>	144	11.2	57.8	38.7	0
<b>Skiles</b>	133	12.0	59.6	34.3	0
<b>Stephens</b>	135	12.3	57.1	35.6	0
<b>Tubbs 06</b>	149	11.7	58.9	40.9	0
<b>WB 528</b>	136	11.5	60.6	34.3	0
<b>Average</b>	135	11.5	59.3	36.3	1
<b>LSD<sub>.10</sub></b>	11	1.0	1.2	1.8	7

lines. It has good milling and baking quality and excellent yield potential for both early and late fall plantings. But **Stephens** was challenged by conditions

Entry	Yield <sup>1</sup>	Protein	Test Wt.	Height	Lodging
	bu/A	%	lb/bu	in	%
<i>Parma (planted Nov. 17)</i>					
Bitterroot	116	12.4	57.4	40.5	0
Bruneau	138	12.1	58.4	38.5	18
CF Brundage	124	11.8	55.6	36.0	10
CF Lambert	138	12.6	56.5	41.4	44
Goetze	128	12.3	55.4	34.4	0
ID00-475-2dh	120	11.8	58.7	36.4	10
ID0663	135	12.5	56.8	37.8	13
ID98-19010A	160	11.2	58.4	33.4	3
ID-D-05	147	11.9	60.3	36.0	21
Legion	131	12.3	56.0	41.2	61
ORCF-102	121	12.6	57.6	37.7	0
Salute	116	13.0	54.6	39.8	0
Skiles	131	12.9	57.7	34.4	0
Stephens	133	12.6	56.2	38.0	61
Tubbs06	133	12.1	56.9	39.6	25
WB 528	140	12.2	58.5	36.6	0
Average	132	12.3	57.1	37.6	17
LSD <sub>.10</sub>	6	0.4	0.8	1.0	17
<i>Mtn Home (planted Nov. 19)</i>					
Bitterroot	151	10.5	57.6	33.5	0
Bruneau	148	11.1	56.3	30.5	0
CF Brundage	135	10.6	55.2	28.8	0
CF Lambert	127	10.6	56.6	31.9	0
Goetze	133	11.6	55.5	27.2	0
ID00-475-2dh	155	10.6	58.3	31.3	0
ID0663	134	11.2	55.7	29.7	0
ID98-19010A	146	10.5	57.1	26.7	0
ID-D-05	149	10.7	58.8	30.8	0
Legion	152	10.4	56.4	34.0	0
ORCF-102	149	10.9	57.5	34.0	0
Salute	146	10.8	54.8	32.4	0
Skiles	141	10.8	57.0	29.3	0
Stephens	134	11.0	55.7	29.4	0
Tubbs06	154	10.7	56.6	32.9	0
WB 528	142	10.7	58.3	29.2	0
Average	143	10.8	56.7	30.5	0
LSD <sub>.10</sub>	11.7	0.6	0.6	1.0	--

during the 2009 season. Across four sites in 2009 it ranked 14 lowest in production out of 15 entries.

Entry	Yield	Protein	Test Wt.	Height	Lodging
	bu/A	%	lb/bu	in	%
<i>(4 sites)</i>					
Bitterroot	137	11.2	58.3	39.4	12
Bruneau	145	11.0	57.6	36.8	25
CF Lambert	137	11.8	57.2	39.1	24
CF Brundage	129	12.0	56.0	34.2	25
Goetze	132	11.7	56.4	32.5	1
ID00-475-2dh	140	11.3	59.2	36.0	20
ID98-19010A	155	10.9	58.4	32.5	25
ID-D-05	144	11.7	59.8	35.2	32
Legion	137	11.4	56.9	39.5	40
ORCF-102	138	11.6	58.4	37.2	4
Salute	137	11.8	55.9	38.3	14
Skiles	137	12.0	58.1	34.0	9
Stephens	134	12.0	56.4	35.6	38
Tubbs 06	146	11.5	57.5	39.2	25
WB 528	143	11.6	59.1	34.9	9
Average	139	11.6	57.6	36.3	19
LSD <sub>.10</sub>	5	0.3	0.5	0.6	8

**Tubbs 06**, an OSU release, is one of the few OSU releases since **Stephens** that yields comparable to **Stephens** in both early October and November plantings. **Tubbs 06** is taller than **Stephens** but has good straw strength and lodged less than **Stephens** in 2009. It is a re-selection of **Tubbs**, is widely adapted in the PNW, and has yielded as well as **Stephens** and better than **Tubbs** in western Idaho, particularly in later fall plantings.

**ORCF-102** is the second OSU Clearfield release and has a yield advantage over **ORCF-101**, especially in later plantings. It does not yield as well as **Tubbs 06** or **Stephens**. It is comparable in height to **Tubbs 06** and has very good straw strength.

**WB 528 (BZ6W98-528)** is a Westbred variety that yields comparable to **Stephens**, is similar in height, but has significantly better test weight. **WB 528** has excellent milling and baking quality and resistance to stripe rust. It is the only released variety with milling and bake quality equal to or better than **Stephens** that has also been comparable to **Stephens** in yield potential over the last seven years, especially in later plantings.

Table 4. SWWW Variety Performance as Affected by Planting Dates. 1996-08		
Entries	October Planted	November Planted
-----bu/A-----		
<b>1996-05</b>		
	(20 sites)	(17 sites)
<b>Brundage</b>	130	128
<b>Malcolm</b>	140	132
<b>Stephens</b>	139	135
<b>LSD<sub>10</sub></b>	3	4
<b>2003-06</b>		
	(8 sites)	(7 sites)
<b>Simon</b>	133	129
<b>Stephens</b>	139	137
<b>Tubbs</b>	138	131
<b>WB528</b>	136	137
<b>LSD<sub>10</sub></b>	6	5
<b>2006-09</b>		
	(8 sites)	(8sites)
<b>Bitterroot</b>	139	132
<b>CF-Lambert</b>	137	130
<b>Goetze</b>	140	126
<b>ORCF-102</b>	141	129
<b>Stephens</b>	143	134
<b>Tubbs 06</b>	144	141
<b>WB 528</b>	145	132
<b>LSD<sub>10</sub></b>	3	4
<b>2008-09</b>		
	(4 sites)	(4 sites)
<b>Bruneau</b>	148	140
<b>CF Brundage</b>	131	125
<b>ID98-19010A</b>	151	144
<b>Stephens</b>	140	132
<b>Tubbs 06</b>	142	141
<b>LSD<sub>10</sub></b>	6	5

Table 5. SWWW Long Term Variety Performance.				
Variety	96-05	03-06	06-09	08-09
	-----bu/A-----			
	37 sites	15 sites	16 sites	8 sites
<b>Malcolm</b>	136	134		
<b>Stephens</b>	138	138	139	136
<b>Brundage</b>	129			
<b>Tubbs</b>		135		
<b>Simon</b>		131		
<b>Dune</b>		138		
<b>ORCF-101</b>		126		
<b>WB528</b>		136	139	137
<b>ORCF-102</b>			136	134
<b>Goetze</b>			134	133
<b>Tubbs 06</b>			143	142
<b>Bitterroot</b>			136	136
<b>CF Lambert</b>			134	136
<b>Bruneau</b>				144
<b>ID98-19010A</b>				148
<b>CF Brundage</b>				128
<b>ID00-475-2dh</b>				140
<b>ID-D-05</b>				141
<b>Legion</b>				137
<b>Salute</b>				137
<b>LSD<sub>10</sub></b>	7	4	3	3

More recent advanced lines evaluated included **Bruneau (ID93-64901A)** a release for this fall, and **ID98-19010A**, yet to be named; both performed well in 2008 and 2009 compared to **Stephens**. **ID98-19010A** is as short as **Goetze** and lodges less than **Stephens**. Test weight for **ID98-19010A** was higher than for **Stephens** in 2009. **Bruneau** is taller than **Stephens**.

Shorter varieties have generally failed to match the yield potential of **Stephens** in western Idaho. It was true many years ago for the variety **Basin**, then **Brundage**, and more recently for **Goetze**. So it is noteworthy that **ID98-19010A**, from the UI breeding program, has outperformed **Stephens** in the last two seasons, under both early and late plantings. The data are limited to only two growing seasons, but across 8 different trials **ID98-19010A** has averaged 12 bu/A higher than **Stephens**. It is as short as **Goetze**, but has been more productive than **Goetze** in the past two seasons.

**Goetze** is an OSU release that has been tested for at least five years in western Idaho. It is 2 to 4 inches shorter than **Stephens** with better lodging resistance. **Goetze** may not be appreciably different in yield from

**Bitterroot (ID9922407A)** is a tall recent Idaho soft white winter release that occasionally yields as well as **Stephens**, but is inconsistent. Its test weight is higher than **Stephens**. Straw strength is better than **Stephens**.

**CF-Lambert (ID99-435)**, an imazamox tolerant Clearfield line, has been evaluated over the last six seasons. **CF-Lambert** is not as productive as **Stephens** generally, nor is **CF Brundage (ID02-859)**.

**Stephens** in early fall plantings but it has not compared favorably to **Stephens** in late fall plantings.

Performance in any given trial is not as reliable as the combined performance over several sites and years. The yield results for several periods of testing are shown in Tables 4 and 5 that enable direct comparison among the varieties shown.

**Planting Dates and SWWW Variety Performance**

Variety performance can be affected by planting dates. All varieties are typically less productive if planted in mid November rather than early to mid October (Table 4). The continuing popularity of **Stephens** is due in part to its excellent long-term performance in later plantings necessitated by late harvested crops of potatoes, corn, or sugarbeets. Several varieties such as **Malcolm**, **ORCF-102**, **Tubbs** and **Goetze** that are comparable to **Stephens** in yield in early plantings appear to be more susceptible to later plantings than **Stephens**. Exceptions include late planted **WB528**, **ID98-19010A**, and especially **Tubbs 06**. Of the varieties and advanced lines evaluated, **Tubbs 06** may be the least sensitive to late plantings.

**Hard Winter Wheat**

Hard red and hard white winter wheat varieties and advanced lines are also evaluated in the Cooperative Extension Variety Performance Trials. Irrigated hard winter wheat is generally less productive than soft white winter varieties but market prices can be higher, especially with higher deficiency payments or protein premiums. Test weight is generally higher with hard winters if stripe rust is not present. Results for 2009 testing are shown in Tables 6-8.

Few irrigated hard red winters have acceptable milling and baking quality for export according to the **Idaho Wheat Commission**. Japan has requested that specific varieties not be included in their shipments. The position of the **Idaho Wheat Commission** is available on their website at <http://www.idahowheat.org>. Click on "preferred varieties" for the varieties of all market classes that do not detract from the marketability of PNW wheat.

**Hard Red Winter Wheat**

**Hoff** is an older OSU release, with good test weight, straw strength and lodging resistance. It has good yield potential but is taller than **Moreland** and may have lower protein.

**Moreland (ID0517)**, is an Idaho release, short with excellent lodging resistance and its baking quality is better than most hard red winters adapted to irrigation. But **Moreland** does not have stripe rust resistance. There has been significant stripe rust in **Moreland** at Parma in three of the last five years (2005, 2007, and 2008).

**Norwest 553** is an OSU release tested in western Idaho this past season for the first time. It is short with

Table 6. Early October Planted Irrigated Hard Winter Wheat Performance in the Treasure Valley, 2009.					
Variety	Yield	Protein	Test wt	Height	Lodging
	bu/A	%	lb/bu	in	%
<i>Parma (planted Oct. 8)</i>					
<b>Hard Reds</b>					
<b>Esperia</b>	144	13.1	60.2	36.4	20
<b>Hoff</b>	148	12.6	59.4	41.6	8
<b>ID0621</b>	138	11.9	59.6	39.2	45
<b>ID0651</b>	117	14.1	58.7	51.8	69
<b>Moreland</b>	149	13.0	57.7	38.8	11
<b>Norwest 553</b>	161	12.1	60.6	35.2	0
<b>Hard Whites</b>					
<b>ID0656</b>	138	12.9	59.3	45.7	68
<b>ID0658</b>	121	12.5	59.4	42.9	81
<b>Ivory</b>	150	12.1	59.2	41.3	78
<b>Mieti</b>	142	13.8	58.6	32.6	3
<b>Mol</b>	141	14.3	61.8	34.8	0
<b>NuHorizon</b>	168		62.2	37.4	3
<b>Average</b>	143	12.9	59.7	39.8	32
<b>LSD<sub>.10</sub></b>	11	0.5	0.9	1.2	19
<i>Weiser (planted Oct. 20)</i>					
<b>Hard Reds</b>					
<b>Hoff</b>	119	12.2	60.2	36.3	16
<b>ID621</b>	121	11.9	61.6	33.2	0
<b>ID651</b>	117	12.8	61.5	46.2	51
<b>Moreland</b>	114	12.3	60.4	30.9	1
<b>Norwest 553</b>	107	12.6	60.7	30.2	0
<b>Hard Whites</b>					
<b>ID0658</b>	115	11.8	60.7	41.0	39
<b>Ivory</b>	140	12.4	60.7	37.4	0
<b>NuHorizon</b>	121	12.0	62.9	29.9	0
<b>Average</b>	119	12.2	61.1	35.6	13
<b>LSD<sub>.10</sub></b>	15	1.7	1.9	2.4	22

**Table 7. Mid November Planted Irrigated Hard Winter Wheat Performance in the Treasure Valley, 2009.**

Variety	Yield	Protein	Test	Height	Lodging
	bu/A	%	lb/bu	in	%
<i>Parma (planted Nov. 13)</i>					
<b>Hard Reds</b>					
Esperia	136	12.5	60.2	31.4	3
Hoff	136	12.3	60.8	37.2	9
ID621	127	12.2	58.7	35.0	0
ID651	104	13.8	60.1	46.2	31
KW70518(s)	122	13.6	60.2	37.1	0
KW70521(s)	127	13.6	63.4	36.4	1
Moreland	147	12.8	59.4	34.3	20
Norwest 553	123	13.1	60.2	30.5	0
WB 936(s)	137	13.1	61.1	33.7	3
<b>Hard Whites</b>					
ID0656	134	12.9	59.8	43.1	10
ID0658	114	12.6	59.7	39.6	53
Ivory	142	11.8	59.5	38.3	11
Mieti	126	12.6	59.2	26.7	0
Mol	117	13.7	61.6	28.8	0
NuHorizon	164	12.0	63.2	34.1	0
Average	130	12.8	60.5	35.4	9
LSD <sub>.10</sub>	8.4	0.5	0.7	1.3	19
<i>Mtn Home (planted Nov. 19)</i>					
Hoff	118	10.9	59.5	30.4	0
ID0621	127	10.8	59.4	29.0	0
ID0651	108	11.1	59.4	41.5	1
Moreland	124	11.4	58.5	26.7	1
Norwest 553	125	11.4	58.6	26.7	0
WB 936 (s)	108	12.7	59.4	27.4	1
<b>Hard Whites</b>					
Ivory	130	10.5	58.7	33.2	0
NuHorizon	123	11.4	61.2	28.1	1
Average	120	11.3	59.4	30.4	--
LSD <sub>.10</sub>	12	0.5	0.6	1.6	1

good lodging resistance. Yield potential in limited testing has been comparable to Hoff, but its ranking for yield varied depending on the planting date and management. Test weight is comparable to Hoff and slightly better than Moreland in some sites.

ID0621, an Idaho HRW advanced line, has good yield potential, averaging as high as Moreland in three

years of testing. It averaged the highest in yield across all sites including a stressed trial at Grandview in 2007. It is comparable in height and protein to Hoff. Test weight for ID0621 is comparable to Hoff in early plantings but lower than Hoff in later plantings. ID0651 is very tall and lower yielding, and will not be further evaluated.

Esperia is an AllStar Seed hard red winter. It is nearly as short as Norwest 553 with comparable resistance to lodging.

**Table 8. Irrigated Fall Planted Hard Winter Wheat Long Term Yield Performance, 2003-08.**

Variety	2003-09	2007-08	2007-09	2009
	-----bu/A-----			
	27 sites	8 sites	12 sites	4 sites
<b>Hard Reds</b>				
Hoff	127	120	130	130
Moreland	126	122	133	134
ID621		129	135	128
ID651				112
Norwest 553				129
<b>Hard Whites</b>				
Darwin		112		--
Gary		112		--
Ivory	137	129	141	140
NuHorizon	137	128	141	144
LSD <sub>.10</sub>	2	3	3	8

**Hard White Winter Wheat**

Hard white winter wheat varieties have been released and those varieties released for irrigation are frequently more productive than hard red winters. Their quality may not be desirable for export. The domestic market for southern Idaho hard white wheat has increased in recent years and selected varieties are contracted in the Magic Valley east. Western Idaho production of hard whites is limited in part because most storage elevators do not wish to handle more than one or two market classes. Segregation from soft whites is essential. The segregated hard wheat in western Idaho is primarily hard red spring.

Mixing of hard white and soft wheat remains a significant concern as it will result in poor functionality of the mix when used for traditional baking products.

**Ivory**, the first OSU hard white winter release, is intermediate in height and yields similar to **NuHorizon** over several years of testing. It is taller than **NuHorizon** and test weight for **Ivory** is lower.

**NuHorizon** is a short General Mills variety with yield and protein comparable to **Ivory**. **NuHorizon** has better straw strength and is less susceptible to lodging than **Ivory** and other hard white entries.

**Gary** and **Darwin** are hard white winters released from the UI Aberdeen breeding program. Both are relatively tall and more susceptible to lodging and are better adapted for dryland systems. The test weight for **Gary** was significantly lower than other hard white entries.

**Mol** and **Mieti** are hard white winter varieties from AllStar Seed. Both are short and yielded lower than **Ivory** and **NuHorizon** in limited testing.

### Fall Planted Hard Spring Wheat

We have fall planted spring genotypes for the last eighteen years. **WB 936** is the most commonly planted variety in fall seedings. Spring genotypes survive most winters and while they may not consistently yield as well as winter genotypes of hard red winter wheat, they are typically marketed at higher prices if protein is acceptable. Often, the later the planting, the closer in yield that spring genotypes are to winter wheat of the same market class.

**WB 936** was evaluated in late planted trials in 2009 (Table 7). **WB 936** yield is sporadic, sometimes doing as well as **Moreland**, a hard red winter, sometimes yielding considerably less.

Fall planting spring genotypes comes with some risk. Winterkill is a risk for spring genotypes, but re-planting is an option. More serious is the risk of late season frost, since spring genotypes typically head earlier than winters, and there is little you can do to compensate for frost events that affect grain development. For that reason, fields more prone to late frost should be avoided.

## Winter Barley

Winter barley in 2009 was evaluated only in the earliest planted Parma trial due to declining support from the **Idaho Barley Commission**. Winter barley performance in 2009 or over several years is shown in Tables 9 and 10. Relatively few winter barley varieties were evaluated as few new feed entries were released and barley acreage in western Idaho has significantly declined. Excellent yields of some varieties were achieved in 2009 despite severe lodging.

**Table 9. Irrigated Winter Barley Performance in the Treasure Valley, 2009.**

Variety	Yield	Test wt	Height	Lodging	Thins
	bu/A	lb/bu	in	%	%
<i>Parma (planted Oct. 8)</i>					
<i>Winter</i>					
<b>Charles</b>	<b>158</b>	<b>43.2</b>	<b>40.7</b>	<b>90</b>	
<b>Endeavor</b>	<b>139</b>	<b>45.2</b>	<b>43.8</b>	<b>90</b>	
<b>OR81</b>	<b>196</b>	<b>48.2</b>	<b>43.2</b>	<b>90</b>	
<b>Strider</b>	<b>192</b>	<b>44.6</b>	<b>43.1</b>	<b>90</b>	
<b>Sunstar</b>	<b>133</b>	<b>42.8</b>	<b>40.0</b>	<b>90</b>	
<b>Pride</b>					
<b>Average</b>	<b>163</b>	<b>44.6</b>	<b>42.1</b>	<b>90</b>	
<b>LSD<sub>.10</sub></b>	<b>17</b>	<b>1.5</b>	<b>1.1</b>	<b>--</b>	

**Table 10. Irrigated Fall Planted Barley Long Term Yield Performance, 1996-09.**

Variety	2004-07	2006-08	2006-09
	-----bu/A-----		
	6 sites	6 sites	7 sites
<b>Strider</b>	<b>186</b>	<b>167</b>	<b>170</b>
<b>Sunstar Pride</b>	<b>190</b>	<b>183</b>	<b>176</b>
<b>Maja</b>	<b>175</b>	<b>164</b>	
<b>Idagold (s)</b>	<b>167</b>		
<b>BG-006 (s)</b>	<b>138</b>		
<b>Charles</b>		<b>148</b>	<b>150</b>
<b>LSD<sub>.10</sub></b>	<b>10</b>	<b>11</b>	<b>10</b>

**Strider**, an OSU release with Barley Stripe Rust resistance has very good yield potential. It is taller than **Sunstar Pride** and frequently lower in test weight but has comparable straw strength.

**Sunstar Pride** has excellent yield potential but does not have stripe rust resistance. Barley stripe rust has occurred only once at Parma since **Sunstar Pride** was released by Sundermann Breeding. **Sunstar Pride** did not tolerate the lodging conditions in 2009 as well as other varieties.

A winter barley acceptable for malting could open up more possibilities for contracted malting barley in western Idaho. The advantage of winter barley over spring malting barley is the 25 to 40% greater

production and cooler temperatures during grain fill that promote better malt quality in western Idaho.

**Maja (Stab 113)** is a potential winter malting type from OSU. It has not yielded quite as well as **Strider** or **Sunstar Pride** over five years (2004-08) of testing. The protein in **Maja** may be higher than other barley with comparable yield potential. **Maja** is as tall as **Strider** but has better straw strength and higher test weight. It has not to be approved by the American Malting Barley Association (AMBA).

**Charles** is a USDA winter barley release with malting quality. It is shorter and lower yielding than **Maja** and may lack straw strength. It also has lower test weight than **Maja**. **Charles** has been approved for malting by AMBA and is contracted in southern central and southeastern Idaho.

**Endeavor** is another USDA release with malting quality. It is comparable in height to **Strider** and taller than **Charles**. It did not yield as well as **Strider** or **Charles** under the severe lodging conditions at Parma.

**OR81** is an OSU advanced line with malting potential. It yielded as well as **Strider** in 2009 and was comparable in height.

## Dryland Trials

The 2009 trial was the poorest yielding of any that we've conducted, for reasons that are not clear. The highest yield was only 9 bu/A. Long term performance is a better indication of variety performance (Table 11).

Among soft white winter wheats, **Malcolm**, **Eltan**, and **Stephens** did not differ in yield over several years of dryland testing (1996-2006). In recent testing (2007-09) several other varieties including **Tubbs**, **Tubbs 06**, **Simon**, **ID587**, and **Hubbard** have done at least as well as **Stephens**, with **Simon** yielding higher than **Stephens**.

Hard red winter wheats **Promontory**, **Buchanan**, and **Utah 100** have all yielded as well as **Stephens** over the 1996-08 period. In more recent testing most all hard varieties with the exception of **Gary** (2007-09) have matched or exceeded **Stephens** in yield.

Hard white winter wheats have been evaluated for the last five years in the dryland trial. **Darwin** and **Ivory** yielded as well as the hard red winters during this time.

**Table 11. Dryland Winter Wheat Performance in Southwestern Idaho.**

Variety	Yield			Protein	Test Weight	Height
	04-08	07-09	08-09	-----2009-----		
	-----bu/A-----			%	lb/bu	in
<i>Soft Whites</i>						
<b>Eltan</b>	44	23	17	15.8	61.0	19.0
<b>Goetze</b>			15	15.9	63.0	17.5
<b>Hubbard</b>	43	21	14	17.6	61.0	19.2
<b>ID0587</b>	43	24	13	17.2	54.0	17.9
<b>ID0620</b>		23	16	--	58.0	17.5
<b>ID-D-05</b>			15	16.9	63.5	16.7
<b>Malcolm</b>	42	23	15	16.9	61.0	18.0
<b>ORCF-102</b>			14	16.6	59.0	18.2
<b>Simon</b>	48	27	15	17.7	62.0	16.7
<b>Stephens</b>	42	23	14	17.5	57.0	16.7
<b>Tubbs</b>	46	26	18	16.8	62.0	19.1
<b>Tubbs06</b>		26	18	16.5	61.0	19.1
<b>WB528</b>				16.3	60.0	17.7
<b>Average</b>	44	24	15	--	59.9	18.0
<b>LSD<sub>.10</sub></b>	3	3	4	--	0.3	1.9
<i>Hard Red and White</i>						
<i>Hard Reds</i>						
<b>Boundary</b>	40	23	17	16.6	60.0	17.2
<b>Buchanan</b>	39	24	20	14.9	59.5	19.2
<b>Finley</b>	41	25	16	15.7	63.3	18.8
<b>Hoff</b>			21	15.3	62.5	19.5
<b>ID0653</b>			21	15.8	61.5	19.3
<b>Juniper</b>	40	25	19	16.7	61.0	21.7
<b>Moreland</b>	42	25	16	17.9	61.0	15.5
<b>Promontory</b>	44	27	19	17.4	56.0	17.1
<b>Utah 100</b>	42	26	18	16.9	57.0	18.5
<i>Hard Whites</i>						
<b>Darwin</b>		27	18	17.0	57.0	18.7
<b>Gary</b>	41	20	17	16.1	61.0	19.8
<b>Ivory</b>	40	24	20	16.3	61.3	17.9
<b>Average</b>	41	25	18	--	59.9	18.4
<b>LSD<sub>.10</sub></b>	2	3	4	--	2.7	1.5

In the last two years, the average yield for the hard winter wheat was 5 bu/A higher than the soft white winter in the dryland trial. That yield difference does not hold every year. Better growing conditions typically favor soft whites. Dryland test weights are typically higher for hard red winters than soft white winters.

## Variety Performance in other Areas

Small grain seed producers may be interested in the performance of varieties used in other production areas. Variety performance in other irrigated and dryland areas of southern Idaho can be found at the University of Idaho Cereals Extension Project website from the Aberdeen Research and Extension Center Home Page on the internet at <http://www.uidaho.edu/ag/extension/>. Variety performance in Oregon production systems can be viewed at the OSU Extension Cereals web site reached at <http://www.css.orst.edu/cereals>. Variety testing results in Washington can be viewed at <http://variety.wsu.edu>.

## Relay Cropping

Cumulative heat units after a small grain harvest are typically not used for crop production. At most they are used for germinating volunteer grain that is left behind the combine. Occasionally the volunteer grain is used for forage or ground cover in soils subject to wind erosion. Brassicas are also planted after small grains for controlling soil borne pests of sugarbeets or potatoes. Perhaps other crops can be grown during the remainder of the season in western Idaho.

Relay cropping consists of planting a crop into another crop that is still growing. The purpose is to get a head start with the second crop (the second leg) so that it is more apt to mature in a limited growing season. It is not done much in Idaho. Relay cropping is common in other parts of the country and world. Ideally, the first crop matures with the grain harvested soon enough that it does not unduly interfere with the growth of the second crop taken for forage or grain.

A suitable small grain for the first crop is one that is productive yet matures earlier than other small grains. In our system, early fall planted winter barley is well suited.

There is potential in SW Idaho for relay cropping into winter barley. Examples might include relay second crops such as corn, dry beans, soybeans, or other oilseeds like safflower, sunflower, camelina, or mustard.

I reported in earlier newsletter accounts our attempt to relay plant silage corn and other relay crops into the 2008 winter barley. Winter barley harvested July 10 measured only 107 bu/A due to limited available N. Relay planted corn (105 day maturity) was harvested October 17 and measured only 16.5 tons/A of silage (65% moisture) due to a low seeding rate (stand roughly 40%). Most all oil seed crops were ingested by rabbits after uniform emergence.



Figure 1. Relay planting soybeans May 16 into 14" spaced Maja winter barley at late heading. Parma R & E Center, 2009.



Figure 2. Mature winter barley before harvest on July 3, 2009. Parma R & E Center.



Figure 3. Relay plant depressants in front of cutting bar to avoid cutting etiolated seedlings of relay crops between 14" spaced barley rows.



Figure 4. Relay planted soybeans between barley stubble rows on July 27, 2009. Parma R&E Center.



Figure 5. Relay planted soybeans between barley stubble rows on September 4, 2009 prior to the forage harvest.



Figure 6. Chopped winter barley straw and soybean mixed forage harvested September 4, 2009. Parma R & E Center.

Relay corn, soybeans, and sunflowers were planted for 2009 between 14" spaced winter barley rows centered on 30" beds. The trial was furrow irrigated. Both sunflower and corn stands suffered from quail, pheasant, mice and possibly rabbits that found their way under the netting. Predation is easily the most serious issue we've faced with relay cropping small plots.

In contrast, there was minimal predation of relay planted soybeans (AG0808) and good stands resulted where barley had not lodged. Seedlings were thin and tall (etiolated) due to low light intensity and penetration into



Figure 7. Relay cropped soybeans between barley stubble rows prior to harvest on September 30, 2009.

the barley canopy prior to the barley harvest. Winter barley harvested July 3 measured 140 bu/A. The soybeans were drought stressed before the barley harvest but recovered with a subsequent irrigation. Furrow irrigation may lend itself to later irrigation than sprinklers as it does not contribute as much to lodging, kernel discoloration, or sprout. Soybeans and corn were Roundup Ready to enable volunteer barley control.

Winter barley stubble and soybean tops were harvested together for a mixed forage on September 4 (Figure 4 and 5) and measured 2.9 dry tons /A (8.2 tons of fresh mixed forage/A at 64.8% moisture) which was over

80% soybean herbage. Most pods were green but fully formed at the time of the forage harvest.

For those satisfied with a barley straw soybean mixed forage harvest, the results suggest that relay crop soybeans may have potential in the Magic Valley, but that remains to be demonstrated.

Soybean seed was combined June 30 (Fig. 7) as pods had begun to shatter and measured from 14 to 36 bu/A (12% moisture corrected) with seed moisture ranging from 5.4 to 11.6%. Yields were primarily affected by stands. Poorer soybean stands and yields occurred where barley lodged. Minneapolis No 1 soybean prices averaged \$9.28 per bu for the month of September. Soybeans are exported from PNW ports.

Though minimal relay planted corn and sunflower stands resulted from predation, we will monitor the maturity of the remaining plants. Sunflowers were finished blooming and corn silks were dark brown by September 17. In contrast, corn planted alone the same day as relay cropped corn, was mature by September 17. Poor light conditions during early seedling establishment invariably delays corn maturity.

## ***Publications of interest***

### **Goatgrass**

Goatgrass has been found in southwest Idaho. It may not be a problem in irrigated fields as much as dryland wheat, but it can be troublesome for both production and marketing. A new publication is available describing this weed and the management required for its control. "Integrated Management of Jointed Goatgrass in the Pacific Northwest." Washington State University Extension Bulletin 2042. Authors: Joseph P. Yenish, Daniel A. Ball, and Roland Schirman. This is an excellent introduction to jointed Goatgrass and the management practices proven effective against this weed. It is not available on-line as yet.

### **Head blight**

With increased frequency of wheat following corn, growers should be aware of the risks of Fusarium head blight when corn residues are left on the soil surface to harbor this pathogen. As far as we know, head blight incidence in southwest Idaho wheat is isolated.

A very limited number of wheat plant samples were brought to the Parma R & E Center for diagnosis in 2009 that had head blight on them. While we may have had head blight previously and it was undetected, this is the first sample that was confirmed for head blight infection

that I'm aware of. The samples came from a field previously in field corn harvested for grain with residues left on the surface.

An excellent publication describing head blight is available on-line from North Dakota Cooperative Extension, the region where head blight is a serious concern. The publication is "Fusarium Head Blight (scab) of Small Grains", North Dakota Cooperative Extension PP-804. I encourage small grain producers with grain corn in the rotation to view this publication at <http://www.ag.ndsu.edu/pubs/plantsci/smgrains/pp804.pdf>.

### **Enhanced Efficiency Fertilizers**

There are many enhanced efficiency fertilizers available now to improve plant nutrient utilization and many questions regarding their use and effectiveness. To help clear the air on these materials, Montana State University provides the publication "Enhanced Efficiency Fertilizers", Montana State University Extension Bulletin EB-0188. The publication is available at

<http://msuextension.org/publications/AgandNaturalResources/EB0188.pdf>.

### **Double Cropped Forages**

Triticale is a common small grain winter forage used by dairymen and others to increase annual forage production and maximize soil phosphorus removal. It is frequently grown as a double crop with silage corn. We have evaluated different aspects of this practice over time and have summarized that information into "Double Cropped Winter Forages" University of Idaho Cooperative Extension Bulletin 0869. The bulletin is available on-line at <http://info.ag.uidaho.edu/pdf/BUL/BUL0869.pdf>.

## **Parma R & E Center Closure?**

As many of you know, the University of Idaho Parma R&E Center will be closed, if the previous decision is allowed to stand. Since the budget situation has further deteriorated, with additional holdbacks forthcoming, there is not much hope.

Closure implications for the small grains program in western Idaho will mean no field work will be conducted beyond the 2009 season. It would effectively preclude small grain variety testing, both on and off-station, as well as any other field studies related to fertilization.

Regardless of the closing, we are told that faculty will remain, somewhere. My plan is to continue this newsletter for as long as we can relate information pertinent to western Idaho small grain producers and have the resources for a hard copy printing. But we will not have the locally developed information to share that we've generated in the past if our field program closes.

Final decisions on R&E Center closings are expected in mid October. Those decisions will be shared in future issues. Contact information for myself will remain the same for the time being (208-722-6701 Ext 216).

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## Southwest Idaho Extension Cereals Website

Previous issues of the *Cereal Sentinel* newsletter back to 1996 can be viewed as PDF files on the Southwest Idaho Extension Cereals Homepage at <http://www.cals.uidaho.edu/swidaho>. If you would like to receive electronic notice of new *Cereal Sentinel* newsletters posted to the website, rather than the hard copy through the mail, send an e-mail message to me at [bradb@uidaho.edu](mailto:bradb@uidaho.edu). The advantage for us is that we don't need to produce a hard copy and put it in the mail to you. Another advantage is that increasingly there will be color photos that will be better viewed with an electronic version. The website is still under development but the content is considerably expanded from the initial website published in June 2000. In addition to the *Cereal Sentinel* newsletters, variety descriptions and performance are added as well as other topics. I welcome any suggestions you may have for the website.

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