



# The Cereal Sentinel

*A newsletter for Treasure Valley cereal producers*

February 4, 1999

Issue No. 18



Topics:	Page
Spring Cereal Variety Performance	2
Soft White Spring Wheat	2
Hard Red Spring Wheat	3
Spring Barley	5
Durum Wheat	8
Soft White Prospects	10
Spring Soil Testing	10

## Important Dates:

February 11	Idaho Wheat Commission Research Review, via compressed video
February 16-17	Idaho Ag Summit, Boise
February 22-23	Idaho Barley Commission Research Review, Moscow.
July 21	Malheur Station Field Day, Ontario

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)**

Brad Brown,  
Extension Crop Management Specialist

# Spring Cereal Variety Performance

The 1998 season marked the 12th season of the Southwest Idaho Cooperative Extension Variety Performance Trials. The trials, supported by the Idaho Wheat Commission, Idaho Barley Commission, private breeders and the University of Idaho College of Agriculture allow the testing of public and proprietary varieties and advanced lines under the irrigated conditions of the Treasure Valley.

Four irrigated spring trials were conducted during the 1998 season. Trials were located at the Parma Research and Extension Center (early and late planted), Kuna, and Weiser.

The early and late Parma trials were planted March 12 and April 16. Kuna was planted March 30 and Weiser on April 3. Plantings at Kuna and Weiser were delayed due to intermittent rain and poor planting conditions. There was significant lodging of wheat at Parma and the weaker strawed barley lodged at Kuna and Weiser. The earliest planted trial at Parma was the most productive, in part because of earlier maturity and avoidance of adverse climatic conditions later in the season.

Cool temperatures during the later stem extension stages through early grain fill delayed maturity. This period of cool weather was followed by excessive heat during later stages of maturity. High temperatures shortened the grain filling period and both yield and test weight were significantly reduced at Weiser and Kuna.

Barley stripe rust incidence was the worst on record for western Idaho. This contributed to additional plant stress on barley varieties, poorer yields and test weight. Barley test weights at Weiser averaged the poorest in all 12 seasons of testing. Test weights averaged progressively worse the later the planting.

Yields overall were down in 1998 from previous years for the above reasons.

## Soft White Spring Wheat

The 1998 results for soft white spring wheat varieties are shown in Table 1 on this page and the next. The best indication of long term variety performance is comparisons involving several sites

Table 1. 1998 Early Planted Irrigated Soft White Spring Wheat Performance in the Treasure Valley.

Variety	Yield bu/acre	Protein %	Test Weight lb/bu	Height in	Lodging %
<i>Parma (early planted)</i>					
Alpowa	109 <sup>1</sup>	10.5	63.1	41	35
BZ692-108	114	9.4	61.8	40	20
Centennial	105	11.3	60.6	39	66
IDO 505	112	10.2	61.8	40	38
ML042-29,3	117	10.4	63.0	39	30
ML042-409-1,5	113	10.3	60.5	42	13
ML042-409-52,5	103	10.6	60.5	41	50
MLO57-32A	99	10.5	56.1	40	43
Penawawa	101	11.1	57.4	41	60
Pomerelle	101	10.5	59.5	40	45
Sunstar 50-30	112	9.9	60.6	40	61
Sunstar Promise	109	10.1	60.9	41	63
Treasure	102	10.8	60.0	41	62
WB Vanna	106	10.3	61.0	41	28
Whitebird	102	10.5	60.9	41	38
Average	107	10.5	60.6	40	40
LSD <sub>.10</sub>	11	0.8	1.7	2	33
<i>Weiser</i>					
Alpowa	78	12.6	56.6	35	0
BZ 692-108	77	12.8	56.0	34	15
Centennial	70	13.1	55.3	33	0
IDO 505	82	12.7	57.0	35	0
Penawawa	70	14.3	54.5	35	3
Pomerelle	73	13.1	54.8	33	0
Treasure	78	13.3	54.5	34	0
WB Vanna	72	13.3	53.9	34	0
Whitebird	75	12.6	57.0	36	0
Average	74	13.2	55.3	34	2
LSD <sub>.10</sub>	7	0.5	1.4	1	6
<i>Kuna</i>					
Alpowa	94	10.5	60.3	39	8
BZ 692-108	84	9.4	58.2	38	27
Centennial	81	11.3	58.7	37	0
IDO 505	95	10.2	58.9	38	0
Penawawa	87	11.1	58.6	38	0
Pomerelle	74	10.5	56.8	38	3
Treasure	77	10.8	56.4	37	8
WB Vanna	83	10.3	56.6	38	3
Whitebird	87	10.5	58.8	37	0
Average	86	10.5	58.1	38	4
LSD <sub>.10</sub>	6	0.8	1.6	1	2

Table 1 continued. 1998 Irrigated Soft White Spring Wheat Performance in the Treasure Valley.

Variety	Yield bu/acre	Protein %	Test Weight lb/bu	Height in	Lodging %
<i>Parma (late planted)</i>					
Alpowa	87 <sup>1</sup>	11.4	62.9	38	13
BZ692-108	91	11.7	62.4	37	6
Centennial	68	12.4	61.0	35	0
Penawawa	83	11.9	61.3	37	3
Pomerelle	76	10.9	58.6	36	11
Treasure	83	11.6	61.0	36	3
Whitebird	79	11.4	61.8	38	3
Average	81	11.6	61.2	37	5
LSD <sub>.10</sub>	9	0.5	2.5	1	11
<i>1998 (4 sites)</i>					
Alpowa	91	11.6	60.7	38	14
BZ 692-108	91	11.5	59.7	37	16
Centennial	80	12.3	58.9	36	18
Penawawa	85	12.4	57.9	38	16
Pomerelle	80	11.6	57.4	37	15
Treasure	84	11.9	58.0	37	18
Whitebird	85	11.5	59.6	38	10
Average	85	11.8	58.7	37	16
LSD <sub>.10</sub>	4	0.2	0.8	1	9
<i>1993-98 (17 site years)</i>					
Alpowa	116	10.6	62.4	38	16
Centennial	112	10.9	62.0	36	12
Penawawa	114	11.2	61.0	36	16
Pomerelle	108	10.3	60.4	36	14
Treasure	109	10.5	60.5	36	17
WB Vanna	112	10.4	61.3	37	8
Whitebird	111	10.5	61.9	37	13
LSD <sub>.10</sub> <sup>1</sup>	3.4	0.3	0.6	0.6	7

<sup>1</sup> Means must differ by more than the LSD to be statistically different

and years.

**Alpowa** and the numbered line **BZ692-108** from Western Plant Breeders yielded more than all others when averaged over all the 1998 trials. **Alpowa** has also yielded well over the longer term. **Alpowa** is slightly taller than many others, but has good lodging resistance and excellent test weight.

**Penawawa** is an older Washington release that has yielded nearly as well as **Alpowa** and better than many others. **Penawawa** tends to be higher in protein and lower in test weight than **Alpowa**. **Penawawa** is relatively early.

**WB Vanna** and **Centennial** also have good yield potential and good straw strength. **Pomerelle** and **Treasure** were the least productive when averaged across several years and locations but may have superior baking qualities. **Pomerelle** has slightly better straw strength than **Treasure**. **Whitebird** has good yield potential but has not yielded as well as **Penawawa** and **Alpowa**. **Whitebird** does have low protein and superior baking quality..

The MLO advanced lines have undergone limited testing. They were evaluated only at the Parma location. These are Merrill Lewis lines. The **ML042-409-1,5** has performed well in the limited testing at Parma the past two years. Despite its taller height, it has excellent straw strength, similar to **Vanna**, and lodged less than most of the other varieties.

**WB Vanna** is locally available this spring. The new Western Seed facility in Ontario should handle this and a number of other Westbred varieties.

## Hard Red Spring Wheat

Hard red spring varieties in the Cooperative Extension nurseries are evaluated because of their historically higher prices and potential for greater returns to spring wheat producers. The price difference between soft whites and hard red springs has been as much as 50% higher for the hard red spring class. Results for hard red spring wheat are given in Tables 2 and 3. As with any variety comparison, the more years and sites they can be compared over the more reliable the information.

**WB 936**, a Western Plant Breeders release, historically yields slightly better than **Vandal**, has a test weight advantage, and matures considerably earlier than **Vandal**. **Vandal's** primary advantage over **WB 936** is its protein, which is excellent. Both varieties have good straw strength.

**Jefferson** is a new hard red spring from the UI breeding program at Aberdeen. In the two previous years of testing it did not yield as well as **WB936** or **Vandal**. This past season **Jefferson** was as well adapted to the stresses of a difficult season as **WB936** or **Vandal**. It generally has lower protein than **WB936** and significantly less than **Vandal**. **Jefferson** has moderate Hessian fly resistance, excellent milling yield and good baking quality. **Jefferson** is also taller than **Vandal** or **WB 936**.

**WB Zeke**, formerly tested as **BZ987-331**, is a new release from Western Plant Breeders. It has not yielded

Table 2. Hard Red Spring Wheat Performance in the Treasure Valley, 1998.

Variety	Yield bu/A	Protein %	Test Weight lb/bu	Height in.	Lodged %
<i>Parma (early planted)</i>					
GSExp1095	106 <sup>1</sup>	11.5	58.5	38	0
Hi-Line	96	12.3	62.9	37	3
Jefferson	112	11.7	63.5	40	5
Vandal	92	12.3	61.8	36	0
WB 936	97	11.6	61.5	35	0
WB Zeke	82	10.8	63.3	40	0
LSD <sub>.10</sub>	16	1.0	0.9	2	15
<i>Weiser</i>					
GSExp1095	84	15.2	53.0	35	0
Hi-Line	76	14.8	57.4	33	0
Jefferson	80	14.3	57.1	34	0
Vandal	70	15.9	53.6	32	0
WB 936	83	15.1	55.3	31	0
WB Zeke	79	14.7	57.5	35	5
LSD <sub>.10</sub>	8	0.3	1.5	1	6
<i>Kuna</i>					
GSExp1095	84	11.5	55.5	37	0
Hi-Line	76	12.3	59.1	36	0
Jefferson	89	11.7	59.5	37	0
Vandal	70	12.3	58.5	34	0
WB 936	87	11.6	59.3	34	0
WB Zeke	85	10.8	59.3	37	0
LSD <sub>.10</sub>	7	1.0	1.5	1	5
<i>Parma (late planted)</i>					
GSExp1095	74	14.1	58.4	35	0
Vandal	78	14.6	59.6	34	0
WB 936	77	14.0	61.4	33	0
WB Zeke	69	14.4	63.0	36	0
LSD <sub>.10</sub>	7	1.0	1.5	1	5

<sup>1</sup> Means must differ by more than the LSD<sub>.10</sub> to be statistically different

as well as **WB 936** or **Vandal** in previous testing in western Idaho, is taller and more susceptible to lodging. It had the poorest protein of all varieties.

**Hi-Line**, a Montana variety, has been evaluated for two years in western Idaho. **Hi-Line** was less productive than **WB 936** but had comparable protein and higher test weight. It was taller than **WB 936** but had good straw strength.

**GSExp1095**, an experimental from Germaines Seed, was evaluated in western Idaho for the first time

Table 3. Hard Red Spring Wheat Performance in the Treasure Valley over several locations or years.

Variety	Yield bu/A	Protein %	Test Weight lb/bu	Height in.	Lodged %
<i>1998 (3 site years)</i>					
GSExp1095	91 <sup>1</sup>	13.5	55.7	36	0
Hi-Line	82	13.5	59.8	35	0
Jefferson	93	13.0	60.0	37	20
Vandal	76	14.0	58.0	34	0
WB 936	88	13.0	58.7	33	0
WB Zeke	82	12.6	60.0	37	2
LSD <sub>.10</sub>	6	0.4	1.0	1	2
<i>1997-98 (6 site years)</i>					
Hi-Line	91	13.1	61.5	34	0
Jefferson	100	12.8	61.7	36	3
Vandal	94	13.7	59.6	33	0
WB 936	100	13.0	60.5	32	0
WB Zeke	93	12.3	61.1	35	8
LSD <sub>.10</sub>	4	0.2	0.5	1	5
<i>1996-98 (10 site years)</i>					
Jefferson	103	12.8	61.9	36	18
Vandal	103	13.7	59.8	34	5
WB 936	107	13.0	60.8	33	6
LSD <sub>.10</sub>	3	0.2	0.4	1	4
<i>1993-98 (18 site years)</i>					
Vandal	103	13.4	60.8	34	1
WB 936	111	12.6	61.8	33	1
LSD <sub>.10</sub>	3	0.2	0.3	0.4	2

<sup>1</sup> Means must differ by more than the LSD<sub>.10</sub> to be statistically different

this past season. **GSExp1095** yielded better than **Hi-Line**, **Vandal**, and **WB Zeke**, and comparable to **Jefferson** and **WB 936** under the adverse conditions of this season. **GSExp1095** had poor test weight relative to other varieties. Its protein was better than to **WB 936** but less than **Vandal**.

Significant discounts can result with hard red springs if protein is below 14%. The protein levels reported for the hard reds in these variety trials are low at some locations. The trials were not fertilized with N for maximum protein and quite often the sites are under fertilized with N. The commercial production of these varieties would entail quite different N management than what is provided in these trials for soft white spring wheat. All the hard red spring varieties evaluated are

Table 4. Six-Row Spring Barley Variety Performance in the Treasure Valley, 1998

Variety	Yield bu/A	Test Weight lb/bu	Height in.	Lodging %
<i>Parma</i>				
Baretta	103 <sup>1</sup>	46.3	28	5
Century	107	51.3	40	5
Colter	88	49.8	40	8
GS Exp2319	90	49.8	24	0
WB Gustoe	102	47.4	27	0
Maranna	99	49.6	31	3
Mucho	89	50.4	25	0
WB Nebula	123	48.8	29	0
Statehood	116	51.1	37	3
Steptoe	104	50.0	40	10
Tango	106	52.0	39	10
Average	102	49.7	33	4
LSD <sub>.10</sub>	13	1.6	3	10
<i>Weiser</i>				
Century	92	43.5	37	98
Colter	78	43.0	38	13
GSExp2319	62	41.1	24	0
WB Gustoe	82	40.9	28	60
Maranna	73	42.8	30	70
WB Nebula	79	38.4	27	0
Statehood	75	42.1	35	73
Steptoe	77	40.3	35	83
Tango	71	43.9	35	94
Average	77	41.7	32	55
LSD <sub>.10</sub>	8	3.5	2	29
<i>Kuna</i>				
Century	71	46.3	42	59
Colter	61	43.8	41	20
GSExp2319	53	40.4	30	5
WB Gustoe	62	41.1	29	3
Maranna	49	40.8	32	3
WB Nebula	72	39.5	32	3
Statehood	64	45.0	40	45
Steptoe	52	43.9	38	86
Tango	63	46.0	40	68
Average	61	42.6	35	28
LSD <sub>.10</sub>	10	2.0	2	24

<sup>1</sup> Means must differ by more than the LSD to be statistically different.

capable of being marketed at 14% protein with appropriate N management.

For those of you that don't follow hard red spring prices, the following may be of interest. Hard red spring at 14% protein was trading on Jan. 29 in Portland at

**\$1.23 per bushel** over soft whites. At 15% protein the difference was closer to **\$1.34 a bushel**. When corrected for transportation these hard red prices are about 50% higher than the soft white price. The hard red springs are typically only about 5% less productive than the soft whites when early spring planted.

## Spring Barley

The Southwest Idaho Cooperative Extension Variety Performance trials have evaluated barley varieties and advanced lines since 1987. Spring barley variety performance is presented in Table 4 and 5 for the six-rows, Table 6 and 7 for the two-rows.

Barley stripe rust incidence was the highest ever this past season in western Idaho. Six row varieties are more susceptible than two rows. Consequently, two row yields were generally better than six row yields for the first time since we began these evaluations in 1987. High temperatures also took their toll on production as well as quality. Barley test weights this season were the poorest we've seen in irrigated trials.

The importance of timely planting was evident in the Parma trial. A mid-March planting at Parma enabled the barley to mature earlier under less stripe rust and cooler temperatures. Test weights of six rows at Parma averaged a very respectable 49.7 lb per bu. Yields were down from previous years at Parma but the limited lodging at this site suggests that available N was less than normally present.

### *Six-Row Varieties*

**Steptoe**, still the most commonly grown six-row in western Idaho, has serious flaws for an irrigated feed barley. Its weak straw and susceptibility to lodging limit its yield potential under high yielding conditions. The greater productivity of more recently released varieties is largely related to their greater resistance to lodging.

**Steptoe** yield over several years of testing prior to significant stripe rust occurrence is shown in table 5.

**Steptoe** averaged 9-11 bu per acre less than **WB Gustoe**, **Colter**, and **Maranna** during the 1994-97 period. Over this same period **Steptoe** had lower test weight and over 30% greater lodging. Western Idaho appears to be the last stronghold for this variety. It has been displaced in Washington, Oregon, and all other production districts in Idaho due to its lower productivity and feed quality. The feeding quality of **Steptoe** is generally poorer than other six-rows due to higher hull

Table 5. Spring 6-Row Barley Variety Performance in the Treasure Valley over several sites and years

Variety	Yield bu/A	Test Weight lb/bu	Height in.	Lodging %
<i>1994-97 (12 site years)</i>				
<i>Six-Rows</i>				
Colter	137 <sup>1</sup>	50.3	40	32
WB Gustoe	139	49.0	29	27
Maranna	139	50.3	32	13
Steptoe	128	48.8	39	70
LSD <sub>.10</sub>	5	0.6	1	8
<i>1996-98 (9 site years)</i>				
<i>Six-Rows</i>				
Colter	114	48.4	39	26
WB Gustoe	115	46.8	29	27
Maranna	109	48.0	32	20
WB Nebula	124	46.4	31	11
Steptoe	109	47.2	38	72
LSD <sub>.10</sub>	5	0.7	1	8
<i>1997-98 (6 site years)</i>				
Century	111	48.1	37	41
Colter	110	47.5	37	16
WB Gustoe	109	46.3	27	17
Maranna	100	47.3	30	13
WB Nebula	114	45.5	30	1
Steptoe	111	47.3	35	36
Statehood	101	46.6	36	64
LSD <sub>.10</sub>	5	0.7	1	10
<i>1998 (3 sites)</i>				
Century	89	47.0	39	54
Colter	75	45.5	39	13
GSExp2319	68	43.8	26	2
WB Gustoe	82	43.1	28	21
Maranna	73	44.4	31	25
WB Nebula	91	42.2	29	1
Statehood	84	46.1	38	40
Steptoe	77	44.7	37	60
Tango	79	47.3	38	57
LSD <sub>.10</sub>	5	1.5	1	13

<sup>1</sup> Means must differ by more than the LSD to be statistically different.

**WB Gustoe**, a Western Plant Breeders release, has better yield potential and is substantially shorter with better lodging resistance than **Steptoe**. Test weight of **WB Gustoe** is less than **Colter** or **Maranna**, especially in the absence of stripe rust.

**Maranna**, an OSU release, yields better than **Steptoe** in the absence of stripe rust and has better test weight, stronger straw, and is shorter. However, **Maranna** is particularly susceptible to barley stripe rust. Its dismal performance with stripe rust present can be seen in the 1998 summary of table 5.

**Colter**, a USDA release from Aberdeen, has several advantages over **Steptoe** in the absence of stripe rust including better yield potential and test weight. Though it tends to be slightly taller than **Steptoe** it has much better straw strength and lodging resistance. **Colter** also matures earlier than **Steptoe**. **Colter**, like **Maranna**, is especially susceptible to stripe rust as indicated by its poor yield in 1998 at all locations.

**WB Nebula** is a new Western Plant Breeders release. Over three years of testing, including 1998 with stripe rust present, **WB Nebula** out yielded the next highest entry by 9 bu/A., **WB Nebula** is a short variety with excellent lodging resistance. Test weight is comparable to **WB Gustoe** and **Steptoe** under more favorable conditions but lower than **Maranna** and **Colter**. **WB Nebula** test weight was particularly poor relative to other varieties in the past season

Two Utah varieties were tested for the second year in 1998. **Century** and **Statehood** were named in honor of Utah's centennial celebration. Both varieties tend to lack the straw strength of the more productive six row varieties but they lodge less than **Steptoe**. These varieties weathered the adverse conditions of stripe rust and heat in 1998 better than **Colter** and **Maranna**.

Several new six rows were evaluated this past season. **GSExp2319**, an experimental line from Germaines Seed was evaluated in all 1998 sites. This is a very short line with lodging resistance comparable to **WB Nebula**, but it did not yield well under the 1998 conditions relative to other varieties.

**Tango**, is one of the first six row barley varieties released for its resistance to stripe rust. An OSU release, it has **Steptoe** parentage which accounts for its poor lodging resistance. **Tango** was limited in yield due to lodging but still averaged the highest in test weight. **Mucho** and **Baretta** were tested only at Parma.

**The incidence of stripe rust in 1998 and its influence on six row barley performance may change our perception of six rows for the foreseeable future.**

content, hulls that are also less digestible than other six-row hulls.

### Two-Row Varieties

Breeders have made great strides in providing two-row barley for feed or malt with significantly improved yield and straw strength. The difference in yield between available six and two-row varieties had narrowed considerably prior to 1998 and the widespread incidence of stripe rust. With better tolerance to stripe rust, the better two row varieties can now be expected, when stripe rust is present, to be more productive than many six row barleys normally produced in western Idaho.

**Baronesse**, from Western Plant Breeders (originally from Germany), is now widely grown in the Pacific Northwest. **Baronesse** replaced much of the **Steptoe** acreage in Washington because it yields more in those rainfed environments and has better feed quality in all environments. In the Treasure Valley, **Baronesse** yields better than **Lud**, our most commonly grown two row, but it does not yield higher than the six row **Steptoe** when there is no stripe rust. With stripe rust, **Baronesse** out yielded **Steptoe** by about 14 bu per acre over three sites in 1998.

**Idagold**, an Adolph Coors feed barley, has now been tested for five years in the Treasure Valley. Prior to 1998 **Idagold** out yielded **Baronesse** by 15 bu/A, was six inches shorter than **Baronesse**, and lodged considerably less than **Baronesse** or **Lud**. **Idagold** yielded as well as the best six-row types over this same time period (1994-97), and significantly better than **Steptoe**. **Idagold** is later than **Baronesse** and has lower test weight, especially when temperatures are higher during grain fill. Its later maturity was a disadvantage with this year's stripe rust and heat. Even so, **Idagold** and **Baronesse** were equally productive across all 1998 locations.

**Lud**, an Agripro release, does not have the yield potential of **Baronesse** or **Idagold**. But **Lud** has both better protein and test weight than **Baronesse** and **Idagold**.

**Harrington**, **Merit**, and **AB1202** are two-row malting barleys from Busch Ag Resources. They yielded less than **Idagold** and **Baronesse**. Both of these varieties met the requirements for malting in 1996 and 1997 despite considerable lodging in some trials and very high temperatures during grain filling. **Merit**, has the lowest test weight of the three.

**Orca**, a new release from OSU, is one of the first two-rows with barley stripe rust resistance. **Orca** is taller than **Idagold** but has comparable straw strength and resistance to lodging. It yielded less than **Idagold** and **Baronesse** in the earlier planting at Parma but better

Table 6. Two-Row Spring Barley Variety Performance in the Treasure Valley. 1998

Variety	Yield bu/A	Test Weight lb/bu	Height in.	Lodging %
<i>Parma</i>				
AB1202	97 <sup>1</sup>	52.7	38	10
Baronesse	125	53.2	35	0
Camas	108	53.0	37	8
C19	110	52.1	30	3
C22	122	51.5	29	0
C32	133	52.1	28	0
C37	127	54.3	31	3
Cooper	116	51.6	25	0
Galena	114	51.9	32	0
Harrington	101	52.0	35	5
Idagold	124	49.6	26	8
Lud	106	54.0	38	8
Merit	108	50.8	37	18
Orca	110	53.4	37	0
Pitcher	134	51.9	27	0
LSD <sub>.10</sub>	15	1.6	3	11
<i>Weiser</i>				
AB1202	76	44.3	34	53
Baronesse	86	48.3	32	75
C19	90	44.5	31	43
C22	98	44.3	30	28
C32	96	46.4	28	5
C37	89	45.0	31	45
Galena	93	45.5	30	45
Harrington	85	44.5	34	65
Idagold	78	42.2	28	55
Lud	82	47.1	34	55
Merit	82	43.3	35	45
Orca	94	47.0	36	53
LSD <sub>.10</sub>	7	2.5	2	31
<i>Kuna</i>				
AB1202	60	47.1	37	50
Baronesse	63	48.0	36	35
C19	93	48.8	35	3
C22	80	47.1	33	0
C32	79	47.5	30	0
C37	82	49.6	32	0
Galena	85	48.5	33	0
Harrington	64	49.0	35	15
Idagold	75	44.3	29	0
Lud	63	48.5	36	40
Merit	58	45.0	38	35
Orca	85	49.8	39	5
LSD <sub>.10</sub>	10	1.7	2	23

<sup>1</sup> Means must differ by more than the LSD to be statistically different.

Table 7. Spring 2-Row Barley Variety Performance in the Treasure Valley over several sites and years

Variety	Yield bu/A	Test Weight lb/bu	Height in.	Lodging %
<i>1994-97 (12 site years)</i>				
<i>Two-Rows</i>				
Baronesse	123 <sup>1</sup>	52.2	36	63
Lud	117	52.9	38	63
Idagold	138	50.8	30	24
LSD <sub>.10</sub>	5	0.6	1	8
<i>1996-98 (9 site years)</i>				
<i>Two-Rows</i>				
AB1202	98	49.7	37	53
Baronesse	105	50.7	35	61
Harrington	99	49.4	37	62
Idagold	115	48.3	29	22
Lud	102	51.3	37	60
LSD <sub>.10</sub>	4	0.6	1	8
<i>1997-98 (6 site years)</i>				
AB1202	96	49.4	35	50
Baronesse	109	50.7	33	52
Galena	109	50.0	32	22
Harrington	97	49.2	35	51
Idagold	115	47.5	28	14
Lud	102	51.0	35	51
LSD <sub>.10</sub>	4	0.8	1	11
<i>1998 (3 site years)</i>				
AB1202	77	48.0	37	38
Baronesse	91	49.8	34	37
C19	97	48.5	32	16
C22	99	47.6	31	9
C32	102	48.7	29	2
C37	99	49.6	31	16
Galena	97	48.6	32	15
Harrington	83	48.5	35	28
Idagold	92	45.3	28	21
Lud	83	49.9	36	34
Merit	82	46.4	36	33
Orca	95	50.0	37	19
LSD <sub>.10</sub>	6	1.2	1	13

<sup>1</sup> Means must differ by more than the LSD to be statistically different.

than these varieties in the later planted trials primarily due to its stripe rust resistance.

**Galena** is a two-row malting barley from Adolph Coors. It typically yields less than **Idagold** with earlier plantings but better than **Idagold** in later

seedings. **Galena** is earlier and taller than **Idagold** and has higher test weight. This variety was available to all growers in 1997 and 1998 regardless of whether it was actually contracted by Coors. **Galena** is contracted primarily in the Magic Valley but there is always the chance Coors will purchase non-contracted production if there are problems in other production areas, as they did in 1997.

Coors has other two row barleys that have been tested in western Idaho. The lines **C19**, **C22**, **C32**, and **C37** were among the highest yielding entries tested in 1998. With the exception of **C32**, they are 3-4 inches taller than **Idagold** but have straw strength and lodging resistance equal to or better than **Idagold**.

**Pitcher** and **Cooper** are Arizona Pant Breeders varieties evaluated only at Parma. **Pitcher** and **C32** were the two highest yielding entries at Parma. Both **Pitcher** and **Cooper** are short.

Treasure Valley barley producers no longer have only the option of six-row barley for maximizing yield and profitability. Producers can now enjoy the high yields typical of six-row barley as well as the superior test weight and feed quality of a two-row. With the uncertainty of barley stripe rust, the more tolerant two rows offer an excellent alternative.

## Durum Wheat

Pendleton Flour Mills will write durum wheat contracts for southern Idaho producers again this season. The mill uses over 2 million bushels of durum wheat annually, most of which is produced outside the PNW. Producers are encouraged to contact Pendleton Flower Mills for 1999 contract prices (541-276-6511).

Contract specifications include at least 13% protein, 85% hard amber vitreous kernels, and 60 lb test weight. There is no tolerance for sprout as indicated by falling number values less than 325. Also, there is no tolerance for black tip, the discoloration of the germ end of the kernel. Dockage must not exceed 1%.

Durum wheat performance was measured at 13 sites during the 1994-98 seasons. Results for varieties grown in all 1998 trials as well as those evaluated over the 1994-98 period are given in Table 8.

**WB Cortez** was more productive over the five-year period than **WB Kofa** and **WB 881**, the older quality standard. Protein percentage and the percentage of hard amber vitreous kernels did not differ appreciably among these three varieties.

**Kronos** is an Arizona Plant Breeders variety. It yielded as well as **WB Cortez** and better than **WB 881** and **WB Kofa** in the two years of testing. **Utopia** and **Ocotillo** were tested at only one location.

We've had no difficulty obtaining 85% hard and vitreous kernels with the varieties listed in Table 8. Protein values have averaged less than 13% in some sites because the trials have not been managed for durum production. Our results suggest that it will be easier to meet the vitreous kernel requirement than the protein specification. Even so, acceptable protein for durums (13%) should be easier to produce than for hard red spring wheat (14%).

One of the biggest concerns for Pendleton Flour Mills is black tip, the discoloration due to fungal growth on the germ end of the kernel. Black tip discolors the flour as it is not milled from the kernel when processed. It seems to occur more readily with high humidity, rainfall, or sprinkler irrigation during the grain filling period. Whereas sprinkler irrigated wheat may provide more flexibility in managing late season nitrogen, furrow irrigated durum wheat may incur less blacktip. Blacktip was measured in 1998 for all durum entries. **WB Cortez** and **Kronos** had the least blacktip of all the entries.

The number to call at Pendleton Flour Mills for contract information is 541-276-6511. On farm storage is required. For seed the numbers are 541-963-8815 (OR) or 208-678-2286 (ID).

Table 8. Durum performance in 1998 and over other years and locations.

Variety	Yield bu/A	Protein %	Height in	Test Weight lb/bu	HVAK %	Lodged %	Black tip %
<i>Parma 1998</i>							
Kronos	103 <sup>1</sup>	11.4	33	63.3	87	0	8.3
Ocotillo	77	12.2	36	61.4	98	0	17.5
WB Cortez	85	12.5	33	63.8	97	0	6.5
WB Kofa	83	12.3	34	62.0	95	0	14.9
WB 881	83	12.5	34	61.9	92	0	14.3
Utopia	112	10.0	33	63.1	71	0	12.0
LSD <sub>.10</sub>	16	1.0	2	0.9	7	0	4.5
<i>Weiser 1998</i>							
Kronos	75	15.5	29	56.0	96	13	8.6
WB Cortez	79	15.6	30	56.4	97	0	4.1
WB Kofa	77	16.0	30	56.0	97	0	11.5
WB 881	74	15.2	30	54.9	91	0	10.9
LSD <sub>.10</sub>	8	0.3	1	1.5	3	6	3.9
<i>Kuna 1998</i>							
Kronos	86	11.4	32	58.3	92	0	8.6
WB Cortez	81	12.5	32	60.0	95	0	5.5
WB Kofa	72	12.3	34	57.3	96	0	11.5
WB 881	78	12.5	33	59.0	95	0	10.9
LSD <sub>.10</sub>	7	1.0	1	1.5	3	-	6.3
<i>1998 (all three sites)</i>							
Kronos	88	13.3	31	59.2	92	4	7.4
WB Cortez	81	14.0	31	60.0	96	0	5.4
WB Kofa	76	13.9	33	58.4	96	0	12.8
WB 881	78	13.7	32	58.6	92	0	10.9
LSD <sub>.10</sub>	8	0.5	1	0.8	3	3	2.6
<i>1997-98 (six site years)</i>							
Kronos	92	13.5	30	60.2	92	2	--
WB Cortez	89	13.8	30	60.7	96	0	--
WB Kofa	82	13.9	32	59.3	95	0	--
WB 881	84	13.8	31	59.6	94	0	--
LSD <sub>.10</sub>	5	0.4	1	0.8	1	2	--
<i>1994-98 (thirteen site years)</i>							
WB Cortez	103	13.0	31	62.6	93	2	--
WB Kofa	99	13.2	32	61.5	94	4	--
WB 881	97	13.0	32	61.4	92	4	--
LSD <sub>.10</sub>	3	0.3	1	0.4	1	3	--

# Soft Wheat Prospects

Carryover soft white wheat stocks are high, demand is low, and all is reflected in the current low prices. Extension economists forecast these low prices to continue through the current season. Currently soft white wheat is the lowest priced of all the spring wheat or barley market classes grown in the Pacific Northwest. Other wheat market classes such as hard red spring, hard white, and durum are produced in southern Idaho and have the potential for significantly increasing the returns to producers. While alternative market classes can be grown successfully in western Idaho, practices used for them can differ from other wheat classes. Stay tuned for more information in the next *Cereal Sentinel*.

# Spring Soil Testing

The *Idaho Grain* magazine reported the Idaho Wheat Commission's 1998 protein survey in the winter issue. As I've suggested before, wheat protein can indicate the effectiveness of our nitrogen management.

High protein indicates excessive available nitrogen for the season's growing conditions. Low protein indicates the opposite, that wheat production was limited due to a shortage of N.

The protein results for southwest Idaho are similar to the results in 1997 and just as disturbing. About a fifth of western Idaho wheat had less than 9.5% protein in the 1998 season representing a significant loss of production.

At the other extreme, 40% of producers marketed wheat with over 10.6% protein. It means that much of the wheat produced had excessive nitrogen available. This excessive nitrogen contributed to increased lodging, more difficult combining, higher dockage, wasted fertilizer, and in some cases lower yield, all of which reduced financial returns to producers.

The survey results suggest that significant income is lost to producers from either excessive or inadequate nitrogen. Spring soil testing and knowing the residual N prior to planting is critical for insuring maximum economic returns.

UNIVERSITY OF IDAHO  
MOSCOW ID 83844-2338

Return Address:

Parma Research & Extension Center  
29603 U of I Lane  
Parma ID 83660

BULK RATE US Postage PAID Permit No. 27 Parma ID 83660
--

AN EQUAL OPPORTUNITY EMPLOYER

Address Correction Requested  
Please Forward