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A newsletter for Treasure Valley cereal producers

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Topics: **Page**

Important Dates:

PNW Grains Conference, Couer D 'Alene Nov. 29-Dec. 2, 2005

The goal of this newsletter is to serve the best interests of Treasure Valley cereal producers. It will be issued periodically as information warrants. Correspondence and inquiries should be addressed to: **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). **The *Cereal Sentinel* is made possible in part by a grant from the Idaho Wheat Commission.**

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Winter Cereal Variety Performance

Irrigated Trials

The 2005 season marked the 21st 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 conditions of the Treasure Valley and dryland conditions of Washington Co.

Three irrigated winter wheat trials were planted for the 2005 season. The earliest trials were planted at the Parma R &E Center on October 11 and at Weiser on October 13. A later planted trial was located at the Parma R & E Center on November 15. An additional late planted irrigated trial in Elmore County could not be established due to the uncertainty of water. All plantings at Parma germinated and emerged in the fall.

The season was characterized by fall rains, mild winter temperatures that did not freeze soils to the four inch depth, near normal temperatures in late winter and early spring, and cool rainy conditions during late vegetative growth and early grain fill.

Stripe rust was prevalent at Parma in 2005, the worst incidence in the last 30 years of observations. It was especially evident in the later planted and later maturing trial. Stripe rust was much less severe at Weiser.

Plant heights were shorter and tillering was poorer at Weiser than at Parma where production was excellent.

Table 1. Irrigated mid-October Planted Soft White Winter Wheat Performance in the Treasure Valley. 2005

Variety	Yield	Protein	Test Weight	Height	Lodging
	bu/acre	%	lb/bu	in	%
			Parma (planted Oct.11)		
92-16004A	176	10.3	58.5	41	43
Brundage	192	10.1	61.0	40	0
WB528	184	10.6	61.9	40	28
Dune	181	10.2	59.7	39	10
ID0587	186	10.1	60.5	38	3
KW9016	169	10.3	61.0	38	0
KW010022P	125	11.1	53.8	41	0
Malcolm	187	10.2	59.3	40	13
ORCF-101	168	10.6	60.5	39	0
ORCF-102	180	10.0	61.1	41	0
ORSS	190	9.7	59.8	41	28
Simon	182	10.5	60.0	40	8
Stephens	191	10.2	60.5	38	10
Ste/Brun Mix	188	10.5	60.3	40	30
Tubbs	184	10.0	59.5	41	0
$LSD_{.10}$	19	0.7	1.6	1	25
			Weiser (planted Oct. 13)		
92-16004A	114	9.6	60.5	38	5
Brundage	112	9.1	62.6	36	3
WB528	124	9.6	62.6	37	0
Dune	122	9.3	61.5	34	3
ID0587	103	10.2	60.5	33	0
KW9016	125	10.3	61.7	33	0
Malcolm	121	9.3	60.7	37	3
ORCF-101	113	10.4	60.6	36	0
ORCF-102	113	10.1	61.7	39	3
ORSS	119	9.2	60.7	38	0
Simon	120	9.9	61.9	37	0
Stephens	122	9.4	60.7	35	0
Ste/Brun Mix	111	9.3	61.4	36	3
Tubbs	117	10.0	59.7	38	0
$LSD_{.10}$	9	0.8	0.7	1	4

Soft White Winter Wheat

The irrigated soft white winter wheat results for the 2005 trials are given in Tables 1-3.

Stephens, released in 1978, 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 (good but not great). It is too tall for some wheel lines. It has above average milling and baking quality and excellent yield potential for both early and late plantings.

Malcolm has performed at least as well as **Stephens** in high yield environments, particularly with mid October or earlier plantings. **Malcolm** does not have the milling and baking quality of Stephens although it is acceptable.

Brundage is shorter than **Stephens,** as much as 7 inches when stressed, but more typically 2-3 inches shorter, a couple days earlier heading, and its test weight is invariably higher than **Stephens** or **Malcolm**. **Brundage** protein is typically **lower** than **Stephens** and the milling and baking quality is excellent. **Brundage** has excellent straw strength and lodges less than **Stephens** where significant lodging occurs. It has yielded less than **Stephens** across several years of testing in the Treasure Valley, especially when moisture stress during vegetative growth or late fall plantings reduce tillering. **Brundage** is

Table 2. Irrigated mid-November Planted Soft White Winter Wheat Performance at Parma. 2005

Variety	Yield	Protein	Test Weight	Height	Lodging	
	bu/acre	%	lb/bu	in	%	
		Parma (planted Nov15.)				
92-16004A		167	9.3	60.5	41	0
Brundage	153	9.5	60.9	37	0	
WB528	167	10.2	62.3	39	10	
Dune	137	10.2	58.7	39	0	
ID0587	168	10.0	60.4	40	23	
KW9016	135	9.9	59.0	37	0	
Malcolm	145	10.0	58.7	40	0	
ORCF-101	139	10.7	60.4	40	0	
ORCF-102	155	10.0	60.7	41	0	
ORSS	166	9.2	60.4	41	18	
Simon	164	10.1	60.8	42	0	
Stephens	173	10.1	60.3	39	5	
Ste/Brun Mix	165	10.0	60.3	39	0	
Tubbs	147	10.0	57.1	41	0	
$LSD_{.10}$	8	0.5	1.0	1	16	

awnless and one of the better options available for wheel lines that are difficult to move through taller and awned varieties. Though **Brundage** has less adult-plant-high-temperature resistance to stripe rust than **Stephens** in some environments, its resistance held up very well to the races prevalent in western Idaho during the 2005 season.

Tubbs, the most recent OSU soft white release, has yielded well in both early and late plantings in the absence of stripe rust. It is slightly taller than **Stephens** but has not lodged more than **Stephens**. **Tubbs** has comparable protein but flower yield and cookie diameter tend to be lower than **Stephens**.

Simon (ID91-34302A), the latest UI soft white winter release for irrigated systems, and **Dune (ID91-20503A),** a UI advanced line, have not differed significantly from **Stephens** in yield over three years of testing. **Simon** has comparable test weight and similar straw strength to **Stephens** and excellent milling and baking quality.

Dune has excellent yield potential in both early and late plantings, yielding at least as well as and in some cases higher than **Stephens** in the absence of stripe rust. It is slightly shorter than **Stephens**. The baking quality for **Dune** is acceptable. **Dune** was more susceptible to stripe rust than **Stephens** in 2005 and appeared to be particularly affected by rust in the late planting.

KW96019, an advanced line from Matt Kolding, averages 2-3 inches shorter than **Stephens** and has equaled **Stephens** in yield in years when stripe rust was not evident. But this line does not have acceptable stripe rust resistance. It has better straw strength than **Stephens** and possibly better test weight.

WB 528 (BZ6W98-528) is a Westbred variety evaluated over the last three seasons. It yielded 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..

ID0587 is a UI Clearfield variety with **Stephens** parentage and has been evaluated the last four seasons. It has tended to yield slightly less than **Stephens** in some trials but has yielded the highest of all Clearfield varieties tested in southwest Idaho. **ORCF-101**, an OSU Clearfield variety has yielded less than **ID0587** in three years of testing. **ORCF-102** is the second OSU Clearfield release and has a yield advantage over **ORCF-101**.

ORSS is a super soft wheat from OSU that has been licensed. It is comparable to **Brundage** in baking quality but is taller and more prone to lodge.

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 4-5.

Table 3. Irrigated Soft White Winter Wheat Performance in the Treasure Valley across all sites combined. 2005

Entries	Yield	Protein	Test Weight	Height	Lodging
	bu/acre	%	lb/bu	in	%
		(3 sites)			
91-16004A	152	9.7	59.8	40	16
Brundage	152	9.6	61.5	37	1
WB528	158	10.1	62.3	38	13
Dune	147	9.9	60.0	38	4
ID0587	152	10.1	60.5	37	8
KW9016	143	10.2	60.6	36	0
Malcolm	151	9.8	59.6	39	5
ORCF-101	140	10.5	60.5	38	0
ORCF-102	149	10.0	61.2	40	1
ORSS	158	9.4	60.3	40	15
Simon	155	10.2	60.9	40	3
Stephens	162	9.9	60.5	37	5
Ste/Brun Mix	155	9.9	60.7	38	11
Tubbs	149	10.0	58.8	40	0
$LSD_{.10}$	7	0.4	0.7	1	11

Planting Dates and SWWW Variety Performance

Variety performance can be affected by planting dates. Variety performance has been measured using both

Table 4. SWWW Variety Performance as Affected by Planting Dates. 1996-05

Entries	October Planted	November Planted
	----------bu/A--------	
	1996-05	
	(20 sites)	(17 sites)
Brundage	130	128
Malcolm	140	132
Stephens	139	135
LSD_{10}	3	4
	2000-02	
	(6 sites)	(5 sites)
Brundage	133	124
Brundage 96	128	121
Hubbard	139	118
ID87-52814A	142	123
Malcolm	142	128
Stephens	141	129
Tubbs	143	131
Weatherford	134	125
WPB Beamer	142	124
WPB Mohler	142	127
WPB 470	137	127
$LSD_{.10}$	5	8
	2000-05	
	(12 sites)	(10 sites)
Brundage	129	131
Malcolm	142	131
Stephens	141	136
Tubbs	142	134
$LSD_{.10}$	4	6
	2003-05	
	(6 sites)	(5 sites)
Brundage	125	137
Dune	143	142
IDO587	133	138
KW9016	135	139
Malcolm	143	135
ORCF-101	129	130
Simon	135	137
Stephens	141	142
Tubbs	142	136
WB 528	138	142
$LSD_{.10}$	6	7

October and November planting dates to document planting date effects on variety performance (Table 5).

All varieties are typically less productive if planted in November rather than October. Some varieties such as **Malcolm** appear to be more susceptible to later planting relative to **Stephens**. The continuing popularity of **Stephens** is due in part to its excellent long-term performance in later plantings necessitated by late harvested previous crops of potatoes, corn, or sugarbeets. Testing the past three years shows several new varieties or lines that compare favorably with Stephens when late planted. Late planted **Tubbs**, **WB528**, and **Dune** all matched the yield for **Stephens** over three years of late planted testing.

Mixed Variety Performance

Rarely is a variety consistently the highest yielding entry in all trials in all years. Variety mixtures are sometimes considered to stabilize yield or reduce the risks associated with planting single varieties. Mixed plantings of varieties are common in the PNW, especially in dryland production systems where winterkill, diseases, or insects can be serious risks.

Two minor weaknesses of **Stephens** that could be addressed by either a variety alternative or a mixed variety planting are test weight and lodging resistance or straw strength. Although **Stephens** has excellent yield potential, it often has less than 60 lb/bu test weight and is therefore frequently graded No. 2 or No. 3. Also, despite good straw strength, **Stephens** can lodge and better lodging resistance is desirable.

A successful mixture for southwestern Idaho would be as productive as Stephens while improving both test

Table 5. Irrigated Soft White Winter Wheat Long Term Yield Performance, 1996-05.

Variety	1996-05	1998-02	2000-02	2002-05	2003-5
	----------bu/A----------				
Malcolm	136	129	126	135	143
Stephens	138	130	127	139	146
Brundage	129	122	121	135	143
Hubbard	--	120	120	--	--
Brundage96	--	122	117	--	--
Tubbs	--	--	128	137	143
WPB Beamer	--	--	109	--	--
WPB Mohler	--	--	126	--	--
Weatherford	--	--	122	--	--
ID0587	--	--	--	134	141
Simon (34302A)	--	--	--	136	144
Ste/Brun Mix	--	--	--	138	144
Dune	--	--	--	--	144
WB 528	--	--	--	--	145
KW9016	--	--	--	--	141
ORCF-101	--	--	--	--	130
$LSD_{.10}$	7	8	5	4	6

Table 6. Variety Mixture Performance, 2002-05.

Entry	Yield	Test Weight	Lodging
	bu/A	lb/bu	%
	2002-05 (15 sites)		
Stephens	139	59.8	23
Brundage	135	61.8	17
Stephens/Brundage	138	60.2	27
$LSD_{.10}$	3.8	0.6	5

[1]50% of each variety by weight

weight and lodging resistance.

The **Stephens-Brundage** mixture in 2003-2005 frequently was more productive than **Brundage** alone and did not differ from **Stephens** by itself. Test weight of the mixture was intermediate between **Stephens** and **Brundage**. The mixture provided no advantage in reducing lodging.

Hard Winter Wheat

Hard red and hard white winter wheats were also evaluated in the Cooperative Extension Variety Performance Trials. Irrigated hard winter wheats are generally less productive than soft white winter varieties but market prices can be higher, especially with higher deficiency payments or premiums for high protein. Test weight is generally higher with hard red winters if stripe rust is not present. Results for 2005 testing are shown in Tables 7-9. Protein values for hard red and hard white varieties are lower than they would be if commercially planted because no additional late N fertilizer was applied to them for protein enhancement.

None of the varieties grown historically in the very limited HRWW acreage in the Treasure Valley (**Garland**, **Sunstar Declo**, or **Columbia-1**) have acceptable milling and baking quality for export according to the Idaho Wheat Commission. Japan has requested that these varieties not be included in their shipments. The position of the **Idaho Wheat Commission** is available on their website (http://www.idahowheat.org); click on "preferred varieties").

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**.

Moreland (**ID0517),** a recent Idaho release, is as short as **Declo. Moreland** has excellent lodging resistance and its baking quality is acceptable, unlike most all other hard red winters adapted to irrigation. **Moreland** yielded relatively well in 2003 and 2004 but less than **Hoff** where stripe rust was present in 2005. **Moreland** does not have the stripe rust resistance that **Hoff** has.

IDO641 is a UI advanced line that does not appear to be adapted to irrigated systems. Two hard red spring varieties, **Vandal** and **WB 936,** were planted with the late planted hard red winters. While not consistently as productive as the winter varieties, they normally command higher prices than the hard red winters.

Table 7. Irrigated Hard Winter Wheat Performance in the Treasure Valley. 2005.

Variety	Yield	Protein	Test Weight	Height	Lodging
	bu/acre	%	lb/bu	in	%
	Parma (planted Oct. 11)				
Hard Reds					
Hoff	164	10.6	63.4	41	25
Moreland	125	11.2	57.9	39	10
Hard Whites					
IDO 641	149	10.4	62.5	40	48
Ivory	173	9.9	61.9	41	25
NuHorizon	183	11.0	64.8	38	20
LSD_{10}	13	0.5	1.1	1	17
	Weiser (planted Oct.13)				
Hard Reds					
Hoff	118	11.1	63.3	40	0
Moreland	116	10.7	62.1	38	3
Hard Whites					
IDO 641	99	10.4	63.4	40	45
Ivory	122	10.2	63.3	41	0
NuHorizon	120	10.6	64.1	36	3
$LSD_{.10}$	9	0.6	1.4	2	24
	Parma (planted Nov.15)				
Hard Reds					
Hoff	135	10.4	62.5	41	20
Moreland	82	11.2	53.6	36	0
Vandal	139	12.1	62.8	39	0
WB936	153	10.9	63.0	36	0
Hard Whites					
IDO 641	104	11.0	60.3	40	33
Ivory	149	9.8	61.7	42	0
NuHorizon	152	10.8	63.1	38	0
$LSD_{.10}$	11	0.9	1.7	1	24

Table 8. Irrigated Hard Winter Wheat Long Term Performance in the Treasure Valley.

Variety	Yield	Protein	Test Weight	Height	Lodging
	bu/acre	%	lb/bu	in	%
			2005 (3 sites)		
Hard Reds					
Hoff	139	10.7	63.0	41	15
Moreland	108	11.0	57.9	38	4
Hard Whites					
IDO 641	117	10.6	62.1	40	42
Ivory	148	10.0	62.3	41	8
NuHorizon	152	10.8	64.0	37	8
$LSD_{.10}$	10	0.5	1.2	1	17
Hard Reds			*1999-01 (11 sites)*		
Declo	137	11.0	63.7	35	2
Garland	123	11.3	62.2	28	0
Hawk	138	10.5	65.1	41	15
Hoff	139	10.4	64.6	39	1
Moreland	131	11.0	63.2	35	0
Meridian	133	10.6	63.7	38	5
$LSD_{.10}$	5	0.3	0.5	1	6
			2001-05 (18 sites)		
Hoff	132	11.2	62.0	39	15
Ivory	129	10.8	63.1	39	17
NuHorizon	135	11.0	64.1	36	18
$LSD_{.10}$	4	0.2	0.4	1	6
			2003-05 (11 sites)		
Hoff	130	11.3	62.1	39	17
Ivory	139	10.7	60.7	40	14
Moreland	125	11.7	59.7	36	12
NuHorizon	141	11.1	63.4	36	16
$LSD_{.10}$	5	0.3	0.5	1	7

Hard White Winter Wheat

Several hard white winter wheat varieties have been released and provided for our testing over the last few years as a testament to the increasing interest in the hard white class. Hard white wheat is used for noodles and /or bread making. There is export potential for hard whites with acceptable quality.

Mixing of hard white and soft wheats remains a significant concern in the industry as it will result in poor functionality of the mix when used for traditional baking products. We can ill afford a scenario for soft wheat that occurred with Japan and hard red winter wheat in 2002, when four shipments were rejected for inferior quality.

Ivory, the first OSU hard white winter release, is intermediate in height and yields slightly less than **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 excellent yield potential. **NuHorizon** was the highest HWWW yield over six years of testing. It matched the more productive HRWW varieties grown in the same trials. **NuHorizon** protein is comparable to **Ivory**.

Fall Planted Hard Spring Wheat

We have gained considerable experience with fall planted spring genotypes over the last fifteen years. Spring genotypes survive most winters and while they may not consistently yield as well as winter genotypes of soft white or hard red winter wheat, they are typically marketed at higher prices if protein is acceptable.

Two hard red spring varieties (**Vandal** and **WB 936**) have been late fall planted (typically mid November) over the last four years and the results as compared to winter genotypes of other market classes are shown in Table 9. Although we have reduced plant populations of spring genotypes in other trials due to winter kill, winterkill did not occur at the eight site years represented in Table 9.

Stephens and **NuHorizon** winter wheat yields did not differ significantly. **Hoff**, **WB 936**, and **Vandal** all yielded less than **Stephens** (91 to 94% as much). Although both **Vandal** and **WB 936** were higher in protein than the winter genotypes, they are lower in protein than desired, primarily because in most years no additional fetilizer N was applied later in the season for protein enhancement. Production of fall planted HRS with 14% protein will require late

Table 9. Late Fall Planted HRS wheat Performance, 2001-05.

Entry	Yield	Protein	Height	Test Weight	Lodged
	bu/A	%	in	lb/bu	%
			2001-05 (8 sites)		
Stephens	133	10.7	36	58.6	21
Hoff	126	11.3	39	61.9	25
NuHorizon	136	11.1	36	63.6	23
WB 936	125	12.2	35	62.4	16
Vandal	121	13.1	36	61.7	12
$LSD_{.10}$	7	0.4	1	0.6	9

season applied N. The protein of **Vandal** is higher than **WB 936**.

Gross returns for the spring hard reds vs the soft white winter can be compared if we make some assumptions for market prices. If soft wheat at Portland was $3.60 per bushel and the price of HRS at 14% protein averaged $.50 per bushel higher, the annual gross returns over this period would be $478.80 for soft white and $504.30 for the hard red springs (using the average production for **Vandal** and **WB 936**).

The example difference in gross returns of $25 per acre does not include the additional fertilization expense that would likely be necessary to attain acceptable HRS protein (14%). There could also be differences in seed cost.

The difference between 14% HRS and soft wheat in Portland over the past few months has been over $1.00 per bushel at Portland. A $1.00 per bushel price difference would lead to an $87 per acre higher gross return for the hard red springs based on earlier assumptions.

The later in the fall that wheat is planted, the closer in yield that spring genotypes get to winter wheat of the same market class. For planting conditions that result in spring emergence, we can expect spring genotypes of the same market class to yield as well or better than winter genotypes.

What would be the most likely scenario for fall planting hard reds? High residual N following late harvested high value crops would be especially useful for attaining 14% protein, though late season N might still be necessary. Also, very late plantings increase the productivity of spring hard reds relative to winter genotypes. Limited water supplies might also favor fall planted hard reds for two reasons: (1) any reduction in yield due to moisture stress would promote higher protein and (2) late fall planted HRS could mature earlier than winter genotypes possibly saving an irrigation. Over head irigation systems would also facilitate the production of 14% HRS, regardless of planting date.

For information on practices and principles pertinent to enhancing hard wheat protein you might consider a relatively new publication from Ag Publications. **Nitrogen Management for Hard Wheat Protein Enhancement,** PNW Extension Bulletin 578 is a publication that covers in depth the issues and principles of managing nitrogen for increasing hard wheat protein. It was prepared by UI, OSU, WSU, and MSU faculty. This publication is available on-line for viewing or downloading at http://info.ag.uidaho.edu/PDF/PNW/PNW0578.pdf. Original hard copies can be ordered from Ag Publications at 208-885-7982 or access electronic order forms at calspubs@uidaho.edu.

Table 10. Irrigated Winter Barley Performance.

Variety	Yield	Test Weight	Height	Lodged	Thins
	bu/A	lb/bu	in	%	%
2005 Parma (planted Oct. 8)					
Idagold	194	48.6	31	93	5.7
Stab 113	231	49.9	39	30	1.7
Strider	233	47.3	40	73	2.9
Sunstar Pride	201	48.1	39	85	8.6
YU599-006	203	49.0	34	0	0.8
88Ab536	195	48.3	40	70	3.8
$LSD_{.10}$	23	1.0	2	24	1.4
1996-00 (10 sites)					
Boyer	132	48.7	40	34	4.5
Kold	131	49.1	39	37	4.0
Strider	146	49.3	41	41	2.6
Sunstar Pride	139	49.3	37	39	7.1
WPB Sprinter	131	51.7	40	38	1.9
$LSD_{.10}$	6	0.5	1	8	0.8
1996-05 (16 sites)					
Strider	151	49.0	40	41	3.0
Sunstar Pride	145	49.4	37	40	7.0
$LSD_{.10}$	5	0.4	1	5	0.6
2002-05 (4 sites)					
Strider	177	46.9	41	63	5.0
Sunstar Pride	167	48.1	39	62	8.7
Stab 113	174	49.6	42	51	4.6
$LSD_{.10}$	11	0.7	1	5	1.0
2003-05 (3 sites)					
Strider	185	47.4	41	56	5.0
Sunstar Pride	174	48.8	40	57	8.0
Stab 113	181	50.6	42	38	4.8
88AB536	155	49.3	44	55	6.2
$LSD_{.10}$	14	0.8	1	10	1.2

Winter Barley

Winter barley in 2005 was evaluated only in the earliest planted trial at Parma (Table 11). Winter barley performance over several site years is also shown.

Strider, an OSU release with Barley Stripe Rust resistance, has greater yield potential than **Kold, Boyer,** and **WPB Sprinter** and comparable to **Sunstar Pride**. It is taller than **Sunstar Pride** and frequently lower in test weight but has comparable straw strength.

Sunstar Pride has excellent yield potential but typically has more thins than **Strider**. **Sunstar Pride** also does not have stripe rust resistance.

Stab 113 is a potential winter malting type from the OSU breeding program that has performed very well in testing. It is being considered for release as a licensed variety.

YU599-006 is a Westbred hulled waxy 6-row spring barley. It is the only entry that did not lodge in 2005. **YU599-006** is a good candidate for the TVRR fractionation facility. **Idagold** is an Adolph Coors 2-row feed barley. Spring barley overwintered this year with no winter damage. **Idagold** and **YU599-006** were not as productive as **Strider** and **Stab113** but were extremely productive nonetheless.

88Ab536 is a USDA winter barley line that has malting quality. It is taller and lower yielding than **Strider** and **Stab113**.

Fall Planted Specialty Barley

The **Treasure Valley Renewable Resources, LLC** grain (barley, wheat, corn) fractionation/ethanol production facility at Ontario is still in the works. For information on the progress of this proposed facility contact John Hamilton at TVRR@fmtc.com or phone at 208-4452-7807. Success will depend in part on producers maximizing the production of specialty barley varieties used in the plant.

Since fall planted barley has considerably greater yield potential than spring plantings, and there are very few if any specialty winter barley genotypes, there is interest in specialty spring genotypes that could be fall planted. Spring barley is less cold tolerant than spring wheat which we know from previous trials can be successfully fall planted in most years.

Fall planted spring barley has been evaluated for three years at Parma to identify its production potentential relative to winter barley. A non-replicated observational planting for the 2003 season indicated that many of the lines lacked the cold tolerance to over-winter without significant stand loss. Evenso, many spring barley lines harvested in 2003 did winter with minimal stand loss, and those with reduced stands recovered to produce good yields.

Table 11. Multiple year yield performance and 2005 summary for other agronomic characteristics of October planted spring and winter genotypes..

Entry	Yield			Height	Test wt	Lodged
	2004	2005	mean	2005	2005	2005
	bu/A	bu/A	bu/A	in	lb/bu	%
2-row						
00AH14136 hl[1]	97	----	----	---	-----	----
01AH5079 hl	161	169	165	35	56.6	100
01ID435H hl, lp	144	159	151	37	57.1	98
Bear hl	162	156	159	39	54.0	100
CDC Alamo hl, w	139	156	147	39	57.0	100
CDC McGwire hl	145	170	158	37	57.7	95
Idagold h	225	213	219	30	47.5	83
Merlin hl, w	159	188	173	29	57.2	80
WB Salute h, w, hB	184	166	175	36	49.7	98
6-row						
00ID1550 h, lp	----	220	----	43	46.1	55
96M5288 hl	162	198	180	40	54.4	73
Doyce hl	----	176	----	38	55.4	85
Strider h	211	245	228	39	46.6	70
Nebula h	192	258	225	36	53.0	53
Steptoe h	211	221	216	44	46.8	80
YU599-006 h, w, hB	142	200	171	34	46.9	45
$LSD_{.10}$	18	19	13	2	3.2	24
Mean	163	193	182	37	52.4	81

[1]h is hulled and hl is hull-less; w is waxy, lp is low phytate, hB is high B-Glucan

Replicated trials have been conducted the last two years and the results are shown in Table 12. The 2005 trial was planted October 11. Yields of standard winter barley and standard spring feed genotypes have been exceptional in these trials, averaging over 200 bu/A despite considerable lodging.

Yields averaged 30 bu/A higher in 2005 than in 2004 and ranged from 156 to 258 bu/A in the fall planting. The most productive varieties were currently available hulled barleys as expected. **Strider**, a winter feed standard, and **Nebula**, a spring feed standard, were the most productive, followed by **Idagold** and **Steptoe**. Hull-less varieties as a group were 79% as productive as the hulled varieties (172 vs 218 bu/A). The most productive fall planted hull-less entries were **96M5288**, and **Merlin**, a waxy type. **Doyce** is a true winter hull-less genotype, but did not yield as well as **96M5288**.

The results demonstrate the excellent yield potential of fall planted spring barley if winter-kill is not significant. Fall planted entries out yielded spring planted entries by 45 bu/A over the last two seasons when winter-kill was negligible (data not shown). Ultimately, true winter genotype specialty barleys with better winter hardiness would be desirable. But they are not currently available.

TVRR will likely focus on waxy barley. The results indicate a number of fall planted spring waxy genotypes have potential. **WB Salute** and **YU599-006** are hulled and **Merlin** is hulless. Their average yield was about 76% of that of the most productive standard feed types.

Spring planted barley performance for 2003-04 is shown in Table 11. After two years of testing we have a clearer picture of the relative performance of specialty barley. The mean performance of hull-less low phytate barley yielded from 76-80%, hull-less waxy high Beta-glucan barley yielded 75-79%, and hulled waxy high B-glucan barley yielded 85-90% of the yield of commonly grown feed barley.

Table 12. Dryland Winter Wheat Performance in Southwestern Idaho.

Variety	Yield 96-05	Yield 00-05	Yield 2005	Protein 2005	Test Weight 2005	Height 2005
	--bu/A--	--bu/A--	--bu/A--	%	lb/bu	in
			Washington County			
Soft Whites						
Brundage 96	--	36	26	8.7	56.8	27
Dune	--	--	40	8.9	59.7	30
Eltan	39	37	37	9.1	59.3	30
Foote	--	--	26	9.1	57.6	29
Hubbard	--	--	32	8.6	59.2	34
IDO587	--	--	36	8.6	58.6	30
IDO620	--	--	33	8.5	59.6	30
Malcolm	41	39	33	8.5	59.3	29
Simon	--	--	37	7.9	58.9	31
Stephens	38	37	33	8.9	57.7	30
Tubbs	--	--	35	8.5	58.0	30
Weatherford	--	34	31	9.2	59.3	30
Average	39	37	33	8.7	58.7	30
LSD$_{.10}$	3	4	7	1.1	0.9	2
Hard Red and White						
Hard Red						
Boundary	--	--	23	8.3	59.4	28
Buchanan	41	39	26	8.0	58.6	34
Finley	--	33	22	8.3	62.5	36
DW	--	33	19	8.8	60.4	27
IDO573	--	--	27	8.3	63.2	37
Juniper	--	--	19	9.1	59.4	37
Moreland	--	--	21	9.3	61.3	27
Promontory	41	39	20	9.0	59.9	29
Utah 100	40	38	24	8.9	61.4	32
Hard Whites						
Gary	--	37	29	8.7	60.7	32
Ivory	--	33	20	9.3	60.1	28
IDO604	--	--	26	8.8	62.8	34
Triticale						
Alzo	--	38	22	--	56.6	36
Bogo	--	38	23	--	55.4	35
Average	41	37	23	8.8	60.1	32
LSD$_{.10}$	3	5	4	0.5	2.8	2

Dryland Trials

Dryland winter wheat in southwestern Idaho's outlying areas generally is planted in a wheat fallow rotation. **Malcolm, Eltan,** and **Stephens** did not differ in yield over several years of dryland testing (1996-2005).

Hard red winter wheats **Promontory, Buchanan**, and **Utah 100** have all yielded at least as well as **Stephens** over the 1996-05 period as did the hard white winter **Gary**. Test weights are typically higher for hard red winters than soft white winters. Low protein values were

measured in this trial and it suggests that available N for the conditions present was inadequate for maximum yield.

Triticale is also productive in the dryland system with yields that matched the best wheats.

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.

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