

## **2008 WINTER ELITE WHEAT TRIAL**

Lamont D. Saunders and Clinton C. Shock  
Malheur Experiment Station  
Oregon State University  
Ontario, OR

### **Introduction**

Malheur Experiment Station provides one location for the Oregon State University Statewide Winter Elite Wheat variety testing program. The Ontario location compares soft white winter wheat variety performance in a furrow-irrigated, high-yield-potential environment. Plant breeders can use information on variety performance to compare advanced lines with released cultivars. Growers can use this information to make decisions about which soft white winter wheat varieties may perform best in their fields.

### **Methods**

The trial was grown on Owyhee silt loam where the previous crop was sweet corn. After harvest, the corn stalks were flailed, the field was disked, and the soil was sampled and analyzed. Analysis showed pH at 8.0, low available nitrogen (N) (nitrate plus ammonium) at 9 ppm, low sulfates at 12 ppm, low manganese (Mn) at 4 ppm and very low iron (Fe) at 6 ppm. Based on soil analyses, 50 lb N, 30 lb phosphate ( $P_2O_5$ ), 46 lb sulfate-S, 100 lb elemental sulfur (S), 5 lb zinc (Zn), 6 lb manganese (Mn) and 2 lb boron (B) were broadcast on September 28, 2007. The soil was deep ripped, plowed, and ground hogged to prepare the seedbed. The field was corrugated into 30-inch rows.

The Winter Elite Wheat Trial comprised 38 soft white winter (SWW) wheat varieties and lines, and two club wheats. Seed was treated with Dividend<sup>®</sup> XL fungicide at 6 ml/1 kg of seed. The experimental design was a randomized complete block with three replications. Grain was planted on October 16, 2007 with a small-plot grain drill in plots 5 by 20 ft, and the field was recorrugated. Seed was planted at 30 live seed/ft<sup>2</sup>, corresponding to approximately 110 lb/acre.

On April 15, 100 pounds N/acre was broadcast. Broadleaf weeds were controlled with Bronate<sup>®</sup> Advanced<sup>™</sup> herbicide at 24 oz/acre applied on May 2. Alleys were cut with a sickle bar mower on June 30. The dates of heading and plant height at maturity were recorded prior to harvest. The date of 50 percent heading was when half of the culms had extended the peduncle above the collar of the flag leaf. The lengths of the plots were measured on July 17. The grain was harvested on July 21 with a Wintersteiger plot combine.

## Results

In 2008, the heading date ranged from May 19 (day of year 140) for ORSS-1757, ID99-435, BU6W00-523, 'Goetze' (ORH010920), 'Westbred 528', 'Salute', OR2040726, ORH010837, and OSUPOP-35-2CL to May 30 (day of year 151) for 'Masami' (Table 1). Height at maturity ranged from 32.3 inches for 'Gene' to 39.3 inches for ID99-435. No lodging was observed in any of the varieties. Test weights ranged from 56.2 lb/bu for 'Xerpha' to 61.3 lb/bu for 'Westbred 528'. Protein content of the grain ranged from 8.2 percent for OR2050301, ORH010837, and OR9901619 to 9.8 percent for ORCF-101.

Yields ranged from 110.7 bu/acre for ORCF-101 to 146.6 bu/acre for OSUPOP-35-2CL. Among the highest yielding wheat varieties in 2008 were the top 27 lines in the trial from OSUPOP-35-2CL to OR2050299 as shown in Table 2. 'Stephens' continues to show excellent performance, yielding among the top varieties in the trial at 136.5 bu/acre.

Yield and test weight differences were compared using ANOVA and least significant differences at the 5 percent probability level, LSD (0.05). Differences in yield or test weight between varieties should be equal to or greater than the corresponding LSD (0.05) value before any variety is considered different from another in this trial. Information on previous wheat trials at Malheur Experiment Station is available on the web at <http://cropinfo.net>. Information on the performance of the varieties in this trial at other Oregon locations is available on the web at [http://cropandsoil.oregonstate.edu/wheat/state\\_performance\\_data.htm](http://cropandsoil.oregonstate.edu/wheat/state_performance_data.htm).

Table 1. Winter Elite Wheat Trial data on market class, test weight, percent moisture, protein, plant height, and 50 percent heading date, Malheur Experiment Station, Oregon State University, Ontario, OR, 2008.

Variety	Class	2008 Agronomic data				
		Test weight	Harvest moisture	Plant height	Heading date	Protein
		lbs/bu	%	inches	DOY	%
OSUPOP-35-2CL	SWW	60.2	10.8	38.0	140.0	9.3
ORF2 267-03	SWW	60.0	10.7	38.7	148.0	8.6
Tubbs-06/Rod blend	SWW	59.7	10.7	39.0	142.0	9.3
Legion	SWW	59.7	10.8	39.0	145.0	8.6
OR2050293	SWW	60.1	10.8	34.0	141.0	8.8
OR2050301	SWW	57.7	10.7	35.7	145.0	8.2
OR2051126	SWW	57.3	10.7	34.0	141.0	8.3
ORH010837	SWW	58.2	10.8	33.7	140.0	8.2
OR2050910	SWW	59.0	10.7	35.7	148.0	8.8
OR2040726	SWW	60.9	10.9	33.7	140.0	8.5
Salute	SWW	60.0	10.7	37.0	140.0	9.4
OR2040728	SWW	60.5	10.9	34.3	141.0	8.6
Stephens	SWW	60.0	10.5	34.7	141.0	8.8
Xerpha	SWW	56.2	10.8	36.0	147.0	8.6
AP700CL	SWW	60.7	10.7	38.0	145.0	8.8
ID9364901A	SWW	60.5	10.8	37.0	141.0	8.3
Tubbs-06	SWW	59.4	10.7	38.7	142.0	8.6
OR2050914	SWW	59.1	10.7	34.3	147.0	8.4
ID00859	SWW	59.4	10.8	34.3	147.0	9.3
Westbred 528	SWW	61.3	10.7	35.0	140.0	9.0
Weatherford	SWW	60.5	10.7	38.3	148.0	9.2
Goetze (ORH010920)	SWW	58.8	10.9	33.3	140.0	8.9
Masami	SWW	59.9	10.7	38.3	151.0	9.1
Gene	SWW	58.6	10.7	32.3	142.0	9.4
Tubbs	SWW	59.6	10.7	37.3	145.0	8.3
BU6W00-523	SWW	60.2	10.9	36.0	140.0	8.7
OR2050299	SWW	58.1	10.7	36.0	142.0	8.4
ORCF-103	SWW	59.3	10.8	35.3	147.0	8.4
Skiles (ORH010085)	SWW	60.9	10.7	33.3	147.0	9.6
ORCF-102	SWW	60.2	10.7	38.0	147.0	9.1
OR9901619	SWW	59.1	10.8	38.3	147.0	8.2
ID99-435	SWW	59.6	11.0	39.3	140.0	8.9
Idaho 587	SWW	59.2	10.8	34.0	141.0	8.5
Cara	Club	58.7	10.7	34.7	147.0	9.0
Bitterroot	SWW	60.3	11.1	39.0	142.0	8.9
ORSS-1757	SWW	59.1	10.7	36.7	140.0	8.4
Coda	Club	60.1	10.6	36.0	147.0	8.6
Madsen	SWW	60.3	10.8	35.3	147.0	9.6
ORCF-101	SWW	59.8	10.6	34.3	147.0	9.8
Site average		59.5	10.8	36.1	143.8	8.8
LSD (0.05)		1.6	0.2	2.0		0.8

Table 2. Winter Elite Wheat Trial market class, yield ranked by 2008 productivity, and 2-year and 3-year average yields. All yields are at 12 percent moisture. Grain yields shaded in gray are not significantly different from the highest yield at this site. Malheur Experiment Station, Oregon State University, Ontario, OR, 2008.

Variety	Class	2008 yield data		2-year yield data		3-year yield data	
		Yield bu/ac	Rank	Yield bu/ac	Rank	Yield bu/ac	Rank
OSUPOP-35-2CL	SWW	146.6	1				
ORF2 267-03	SWW	146.5	2				
Tubbs-06/Rod blend	SWW	146.3	3	133.3	4		
Legion	SWW	146.3	5	139.5	1		
OR2050293	SWW	146.3	4				
OR2050301	SWW	146.1	6				
OR2051126	SWW	142.0	7				
ORH010837	SWW	141.9	8	129.8	6	119.6	2
OR2050910	SWW	139.1	9	129.0	8		
OR2040726	SWW	138.9	10				
Salute	SWW	138.2	11	127.5	10		
OR2040728	SWW	138.2	12				
Stephens*	SWW	136.5	13	133.4	3	124.5	1
Xerpha	SWW	136.4	15	129.1	7		
AP700CL	SWW	136.4	14	120.4	19		
ID9364901A	SWW	135.9	16	133.6	2		
Tubbs-06	SWW	133.7	17	122.8	17	118.5	5
OR2050914	SWW	133.3	18	123.1	15		
ID00859	SWW	133.2	19				
Westbred 528	SWW	132.7	20	125.6	13	115.9	8
Weatherford*	SWW	132.5	21	126.6	11	118.7	4
Goetze (ORH010920)	SWW	132.3	22	127.5	9	119.4	3
Masami	SWW	131.5	23	129.8	5	118.2	6
Gene*	SWW	131.3	24	118.9	21	108.9	15
Tubbs	SWW	130.9	25	126.6	12	115.5	9
BU6W00-523	SWW	130.7	26	122.9	16		
OR2050299	SWW	129.7	27				
ORCF-103	SWW	128.6	28	117.2	23	113.4	11
Skiles (ORH010085)	SWW	127.5	29	124.9	14	117.3	7
ORCF-102	SWW	127.0	30	114.2	25	109.1	14
OR9901619	SWW	126.4	31	118.7	22	111.7	12
ID99-435	SWW	126.0	32	119.1	20	110.9	13
Idaho 587	SWW	124.4	33	121.1	18	113.7	10
Cara	Club	122.4	34	104.3	29	96.2	20
Bitterroot	SWW	120.9	35	114.0	26	107.0	16
ORSS-1757	SWW	120.1	36	114.7	24	105.9	17
Coda	Club	119.8	37				
Madsen*	SWW	113.9	38	109.0	27	105.7	18
ORCF-101	SWW	110.7	39	105.0	28	100.4	19
Site average		132.8		122.8		112.5	
LSD (0.05)		16.9		12.1		10.5	