



## Quality of western Canadian wheat exports, 2014

### Wheat, Canada Western Red Spring

#### Quality parameter

Wheat, Canada Western Red Spring - Atlantic export cargo composites - Third and fourth quarters 2013-2014 - Allis-Chalmers mill

Quality parameter <sup>1</sup>	No. 1 CWRS	No. 2 CWRS
	Guaranteed minimum protein content, %	
	13.0 - 13.9	
<b>Wheat</b>		
Test Weight, kg/hL	83.3	83.1
Weight per 1000 kernels, g	35.4	35.1
Particle Size Index, %	54	54
Protein content, %	13.2	13.4
Protein content, % (dry matter basis)	15.3	15.5
Ash content, %	1.54	1.55
Falling number, s	415	450
<b>Milling Flour Yield</b>		
Clean wheat basis, %	76.0	75.8
0.50% ash basis, %	77.0	76.3
<b>Flour</b>		
Protein content, %	12.4	12.5
Wet gluten content, %	33.8	33.9
Gluten Index, %	90.5	92.0
Ash content, %	0.48	0.49
Brightness, <sup>3</sup> L*	91.2	91.2
Redness, <sup>3</sup> a*	0.5	0.5
Yellowness, <sup>3</sup> b*	9.84	9.71
Starch damage, %	9.4	9.3
Amylograph Peak Viscosity, BU	555	535
<b>Farinogram</b>		
Absorption, %	68.4	68.4
Dough Development time, min	7	7.25
Stability, min	11.5	10.5
Mixing tolerance index, BU	25	30
<b>Extensogram (135 minutes)</b>		
Maximum resistance, BU	481	490
Extensibility - Length, cm	19.6	19.4
Area, cm <sup>2</sup>	119	120
<b>Alveogram</b>		
P (height x 1.1), mm	147	147

Length, mm	68	71
W, x 10 <sup>-4</sup> joules	368	376
<b>Baking (Canadian Short Process baking test)</b>		
Absorption, %	72	72
Mixing time, min	4.3	4.3
Mixing energy, W-h/kg of dough	9.0	9.3
Loaf volume, cm <sup>3</sup> /100 g flour	980	945

<sup>1</sup> Data are reported on a 13.5% moisture basis for wheat and a 14.0% moisture basis for flour.

**Wheat, Canada Western Red Spring - Pacific export cargo composites - Third and fourth quarters 2013-2014 - Allis-Chalmers mill**

Quality parameter <sup>1</sup>	No. 1 CWRS		No. 2 CWRS	
	Guaranteed minimum protein content, %			
	12.0-12.9	13.0-13.9	12.0-12.9	13.0-13.9
<b>Wheat</b>				
Test Weight, kg/hL	84.0	83.8	83.7	83.2
Weight per 1000 kernels, g	37.4	37.2	38.0	38.4
Particle Size Index, %	52	54	53	54
Protein content, %	12.6	13.1	12.6	13.1
Protein content, % (dry matter basis)	14.6	15.1	14.5	15.2
Ash content, %	1.5	1.49	1.5	1.52
Falling number, s	465	465	465	435
<b>Milling Flour Yield</b>				
Clean wheat basis, %	76.3	76.5	76.4	76.5
0.50% ash basis, %	77.3	78.0	77.4	77.0
<b>Flour</b>				
Protein content, %	12.0	12.5	11.9	12.6
Wet gluten content, %	33.3	35.3	33.1	36.0
Gluten Index, %	82.3	83.6	83.6	80.7
Ash content, %	0.48	0.47	0.48	0.49
Brightness, <sup>3</sup> L*	91.4	91.3	91.4	91.3
Redness, <sup>3</sup> a*	0.47	0.49	0.46	0.32
Yellowness, <sup>3</sup> b*	9.82	9.9	9.95	9.78
Starch damage, %	9.4	9.0	9.3	9.1
Amylograph Peak Viscosity, BU	540	620	595	560
<b>Farinogram</b>				
Absorption, %	68.6	68.9	68.2	69.5
Dough Development time, min	5.75	5.5	6	5.75
Stability, min	9.0	10.5	10.0	8.5
Mixing tolerance index, BU	30	20	25	30
<b>Extensogram (135 minutes)</b>				
Maximum resistance, BU	440	437	432	398
Extensibility - Length, cm	20.1	19.8	19.2	21.1
Area, cm <sup>2</sup>	113	111	107	109
<b>Alveogram</b>				
P (height x 1.1), mm	143	139	140	141

Length, mm	72	74	64	70
W, x 10 <sup>-4</sup> joules	354	354	320	345
<b>Baking (Canadian Short Process baking test)</b>				
Absorption, %	73	73	72	74
Mixing time, min	3.9	3.9	3.8	3.9
Mixing energy, W-h/kg of dough	8.4	9.0	7.8	8.8
Loaf volume, cm <sup>3</sup> /100 g flour	975	970	970	950

<sup>1</sup> Data are reported on a 13.5% moisture basis for wheat and a 14.0% moisture basis for flour.

### Moisture content, test weight and other grade determining factors

#### Atlantic export cargoes of CWRS wheat, third and fourth quarters, 2013-2014

<b>Grade determining factors assessed during grading of individual cargoes by Industry Services, Canadian Grain Commission, at time of vessel loading.</b>				
	<b>No. 1 CWRS</b>			
	<b>Guaranteed minimum protein content, %</b>			
	<b>11.5</b>	<b>13.5</b>	<b>Not segregated by protein content</b>	
Number of cargoes	1	2	10	
Thousands of tonnes	9	12	207	
<b>Moisture content, %</b>				
Weighted mean	11.8	13.7	14	
Standard deviation	NSD	0.42	0.15	
Minimum	11.8	13.5	13.7	
Maximum	11.8	14.1	14.2	
<b>Test weight, kg/hL</b>				
Weighted mean	84.5	84.3	84.1	
Standard deviation	NSD	0.28	0.39	
Minimum	84.5	84.1	83.6	
Maximum	84.5	84.5	84.8	
<b>Wheats of other classes, %</b>				
Weighted mean	0.34	0.151	0.538	
<b>Cereal grains other than wheat, %</b>				
Weighted mean	0.054	0.103	0.09	

<b>Grade determining factors assessed during grading of individual cargoes by Industry Services, Canadian Grain Commission, at time of vessel loading.</b>				
	<b>No. 2 CWRS</b>			
	<b>Guaranteed minimum protein content, %</b>			
	<b>12.5</b>	<b>13</b>	<b>13.5</b>	<b>Not segregated by protein content</b>
Number of cargoes	2	3	2	50
Thousands of tonnes	34	60	43	933

<b>Moisture content, %</b>				
Weighted mean	13.8	13.7	13.8	13.9
Standard deviation	NSD	0.2	0.35	0.31
Minimum	13.8	13.5	13.7	13.1
Maximum	13.8	13.9	14.2	14.4
<b>Test weight, kg/hL</b>				
Weighted mean	84.3	84.1	83.8	83.7
Standard deviation	0.69	0.49	0.45	0.74
Minimum	83.7	83.7	83.3	80.7
Maximum	84.7	84.7	83.9	84.7
<b>Wheats of other classes, %</b>				
Weighted mean	1.03	0.983	1.52	1.15
<b>Cereal grains other than wheat, %</b>				
Weighted mean	0.048	0.077	0.069	0.073

### Pacific export cargoes of CWRS wheat, third and fourth quarters, 2013-2014

<b>Grade determining factors assessed during grading of individual cargoes by Industry Services, Canadian Grain Commission, at time of vessel loading.</b>						
	<b>No. 1 CWRS</b>					
	<b>Guaranteed minimum protein content, %</b>					
	<b>12.0</b>	<b>12.5</b>	<b>13.0</b>	<b>13.5</b>	<b>14.0</b>	<b>Not segregated by protein content</b>
Number of cargoes	1	6	9	1	2	84
Thousands of tonnes	11	222	246	14	112	2117
<b>Moisture content, %</b>						
Weighted mean	11.9	13	12.9	13.3	12.9	12.9
Standard deviation	NSD	0.31	0.35	NSD	0.21	0.33
Minimum	11.9	12.6	12.5	13.3	12.7	11.3
Maximum	11.9	13.5	13.6	13.6	13	13.5
<b>Test weight, kg/hL</b>						
Weighted mean	84.7	84.3	84.3	83.8	83.8	84.3
Standard deviation	NSD	0.15	0.53	NSD	NSD	0.41
Minimum	84.7	84.1	83.1	83.8	83.8	83.2
Maximum	84.7	84.5	84.8	83.8	83.8	85.4
<b>Wheats of other classes, %</b>						
Weighted mean	0.2	0.461	0.313	0.25	0.26	0.458
<b>Cereal grains other than wheat, %</b>						
Weighted mean	0.174	0.125	0.07	0.107	0.104	0.101

<b>Grade determining factors assessed during grading of individual cargoes by Industry Services, Canadian Grain Commission, at time of vessel loading.</b>				
	<b>No. 2 CWRS</b>			
	<b>Guaranteed minimum protein content, %</b>			
	<b>12.5</b>	<b>13.0</b>	<b>13.5</b>	<b>Not segregated by protein content</b>
Number of cargoes	10	8	1	73
Thousands of tonnes	263	195	33	1728
<b>Moisture content, %</b>				
Weighted mean	12.6	12.8	13.3	11.9
Standard deviation	0.46	0.27	NSD	0.32
Minimum	12	12.4	13.3	13.3
Maximum	13.3	13.2	13.3	11.9
<b>Test weight, kg/hL</b>				
Weighted mean	84.2	83.9	83.6	84.1
Standard deviation	0.4	0.35	NSD	0.42
Minimum	83.2	83.4	83.6	83.3
Maximum	84.6	84.4	83.6	85.6
<b>Wheats of other classes, %</b>				
Weighted mean	0.941	0.684	0.3	0.453
<b>Cereal grains other than wheat, %</b>				
Weighted mean	0.192	0.154	0.178	0.144

## **Wheat, Canada Western Amber Durum**

### **Wheat, No. 1, 2, 3 and 4 Canada Western Amber Durum - Bicoastal export cargo composites**

<b>Quality parameter<sup>2</sup></b>	<b>No. 1 CWAD</b>	<b>No. 2 CWAD</b>	<b>No. 3 CWAD</b>	<b>No. 4 CWAD</b>
<b>Wheat</b>				
Test weight, kg/hL	83.9	83.3	82.0	81.5
Weight per 1000 kernels, g	46.6	45.2	45.5	43.9
Vitreous kernels, %	85.3	74.0	52.8	34.6
Protein content, %	11.9	12.1	12.0	11.7
Ash content, %	1.48	1.51	1.54	1.52
Falling number, sec	490	485	445	400
<b>Milling - Allis-Chalmers Mill</b>				
Total milling yield, %	76.1	76.1	75.9	75.1
Semolina yield, %	67.3	66.6	65.7	64.3
<b>Speck count per 50 cm<sup>2</sup></b>				
Total specks	20	21	26	21
Dark specks	3	4	5	2
Large specks ( $\geq 0.06 \text{ mm}^2$ )	10	12	15	11
<b>Semolina<sup>3</sup></b>				
Protein content, %	11.2	11.2	11.3	11.0
Wet gluten content, %	28.1	28.3	28.4	27.7

Gluten index, %	75	73	75	75
Ash content, %	0.67	0.70	0.72	0.69
Yellow pigment content, ppm	9.3	9.2	9.2	9.0
Yellowness, b*	31.0	31.0	30.3	29.7
<b>Dough sheet colour at 24 hrs</b>				
Brightness, L*	77.3	78.3	77.4	77.3
Redness, a*	-0.2	0.0	0.4	0.0
Yellowness, b*	36.0	34.7	32.0	35.3
<b>Alveogram</b>				
P (height x 1.1), mm	73	69	71	64
Length, mm	75	73	74	76
P/L	0.97	0.95	0.96	0.84
W, x 10 <sup>-4</sup> joules	174	161	168	155
<b>Spaghetti colour dried at 85°C</b>				
Brightness, L*	74.0	73.4	72.8	73.5
Redness, a*	3.1	3.4	3.8	3.5
Yellowness, b*	64.1	64.5	63.3	64.5
<b>Spaghetti texture dried at 85°C</b>				
Peak cutting force, g	510	519	526	504
Dry strand diameter, mm	1.66	1.66	1.65	1.65
Cooked strand diameter, mm	2.41	2.41	2.41	2.41

<sup>2</sup> Data are reported on a 13.5% moisture basis for wheat and a 14.0% moisture basis for flour.

<sup>3</sup> Semolina analysis is conducted using granular products with a constant extraction rate of 70%.

### Moisture content, test weight and other grade determining factors

#### Export cargoes of CWAD wheat, third and fourth quarters, 2013-2014

<b>Grade determining factors assessed during grading of individual cargoes by Industry Services, Canadian Grain Commission, at time of vessel loading.</b>						
	<b>No. 1 CWAD</b>		<b>No. 2 CWAD</b>		<b>No. 3 CWAD</b>	
	<b>Atlantic</b>	<b>Pacific</b>	<b>Atlantic</b>	<b>Pacific</b>	<b>Atlantic</b>	<b>Pacific</b>
Number of cargoes	24	3	40	32	23	3
Thousands of tonnes	417	77	572	430	456	176
<b>Moisture content, %</b>						
Weighted mean	12.1	11.7	12.6	12	13.5	12.6
Standard deviation	0.36	0.31	0.41	0.59	0.41	0.4
Minimum	11.2	11.4	11.7	10.6	12.4	12.2
Maximum	12.7	12	13.4	13.5	14	13
<b>Test weight, kg/hL</b>						
Weighted mean	83.6	84	83.2	83.4	82.2	82.6
Standard deviation	0.56	0.6	0.62	0.52	0.53	0.42
Minimum	82.5	83.1	82	82.2	81.5	82.3
Maximum	85	84.3	84.5	84.2	83.3	83.1
<b>Vitreous kernels, %</b>						
Weighted mean	82.7	83.6	74.1	76	60.8	67.2
<b>Wheats of other classes, %</b>						

Weighted mean	0.612	0.739	0.827	0.749	0.996	1.034
<b>Cereal grains other than wheat, %</b>						
Weighted mean	0.071	0.085	0.127	0.096	0.098	0.136

## Wheat, Canada Western Hard White Spring

Note: NSD indicates no standard deviation due to an insufficient number of samples.

### Moisture content, test weight and other grade determining factors

Export cargoes of CWHWS wheat, third and fourth quarters, 2013-2014

<b>Grade determining factors assessed during grading of individual cargoes by Industry Services, Canadian Grain Commission, at time of vessel loading.</b>	
	<b>No. 1 CWHWS</b>
Number of cargoes	1
Thousands of tonnes	1
<b>Moisture content, %</b>	
Weighted mean	13.5
Standard deviation	NSD
Minimum	13.5
Maximum	13.5
<b>Test weight, kg/hL</b>	
Weighted mean	82.8
Standard deviation	NSD
Minimum	82.8
Maximum	82.8
<b>Wheats of other classes, %</b>	
Weighted mean	0.7
<b>Cereal grains other than wheat, %</b>	
Weighted mean	0.008

## Wheat, Canada Prairie Spring Red

### Quality parameter

Wheat, Canada Prairie Spring Red - Bicoastal export cargo composites - Third and fourth quarters 2013-2014 - Allis-Chalmers mill

Quality parameter <sup>4</sup>	No. 1 CPSR
<b>Wheat</b>	
Test Weight, kg/hL	82.7
Weight per 1000 kernels, g	42.0
Particle Size Index, %	56
Protein content, %	11.3
Protein content, % (dry matter basis)	13.1
Ash content, %	1.46
Falling number, s	405
<b>Milling Flour Yield</b>	

Clean wheat basis, %	75.9
0.50% ash basis, %	76.9
<b>Flour</b>	
Protein content, %	10.5
Wet gluten content, %	28.3
Gluten Index, %	92.8
Ash content, %	0.48
Brightness, <sup>3</sup> L*	91.8
Redness, <sup>3</sup> a*	0.33
Yellowness, <sup>3</sup> b*	8.41
Starch damage, %	8.2
Amylograph Peak Viscosity, BU	565
<b>Farinogram</b>	
Absorption, %	64.3
Dough Development time, min	6.25
Stability, min	9.5
Mixing tolerance index, BU	30
<b>Extensogram (135 minutes)</b>	
Maximum resistance, BU	456
Extensibility - Length, cm	18.7
Area, cm <sup>2</sup>	110
<b>Alveogram</b>	
P (height x 1.1), mm	114
Length, mm	77
W, x 10 <sup>-4</sup> joules	291
<b>Baking (Canadian Short Process baking test)</b>	
Absorption, %	68
Mixing time, min	4.1
Mixing energy, W-h/kg	8.7
Loaf volume, cm <sup>3</sup> /100 g flour	910

<sup>4</sup> Data are reported on a 13.5% moisture basis for wheat and a 14.0% moisture basis for flour.

### Moisture content, test weight and other grade determining factors

Note: NSD indicates no standard deviation due to an insufficient number of samples.

### Export cargoes of CPSR wheat, third and fourth quarters, 2013-2014

<b>Grade determining factors assessed during grading of individual cargoes by Industry Services, Canadian Grain Commission, at time of vessel loading.</b>		
	<b>No. 1 CPSR</b>	<b>No. 2 CPSR</b>
Number of cargoes	23	1
Thousands of tonnes	421	11
<b>Moisture content, %</b>		
Weighted mean	13.4	13.5
Standard deviation	0.38	NSD
Minimum	12.5	13.5
Maximum	14.2	13.5
<b>Test weight, kg/hL</b>		



Weighted mean	82.9	83.7
Standard deviation	0.34	NSD
Minimum	82.2	83.7
Maximum	83.5	83.7
<b>Wheats of other classes, %</b>		
Weighted mean	1.065	1.2
<b>Cereal grains other than wheat, %</b>		
Weighted mean	0.178	0.82

## Wheat, Canada Western Red Winter

Note: NSD indicates no standard deviation due to an insufficient number of samples.

### Moisture content, test weight and other grade determining factors

Export cargoes of CWRW wheat, third and fourth quarters, 2013-2014

<b>Grade determining factors assessed during grading of individual cargoes by Industry Services, Canadian Grain Commission, at time of vessel loading.</b>		
	<b>No. 2 CWRW</b>	<b>No. 3 CWRW</b>
Number of cargoes	3	1
Thousands of tonnes	7	14
<b>Moisture content, %</b>		
Weighted mean	13.9	13.3
Standard deviation	NSD	NSD
Minimum	13.9	13.3
Maximum	13.9	13.3
<b>Test weight, kg/hL</b>		
Weighted mean	82.7	82.9
Standard deviation	0.2	NSD
Minimum	82.4	82.9
Maximum	82.8	82.9
<b>Wheats of other classes, %</b>		
Weighted mean	2.695	6
<b>Cereal grains other than wheat, %</b>		
Weighted mean	0.182	0.02

## Wheat, Canada Western Soft White Spring

### Moisture content, test weight and other grade determining factors

Export cargoes of CWSWS wheat, third and fourth quarters, 2013-2014

<b>Grade determining factors assessed during grading of individual cargoes by Industry Services, Canadian Grain Commission, at time of vessel loading.</b>		
	<b>No. 1 CWSWS</b>	<b>No. 2 CWSWS</b>
Number of cargoes	2	5

Thousands of tonnes	38	96
<b>Moisture content, %</b>		
Weighted mean	13.1	13.3
Standard deviation	0.21	0.38
Minimum	13	13
Maximum	13.3	14
<b>Test weight, kg/hL</b>		
Weighted mean	84.9	85.3
Standard deviation	0.27	0.44
Minimum	84.7	84.5
Maximum	85.1	85.6
<b>Wheats of other classes, %</b>		
Weighted mean	1.254	1.735
<b>Cereal grains other than wheat, %</b>		
Weighted mean	0.06	0.059