



The Cereal Sentinel

A newsletter for Treasure Valley cereal producers

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Important Dates:

PNW Grains Conference, Portland, OR

December 4-7, 2006

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 2006 season marked the 22nd 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 wheat trials were planted for the 2006 season. The earliest trials were planted at the Parma R & E Center on October 5 and at Weiser on October 19. Later planted trials were located at Grandview on November 10 and the Parma R & E Center on November 15.

The season was characterized by rain over frozen soils in December that caused thawing of soils at the surface and saturated soils for several days. It was dry in mid April before higher than normal spring rain in May, and cool rainy conditions during late vegetative growth and early grain fill. High grain protein at Weiser suggests excessive N may have limited yield. Conversely, the low protein in the late fall Parma planting suggests inadequate available N for maximum production.

The stripe rust on wheat prevalent in 2005 was not evident in 2006. Plant heights were shorter at all locations in 2006 due likely to dry conditions during stem extension.

Soft White Winter Wheat

The irrigated soft white winter wheat results for the 2006 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 (good but not great). It is too tall for some wheel lines. It has good milling and baking quality and excellent yield potential for both early and late plantings.

Malcolm is similar to **Stephens** in yield potential, but does not have the milling and baking quality of **Stephens**. Similarly, **Tubbs**, the more recent OSU release, yields comparable to **Stephens**, but is taller, and milling and baking quality is lower. **Tubbs 06** is a re-selection of **Tubbs** and in limited testing has yielded higher than **Tubbs** in western Idaho. **ORCF-102** is the second OSU

Table 1. Irrigated mid-October Planted Soft White Winter Wheat Performance in the Treasure Valley, 2006

Variety	Yield bu/acre	Protein %	Test Weight lb/bu	Height in	Lodging %
<i>Parma (planted Oct. 5)</i>					
Dune	129	9.7	61.7	33	0
KTHD012	110	9.8	57.4	30	0
KTHD005	108	9.6	58.7	30	0
KW9016	112	10.1	61.1	31	0
KW3072	131	10.1	61.4	36	5
KW9h004	131	9.9	61.1	32	0
Malcolm	134	9.5	61.6	34	0
ORCF-101	124	10.4	60.3	34	3
ORCF-102	132	10.0	61.0	35	0
ORH010920	127	10.0	61.2	30	0
Simon	120	9.7	60.9	34	0
Stephens	135	10.0	58.5	34	0
Tubbs	125	9.2	60.8	34	0
Tubbs 06	147	9.4	60.1	36	0
WB528	127	9.8	62.4	33	0
99419	138	9.3	59.9	34	0
99435	126	10.0	58.9	38	0
9922407A	125	9.2	58.7	36	0
LSD_{.10}	14	0.8	2.2	2	3
<i>Weiser (planted Oct. 19)</i>					
Dune	127	12.5	62.6	32	3
Malcolm	110	12.6	61.2	34	0
ORCF-101	126	13.2	61.3	34	0
ORCF-102	132	12.2	62.1	36	0
ORH010920	111	12.1	60.4	30	0
Simon	133	13.0	62.0	35	0
Stephens	131	12.3	61.4	32	0
Tubbs	127	12.2	61.0	36	0
Tubbs 06	118	12.8	60.2	36	0
WB528	131	12.6	63.2	33	0
99419	127	12.1	61.3	34	40
99435	111	12.5	60.7	38	10
9922407A	117	12.5	61.4	38	5
LSD_{.10}	13	0.5	1.6	2	16

Clearfield release and has a yield advantage over **ORCF-101**, especially in later plantings.

Simon (ID91-34302A), the latest UI soft white winter release for irrigated systems, has not yielded as well as **Stephens** over five years of testing. **Dune (ID91-20503A)**, a UI advanced line, has excellent yield potential in both early and late plantings, in the absence of stripe rust. But **Dune** is considerably more susceptible to stripe rust than **Stephens** and likely will not be released.

Table 2. Irrigated mid-November Planted Soft White Winter Wheat Performance at Parma. 2006

Variety	Yield	Protein	Test Weight	Height	Lodging
	bu/acre	%	lb/bu	in	%
<i>Parma (planted Nov. 11)</i>					
Dune	119	8.4	61.8	31	0
ID629	96	10.1	62.7	39	0
ID630	104	10.7	63.1	30	0
Malcolm	108	8.6	60.7	32	0
ORCF-101	99	10.0	59.1	31	0
ORCF-102	114	9.4	61.0	33	0
ORH010920	103	9.0	59.7	29	0
Simon	106	8.8	60.4	33	0
Stephens	121	8.8	60.4	33	0
Tubbs	108	8.4	59.7	33	0
Tubbs 06	128	9.1	60.3	36	0
WB528	115	9.2	62.3	32	0
99-419	111	8.5	61.4	30	3
99-435	104	9.0	60.6	35	0
9922407A	114	8.6	60.6	35	0
LSD _{.10}	11	1.0	1.6	6	2
<i>Grandview (planted Nov. 10)</i>					
Dune	125	10.9	61.1	33	3
ID629	129	10.9	61.8	33	0
ID630	112	11.0	61.7	31	0
Malcolm	122	10.2	61.8	32	0
ORCF-101	120	11.4	61.4	33	0
ORCF-102	127	10.5	62.2	34	0
ORH010920	118	11.6	61.7	28	0
Simon	115	10.6	61.0	35	0
Stephens	124	10.5	61.9	32	0
Tubbs	130	10.9	60.9	35	0
Tubbs 06	145	10.8	61.6	36	0
WB528	134	11.0	61.2	33	0
99-419	136	10.6	62.1	34	5
99-435	133	11.3	61.8	38	0
9922407A	132	10.6	62.0	36	0
LSD _{.10}	15	0.8	2.7	2	2

KW9016, 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.

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 equaled **Stephens** in yield potential over the last four years.

ID629 and **ID630** are waxy spring genotypes that we are just beginning to evaluate in western Idaho.

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.

Planting Dates and SWWW Variety Performance

Variety performance can be affected by planting dates. All varieties are typically less productive if planted in November rather than October (Table 4). 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

Table 3. Irrigated Soft White Winter Wheat Performance in the Treasure Valley across all sites combined. 2006

Entries	Yield	Protein	Test Weight	Height	Lodging
	bu/acre	%	lb/bu	in	%
<i>(4 sites)</i>					
Dune	125	10.4	61.8	32	1
Malcolm	119	10.2	61.3	33	0
ORCF-101	117	11.3	60.5	33	1
ORCF-102	126	10.5	61.6	35	0
ORH010920	115	10.7	60.7	29	0
Simon	118	10.5	61.0	34	0
Stephens	128	10.4	60.5	33	0
Tubbs	122	10.2	60.6	35	0
Tubbs06	134	10.5	60.6	36	0
WB528	126	10.7	62.3	33	0
99-419	128	10.1	61.2	33	12
99-435	119	10.7	60.5	37	3
9922407A	122	10.2	60.7	36	1
LSD _{.10}	8	0.5	1.0	1	4

lines that compare favorably with **Stephens** when late planted. Late planted **WB528** and **Dune** both matched the yield for **Stephens** over four years of late planted testing.

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

Table 4. SWWW Variety Performance as Affected by Planting Dates. 1996-06

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
Malcolm	142	128
Stephens	141	129
Tubbs	143	131
WPB Beamer	142	124
WPB Mohler	142	127
LSD _{.10}	5	8
2000-06		
	(14 sites)	(12 sites)
Malcolm	139	127
Stephens	140	134
Tubbs	140	131
LSD _{.10}	4	5
2003-06		
	(8 sites)	(7 sites)
Dune	139	137
Malcolm	138	129
ORCF-101	128	125
Simon	133	129
Stephens	139	137
Tubbs	138	131
WB528	136	137
LSD _{.10}	6	5

Table 5. Irrigated Soft White Winter Wheat Long Term Yield Performance, 1996-06.

Variety	1996-05	2000-05	2002-06	2003-06	2004-6
-----bu/A-----					
Malcolm	136	137	131	134	132
Stephens	138	139	136	138	139
Brundage	129	130	--	--	--
Tubbs	--	138	133	135	134
Simon	--	--	129	131	130
Dune	--	--	--	138	136
ORCF-101	--	--	--	126	127
WB528	--	--	--	136	137
ORCF-102	--	--	--	--	134
LSD _{.10}	7	4	3	4	5

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".

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), 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.

Hard White Winter Wheat

Several hard white winter wheat varieties have been released. The domestic market for southern Idaho hard white wheat has improved dramatically this past year. Western Idaho production of hard whites is limited in part because it requires segregation from soft whites. The segregated wheat in western Idaho is primarily hard red spring and soft whites.

Mixing of hard white and soft wheats remains a significant concern as it will result in poor functionality of the mix when used for traditional baking products. However, south central Idaho elevators seem to be able to segregate the market classes successfully.

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**.

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 red winters if stripe rust is not present. Results for 2006 testing are shown in Tables 6-8. Protein values for hard red and hard white varieties at most sites are lower than they would be if commercially planted because no additional late N fertilizer was applied to them for protein enhancement.

Few irrigated hard red winters have acceptable milling and baking quality for export according to the Idaho

Table 6. Irrigated Hard Winter Wheat Performance in the Treasure Valley. 2006.

Variety	Yield	Protein	Test Weight	Height	Lodging
	bu/acre	%	lb/bu	in	%
<i>Parma (planted Oct. 5)</i>					
Hard Reds					
Hoff	114	10.7	62.8	36	0
Moreland	109	11.0	60.0	32	0
Hard Whites					
Ivory	115	10.3	61.2	35	0
NuHorizon	116	11.2	63.3	30	0
LSD _{.10}	17	0.4	1.8	1	--
<i>Weiser (planted Oct. 19)</i>					
Hard Reds					
Hoff	119	12.7	63.3	37	0
Moreland	117	13.6	62.9	33	0
Hard Whites					
Ivory	119	12.4	61.7	38	0
NuHorizon	127	12.9	64.9	32	0
LSD _{.10}	13	0.4	1.1	1	--
<i>Parma (planted Nov. 11)</i>					
Hard Reds					
Hoff	102	9.7	62.4	34	0
Moreland	100	11.2	62.0	28	0
Vandal	64	11.9	62.4	26	0
WB936	85	11.5	60.5	28	0
Hard Whites					
Ivory	109	9.5	61.6	35	0
Lochsa	91	11.1	62.4	31	0
NuHorizon	100	10.1	63.2	30	0
LSD _{.10}	17	0.6	1.2	3	--
<i>Grandview (planted Nov. 10)</i>					
Hard Reds					
Hoff	107	11.3	61.6	32	0
Moreland	119	11.7	62.3	30	0
Vandal	102	13.3	62.4	30	0
WB936	124	12.7	62.0	29	0
Hard Whites					
Darwin	137	11.5	62.5	40	25
Ivory	145	11.0	61.7	33	0
NuHorizon	118	11.7	62.6	28	0
LSD _{.10}	18	0.8	2.2	2	11

Table 7. Irrigated Hard Winter Wheat Long Term Yield Performance of selected entries.

Variety	99-01	01-06	03-06	2006
	11	22	15	4
	sites	sites	sites	sites
-----bu/A-----				
Hoff (HR)	--	122	125	111
Ivory (HW)	132	129	135	122
Garland (HR)	126	--	--	--
Meridian (HR)	135	--	--	--
Moreland (HR)	133	--	122	111
NuHorizon (HW)	--	131	133	113
LSD _{.10}	5	4	4	10

Fall Planted Hard Spring Wheat

We have fall planted spring genotypes for the last fifteen years. 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.

Two hard red spring varieties (**Vandal** and **WB 936**) have been late fall planted (typically mid November) over the last five years and the results as compared to winter genotypes of other market classes are shown in Table 8. Although we have reduced plant populations of spring genotypes in other trials due to winter kill, winterkill did not occur at the ten site years represented in Table 8.

NuHorizon hard white winter wheat yields did not differ significantly from **Stephens**, the most commonly grown soft winter wheat. **Hoff**, **WB 936**, and **Vandal** all yielded less than **NuHorizon**. 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 fertilizer N was applied later in the season for protein enhancement. Production of fall planted HRS with 14% protein will require late season applied N. The protein of **Vandal** is higher than **WB 936**, but it is less productive.

Gross returns for fall planted spring hard reds vs soft white winter can be compared if we assume market prices of \$3.60 per bushel for soft wheat at Portland and \$4.60 for HRS at 14% protein. Annual gross returns over this period would be \$471.60 for soft white and \$556.60 for the **WB 936** hard red spring with 14% protein.

The gross returns difference in this example of \$85 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, maybe even transportation.

Table 8. Late Fall Planted Hard Wheat Performance, 2001-06.

Entry	Yield bu/A	Protein %	Height in	Test Weight lb/bu	Lodged %
2001-06 (10 sites)					
Stephens	131	10.5	36	59.1	17
Hoff	122	11.1	37	61.9	20
NuHorizon	130	11.0	34	63.4	19
WB 936	121	12.2	34	62.2	13
Vandal	114	13.0	33	61.8	10
LSD _{.10}	7	0.4	1	0.6	7

As I've said before, the later in the fall that wheat is planted, the closer in yield that spring genotypes are 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. At least two elevators in western Idaho handled HRS this past season.

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. Spinkler irrigation would also facilitate the production of 14% HRS, regardless of planting date. Limited water supplies might also favor fall planted hard reds as any reduction in yield due to moisture stress would promote higher protein.

Fall planting spring genotypes comes with some risk. Winterkill is a risk particularly 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 arrest grain development. For that reason, fields more prone to late frost should be avoided.

For information on practices and principles pertinent to enhancing hard wheat protein, consider the publication entitled **Nitrogen Management for Hard Wheat Protein Enhancement**, PNW Extension Bulletin 578. The publication covers in depth the issues and principles of managing nitrogen for increasing hard wheat protein. This publication is available on-line for viewing or downloading at <http://info.uidaho.edu/PDF/PNW/PNW0578.pdf>. Hard copies can be ordered from Ag Publications at 208-885-7982 or access electronic order forms at calspubs@uidaho.edu.

Fall Planted Barley

Winter barley in 2006 was evaluated in the earliest planted trials at Parma and Weiser (Table 9). Winter barley performance over several site years is shown in Table 10. Relatively few winter barley entries were evaluated in the recent past as few new entries were released and barley acreage in western Idaho has declined. That may change with barley contracting by **Treasure Valley Renewable Resources, LLC**. Several spring barley genotypes of interest were included with the fall planted winter barley in the nurseries for 2006.

Strider, an OSU release with Barley Stripe Rust resistance and excellent yield potential, has yielded higher than **Sunstar Pride** in ten years of testing. It is taller than **Sunstar Pride** and frequently lower in test weight but has

Table 9. Irrigated Winter Barley Performance.

Variety	Yield bu/A	Test Weight lb/bu	Height in	Lodged %	Thins %
<i>2006 Parma (planted Oct. 5)</i>					
Charles	140	53.7	31	3	0.7
Herald (s)	73	53.3	30	0	1.0
Idagold (s)	120	54.4	24	0	0.7
Merlin (s)	71	58.3	23	0	1.3
NRP158 (s)	69	62.1	30	0	2.7
Maja	137	53.4	37	0	0.9
Strider	158	51.8	35	0	0.5
Sunstar Pride	157	53.6	29	0	1.4
WB Salute (s)	85	54.0	30	0	0.5
YU599-006 (s)	85	51.7	24	0	0.4
01AH2812 (s)	53	59.7	29	0	1.8
02AH684 (s)	75	60.9	30	0	1.1
LSD _{.10}					
<i>2006 Weiser (planted Oct. 8)</i>					
Charles	113	50.9	29	75	1.8
Herald (s)	105	51.6	35	0	2.2
Idagold (s)	97	55.8	31	8	10.6
Merlin (s)	94	58.5	28	8	2.4
NRP158 (s)	51	55.2	40	0	4.6
Maja	111	57.1	34	10	8.2
Strider	128	51.4	31	90	3.3
Sunstar Pride	119	52.4	33	35	2.7
WB Salute (s)	75	52.6	35	0	3.5
YU599-006 (s)	80	52.5	26	5	1.2
01AH2812 (s)	69	58.2	34	5	9.4
02AH684 (s)	114	63.0	32	3	2.7
LSD _{.10}	31	3.7	2	23	6.6

Table 10. Irrigated Fall Planted Barley Long Term Yield Performance, 1996-06.

Variety	1996-06	2002-06	2004-06	2006
-----bu/A-----				
	18 sites	6 sites	4 sites	2 sites
Strider	150	166	185	143
Sunstar Pride	144	158	--	138
Maja	--	158	--	124
Idagold (s)	--	--	164	108
YU599-006 (s)	--	--	126	82
Merlin (s)	--	--	128	83
WB Salute (s)	--	--	128	80
Charles	--	--	--	127
Herald (s)	--	--	--	89
NRP158 (s)	--	--	--	60
01AH2812(s)	--	--	--	61
02AH684 (s)	--	--	--	94
LSD_{.10}	5	11	11	16

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

Maja (formerly designated **Stab 113**) is a potential winter malting type from the OSU breeding program. The protein in **Maja** may be higher than other barley with comparable yield potential. **Charles** is a USDA winter barley with malting quality. It is taller and lower yielding than **Strider** but comparable to **Maja** in limited testing. It is a short variety but may lack straw strength.

Fall planted spring barley did not over-winter well this year as there was significant stand loss. Consequently yields were considerably lower than winter genotypes.

Idagold, an Adolph Coors 2-row feed barley, was the most productive spring genotype. **YU599-006**, **WB Salute** and **Merlin** (hullless) are waxy spring genotypes. **NRP158** is a high amylose barley and **Herald** is a low phytate barley. **Herald (00Ab1550)** is the first USDA barley release with the low phytate gene that increases the availability of P to non-ruminants, reducing the amount of P excreted.

Ultimately, true winter genotype specialty barleys with better winter hardiness would be desirable. But they are not currently available.

Dryland Trials

Dryland winter wheat in southwestern Idaho's outlying areas generally is planted in a wheat fallow rotation. Yields were considerably higher than normal in 2006 due to timely spring rain. **Malcolm**, **Eltan**, and **Stephens** did not differ in yield over several years of dryland testing

(1996-2006). In recent testing (three site years) several other varieties including **Tubbs**, **Simon** and **Dune** have done at least as well as **Stephens**

Hard red winter wheats **Promontory**, **Buchanan**, and **Utah 100** have all yielded as well as **Stephens** over the 1996-06 period. In more recent testing other varieties have also matched **Stephens** in yield. **Juniper** was the tallest and highest in protein while **Promontory** was the lowest in protein. 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>.

Slow Release N for Winter Wheat

Local research indicates that late winter top-dressed urea N is more effective than early fall preplant incorporated urea for winter wheat in 2 out of 3 years, due either to less leaching, denitrification, or immobilization. While preplant urea is occasionally as effective as late winter top-dressed urea, it is seldom more effective. In part because of this research, the current NRCS 590 Standard discourages early fall preplant applied N unless the N can be maintained in the ammonium form during winter, the period of maximum precipitation and nitrate leaching potential.

Despite the relative effectiveness of winter top-dressed urea N, this N fertilizer is subject to volatile losses when it hydrolyzes at the soil surface. Preplant N incorporated was historically favored by the industry and growers as it helped distribute the workload in addition to minimizing volatile N losses from the soil surface. There is need for a preplant N fertilizer that can be incorporated without the limitations of conventional dry N sources (immobilization; rapid nitrification and subsequent leaching or denitrification; phytotoxicity).

ESN, a polymer coated urea and controlled release fertilizer marketed for corn in the Midwest has potential for significantly delaying N release and reducing immobilization, nitrification, phytotoxicity and excessive growth of wheat. A research trial was conducted in 2006 at Parma to compare the relative performance of ESN and urea dry fertilizers for both preplant and later top-dressed applications to irrigated winter wheat.

Treatments included ESN, urea, or a 50-50 mixture applied preplant or topdressed in late fall or late winter at rates of 60, 120, or 180 lb N/A. An untreated control was included. The results for selected treatments are shown in Table 12.

Plant height, yield and protein all increased with added N. Nitrogen fertilizers did not differ when topdressed in late fall so that data is not shown.

With preplant treatments, the polymer coated urea was consistently the tallest and highest yielding, urea the least productive, and the mixture intermediate. There was no increase in yield beyond the 60 lb N rate with preplant N fertilizers.

With late winter topdressings, polymer coated urea was lower yielding than conventional urea at the lower N rate. ESN at low N rates may not release sufficient N during early vegetative growth to promote adequate tillering. In contrast, ESN was the highest yielding fertilizer N source at the highest N rate. The greater ESN effectiveness at higher N was probably due to avoiding excessive available N during early vegetative growth that occurred with urea. The mix was intermediate in effectiveness, but the mix did not preclude a significant yield reduction at the 180 lb N rate of late winter topdress. Plant heights were taller with late winter topdressed urea at the highest N rates, but test weights were lower than with ESN.

Excessive N in wheat is not uncommon and we have measured it on several occasions. While excessive N can reduce yield from lodging, that is not the reason for the reduced yield in this and other similar trials we have conducted. Why is yield reduced with excessive N? We

Table 11. Dryland Winter Wheat Performance in Southwestern Idaho.

Variety	Yield			Protein -----2006----- %	Test Weight lb/bu	Height in
	96-06	04-06	2006			
<i>Soft Whites</i>						
Dune	--	58	96	13.5	59.4	33
Eltan	43	51	83	14.0	58.7	34
Hubbard	--	53	91	13.8	59.6	37
IDO587	--	50	80	13.6	56.9	33
IDO620	--	--	93	14.2	58.1	36
Malcolm	44	49	82	13.7	57.8	33
Simon	--	55	92	13.7	58.7	34
Stephens	42	48	76	14.1	56.3	32
Tubbs	--	54	88	14.3	55.1	35
Average	43	52	87	13.9	57.8	34
LSD_{.10}	3	6	11	0.3	1.4	1
<i>Hard Red and White</i>						
<i>Hard Reds</i>						
Boundary	--	45	76	13.1	60.0	32
Buchanan	44	43	71	13.6	59.8	39
Finley	--	45	79	13.0	64.3	41
Juniper	--	44	81	14.1	63.7	47
Moreland	--	46	82	13.3	61.4	31
Promontory	45	47	84	12.8	64.3	34
Utah 100	44	46	79	13.2	60.0	37
<i>Hard Whites</i>						
Darwin	--	--	89	12.9	64.3	40
Gary	--	50	83	12.9	62.6	37
Ivory	--	46	84	12.6	62.1	34
Average	44	46	81	13.1	62.2	37
LSD_{.10}	2	4	6	0.3	1.2	2

don't know. Excessive N effects are poorly understood and seldom studied in detail. Whatever the reason for the yield decline, the excessive N effects were avoided with a controlled release N fertilizer.

As mentioned earlier, winter topdressed urea N is frequently more effective than early fall preplant urea. In this trial, yield with winter topdressed urea ranged from 2 to 13 bu/A higher than with preplant urea. While winter topdressed ESN may not release sufficient N at low N rates, yields at higher N rates were 9-10 bu/A higher with winter topdressing than with preplant applications.

The cost of ESN will be a few cents a pound higher than dry urea. The only applications that would have been cost effective in this trial (assuming costs are 10

cents a lb of N higher for ESN) were those involving preplant N and the highest rate of late winter topdressed N. Moderate N rates in late fall or late winter would not have paid for the extra costs of the material.

This was our first research experience in western Idaho with a slow release N used to provide season long N for winter wheat. The results are preliminary and represent only one year of testing. We hope to continue the evaluation a second year.

Marketing

Alturas for Noodles If you haven't checked out the Idaho Wheat Commission website lately at <http://www.idahowheat.org/>, there are some interesting marketing stories there.

Pertinent to western Idaho is a report on marketing **Alturas** soft white spring wheat to Nongshim America for instant noodles. Nongshim is a Korean company with a noodle making plant in Los Angeles. The report was of interest because **Alturas** is a soft white spring wheat variety that yields well in western Idaho.

For us to market **Alturas** from western Idaho would require its segregation to maintain its variety preserved status. According to Nongshim, there would be a premium but they did not say what that was. They are currently looking for a mill to process the flour for them. Very likely it will be in Ogden. That being the case they will probably source the **Alturas** from the Magic Valley and eastern Idaho. However, when informed that most of our wheat going for export is shipped to Portland, the Nongshim representative indicated their parent company in Korea may have interest in variety preserved **Alturas** available for export. Stay tuned.

Table 12. Irrigated winter wheat response to N source, rate, and timing. Parma, 2006.

N Fertilizer	Application Timing		Yield bu/A	Protein %	Test weight lb/bu	Height in	Grain N lb/A
	Preplant	Late Winter					
Control	--	--	137	8.8	58.7	36.7	129
Urea	60	--	149	9.8	59.0	37.6	155
ESN	60	--	157	10.2	59.2	38.7	171
Mix	60	--	156	10.6	58.8	39.1	175
Urea	120	--	146	11.6	60.7	37.9	181
ESN	120	--	151	11.3	59.2	38.7	182
Mix	120	--	156	11.2	57.9	38.8	185
Urea	180	--	147	10.8	58.0	38.5	168
ESN	180	--	156	11.3	58.0	39.4	186
Mix	180	--	152	11.3	58.6	39.4	182
Urea	--	60	153	10.6	59.4	38.0	172
ESN	--	60	146	9.8	59.7	37.2	153
Mix	--	60	154	10.3	59.4	38.1	168
Urea	--	120	159	10.7	58.7	38.8	179
ESN	--	120	161	11.1	60.1	37.3	191
Mix	--	120	158	11.3	59.1	38.5	190
Urea	--	180	149	11.7	57.8	39.2	184
ESN	--	180	165	11.5	59.6	37.7	202
Mix	--	180	153	11.5	58.8	38.5	187
		CV	4.7	5.4	2.5	2.3	8
		LSD _{.10}	8.5	0.7	1.7	1.1	17

Hard Red Spring—As expected there was an increase this past season in the production of HRS wheat in the Treasure Valley. Production in some areas increased tenfold. It's no wonder, since HRS market prices (at 14% protein) were at times over \$2.00 a bushel higher than soft whites. The difference has narrowed appreciably since then. What a year to be marketing HRS!

Although yields were down for all spring wheat this year, the protein premium for HRS was enough for those involved in this marketing class to be satisfied overall in the results. Protein was acceptable in most cases. That may be related to the lower yields this season.

It's not clear what the interest will be in the coming year what with the current price differential for HRS and soft wheat. Western Idaho elevators that handled HRS in 2006 are planning to handle it again in 2007.

Hard White Spring--Perhaps the biggest story in new wheat markets for Idaho has been the domestic interest in hard white wheat. Many of you saw the article in the last **Idaho Grain** magazine on hard white marketing. If not,

it's available on-line from the **Idaho Wheat Commission** website. In short, production increased 50% from last year, still fell well short of domestic demand, and will probably increase again next year. The hard white was marketed at a premium to hard red winter wheat which was high for much of the marketing year. Most all the production was in the Magic Valley and east where contracts were available. Blaine Jacobson, Idaho Wheat Commission Administrator, thinks there will be northern Idaho production in the coming year moving to southern Idaho for marketing. Interesting.

Since that article there has been additional interest expressed by domestic Midwest millers in Idaho's production. Contracts for 2007 hard white wheat (12% protein) are available in Burley and perhaps other elevators in southern Idaho. To my knowledge there are no western Idaho elevators offering contracts for hard white wheat. Still, you've got to feel good about the interest shown in the quality of Idaho wheat, regardless of market class.

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