



Quality of western Canadian wheat exports, 2013

Introduction

This bulletin reports quality data for cargoes of all classes of western Canadian wheat exported by ship from February 1 to July 31, 2013. Two types of information are presented:

- Distribution tables for moisture content, test weight and other grade determining factors assessed during grading of individual cargoes by Industry Services, Canadian Grain Commission, at time of vessel loading.
- Quality data (wheat and flour characteristics, milling, end-use quality) for weighted composite samples that represent all cargoes of a given grade (and protein segregate where appropriate) exported during the six-month period. Separate composites representing Atlantic and Pacific shipments were prepared and tested for Wheat, Canada Western Red Spring. Bicoastal composites were prepared and tested for Wheat, Canada Western Amber Durum and Wheat, Canada Prairie Spring Red. Quality data are not available for classes or protein segregates where insufficient sample was received for compositing due to low/no tonnage exported.

Variety registration and class designation lists ensure that a high degree of uniformity in quality is maintained in export shipments. Under the authority of the *Canada Grain Act*, the Canadian Grain Commission establishes and maintains lists of wheat varieties eligible to be graded into each wheat class. A listing of varieties included in the Canadian Grain Commission [variety designation list](#) for each class may be found on the Canadian Grain Commission website.

Wheat, Canada Western Red Spring

Wheat, Canada Western Red Spring (CWRS) is well known for its excellent milling and baking quality. Four milling grades are available, the top two of which are further segregated according to protein content. Guaranteed minimum protein content is reported on a 13.5% moisture basis.

Higher protein CWRS wheat is highly suitable for blending and for the production of high volume pan bread. It is also commonly used alone or in blends with other wheat for the production of hearth bread, steamed bread, noodles, flat bread and common wheat pasta.

The predominant varieties of Wheat, Canada Western Red Spring represented in export cargoes were Harvest, Lillian, CDC Go, and Unity, as well as Stettler, CDC Abound, Superb, Glenn and Goodeve.

Quality parameter

Wheat, Canada Western Red Spring - Atlantic export cargo composites - Third and fourth quarters 2012-2013

Quality parameter ¹	No. 2 CWRS or better
	Guaranteed minimum protein content, %
Wheat	
Weight per 1000 kernels, g	30.9
Protein content, %	14.5
Protein content, % (dry matter basis)	16.8
Ash content, %	1.65

Falling number, s	460
PSI	54
Milling Flour Yield	
Clean wheat basis, %	76.0
0.50% ash basis, %	75.5
Flour	
Protein content, %	13.7
Wet gluten content, %	37.6
Ash content, %	0.51
Brightness, ³ L*	91.2
Redness, ³ a*	0.54
Yellowness, ³ b*	9.75
Starch damage, %	8.1
Maltose value, g/100g	740
Farinogram	
Absorption, %	67.3
Development time, min	7.0
Mixing tolerance index, BU	25
Stability, min	11.0
Extensogram	
Length, cm	22.8
Height at 5 cm, BU	242
Maximum height, BU	490
Area, cm ²	140
Alveogram	
Length, mm	64
P (height x 1.1), mm	117
W, x 10 ⁻⁴ joules	290
Baking (Canadian Short Process baking test)	
Absorption, %	70
Mixing energy, W-h/kg	10.5
Mixing time, min	4.0
Loaf volume, cm ³ /100 g flour	1100

¹ Unless otherwise specified, 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 2012-2013

Quality parameter ¹	No. 1 CWRS	No. 2 CWRS	No. 2 CWRS or better
		Guaranteed minimum protein content, %	
	13.0-13.9	13.0-13.9	14.5
Wheat			
Weight per 1000 kernels, g	35.4	35.1	34.2
Protein content, %	13.6	13.9	14.5
Protein content, % (dry matter basis)	15.7	16.1	16.8

Ash content, %	1.57	1.62	1.64
Falling number, s	465	440	430
PSI	53	54	54
Milling Flour Yield			
Clean wheat basis, %	76.3	76.0	76.2
0.50% ash basis, %	76.3	75.5	76.2
Flour			
Protein content, %	13.0	13.3	13.8
Wet gluten content, %	36.6	37.2	39.5
Ash content, %	0.50	0.51	0.50
Brightness, ³ L*	91.4	91.3	91.2
Redness, ³ a*	0.49	0.51	0.54
Yellowness, ³ b*	9.90	9.85	9.82
Starch damage, %	8.8	8.5	8.3
Maltose value,g/100 g	675	595	630
Farinogram			
Absorption, %	68.3	68.1	69.0
Development time, min	6.0	4.5	5.0
Mixing tolerance index, BU	20	27	11
Stability, min	10.5	11.0	11.0
Extensogram			
Length, cm	20.3	22.9	24.3
Height at 5 cm, BU	250	210	202
Maximum height,BU	443	388	386
Area, cm ²	117	116	123
Alveogram			
Length, mm	61	65	56
P (height x 1.1),mm	133	125	127
W, x 10 ⁻⁴ joules	305	295	271
Baking (Canadian Short Process baking test)			
Absorption, %	71	71	72
Mixing energy, W-h/kg	9.2	8.9	8.9
Mixing time, min	3.5	3.4	3.4
Loaf volume,cm ³ /100 g flour	1020	1090	1035

¹ Unless otherwise specified, 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, 2012-2013

Grade determining factors assessed during grading of individual cargoes by Industry Services, Canadian Grain Commission, at time of vessel loading.			
	No. 1 CWRS		
	Guaranteed minimum protein content, %		Not segregated by protein content
	13.5	14.0	
Number of cargoes	7	11	6

Thousands of tonnes	41	121	122
Moisture content, %			
Weighted mean	12.6	12.6	12.7
Standard deviation	0.37	0.27	0.21
Minimum	12	12.2	12.4
Maximum	13	13.1	13
Test weight, kg/hL			
Weighted mean	83.5	83.9	83.1
Standard deviation	0.5	0.54	0.43
Minimum	82.8	83	82.5
Maximum	84.1	84.6	83.6
Wheats of other classes, %			
Weighted mean	0.193	0.144	0.367
Cereal grains other than wheat, %			
Weighted mean	0.023	0.023	0.05

Grade determining factors assessed during grading of individual cargoes by Industry Services, Canadian Grain Commission, at time of vessel loading.				
	No. 2 CWRS			
	Guaranteed minimum protein content, %			Not segregated by protein content
	13.5	14	14.5	
Number of cargoes	1	3	2	46
Thousands of tonnes	9	58	32	794
Moisture content, %				
Weighted mean	12.3	12.9	12.7	12.8
Standard deviation	0	0	0	0.28
Minimum	12.3	12.9	12.7	11.8
Maximum	12.3	12.9	12.7	13.4
Test weight, kg/hL				
Weighted mean	83.5	82.9	83	82.6
Standard deviation	0	0.22	0	0.77
Minimum	83.5	82.8	83	80.1
Maximum	83.5	83.2	83	84.4
Wheats of other classes, %				
Weighted mean	0.3	0.64	0.508	0.715
Cereal grains other than wheat, %				
Weighted mean	0.021	0.064	0.028	0.079

Pacific export cargoes of CWRS wheat, third and fourth quarters, 2012-2013

Grade determining factors assessed during grading of individual cargoes by Industry Services, Canadian Grain Commission, at time of vessel loading.					
	No. 1 CWRS				
	Guaranteed minimum protein content, %				Not segregated by protein content
	12.5	13.0	13.5	14.5	
Number of cargoes	1	3	3	3	38
Thousands of tonnes	12	92	40	77	939
Moisture content, %					
Weighted mean	12	12.2	12.1	12.6	12.5
Standard deviation	0	0.4	0.26	0.17	0.53
Minimum	12	12	11.9	12.3	10.8
Maximum	12	12.7	12.4	12.6	13.3
Test weight, kg/hL					
Weighted mean	84.7	83.7	84.1	83.2	83.6
Standard deviation	0	0.4	0.11	0.2	0.38
Minimum	84.7	83.5	84	83.1	82.9
Maximum	84.7	84.2	84.2	83.5	84.3
Wheats of other classes, %					
Weighted mean	0.4	0.712	0.389	0.275	0.247
Cereal grains other than wheat, %					
Weighted mean	0.075	0.093	0.079	0.085	0.099

Grade determining factors assessed during grading of individual cargoes by Industry Services, Canadian Grain Commission, at time of vessel loading.					
	No. 2 CWRS				
	Teneur minimale garantie en protéines, %				Not segregated by protein content
	13.0	13.5	14.0	14.5	
Number of cargoes	1	15	7	3	119
Thousands of tonnes	6	330	133	75	2613
Moisture content, %					
Weighted mean	13.2	12.6	12.5	13.1	12.9
Standard deviation	0	0.29	0.41	0.12	0.37
Minimum	13.2	12.1	12.2	12.9	12
Maximum	13.2	13.1	13.1	13.1	14.2
Test weight, kg/hL					
Weighted mean	82.5	83.1	82.8	82	82.7
Standard deviation	0	0.42	0.82	0.6	0.8
Minimum	82.5	82.4	81.1	81.1	80.8
Maximum	82.5	83.7	83.4	82.3	88.8

Wheats of other classes, %					
Weighted mean	0.001	0.384	0.394	0.395	0.336
Cereal grains other than wheat, %					
Weighted mean	0.121	0.212	0.225	0.17	0.17

Grade determining factors assessed during grading of individual cargoes by Industry Services, Canadian Grain Commission, at time of vessel loading.	
	No. 3 CWRS
	Not segregated by protein content
Number of cargoes	1
Thousands of tonnes	11
Moisture content, %	
Weighted mean	12.4
Standard deviation	0
Minimum	12.4
Maximum	12.4
Test weight, kg/hL	
Weighted mean	83.6
Standard deviation	0
Minimum	83.6
Maximum	83.6
Wheats of other classes, %	
Weighted mean	1.1
Cereal grains other than wheat, %	
Weighted mean	0.743

Wheat, Canada Western Amber Durum

Canada has an international reputation as a reliable supplier of high quality durum wheat, furnishing about half of the world's exports in recent years. The attributes of Canadian durum that attract demand are reliability of supply, cleanliness, uniformity and consistency within and between shipments, and excellent end-product quality.

Canada has a strong commitment to quality. This extends to strict varietal control to protect the inherent quality of all grades of amber durum wheat and to strict adherence to wheat grade standards. The requirement that only durum varieties of high intrinsic quality are registered is a cornerstone of the Canadian grading system.

The predominant varieties of Wheat, Canada Western Amber Durum represented in export cargoes were Strongfield and CDC Verona, as well as AC Navigator, AC Avonlea, and Kyle.

Moisture content, test weight and other grade determining factors

Export cargoes of CWAD wheat, third and fourth quarters, 2012-2013

Grade determining factors assessed during grading of individual cargoes by Industry Services, Canadian Grain Commission, at time of vessel loading.						
	No. 1 CWAD		No. 2 CWAD		No. 3 CWAD	
	Atlantic	Pacific	Atlantic	Pacific	Atlantic	Pacific
Number of cargoes	22	14	28	22	7	3
Thousands of tonnes	334	204	377	469	58	106
Moisture content, %						
Weighted mean	11.4	10.9	11.7	11.4	11.9	11.7
Standard deviation	0.34	0.32	0.31	0.4	0.31	0.42
Minimum	11	10.6	11.2	10.8	11.5	11.5
Maximum	12.4	11.8	12.3	12.4	12.4	12.3
Test weight, kg/hL						
Weighted mean	83.6	83.7	83.4	83.3	82.6	82.7
Standard deviation	0.61	0.38	0.54	0.34	0.67	0.3
Minimum	82.1	83.1	81.9	82.7	81.1	82.5
Maximum	84.6	84.2	84.5	84.4	82.9	83.1
Vitreous kernels, %						
Weighted mean	90.2	89.4	87.2	87.8	84.5	87.7
Wheats of other classes, %						
Weighted mean	0.693	0.81	0.977	0.939	0.901	0.931
Cereal grains other than wheat, %						
Weighted mean	0.074	0.09	0.184	0.131	0.119	0.198

Wheat, Canada Western Hard White Spring

Wheat, Canada Western Hard White Spring (CWHWS) is a hard white spring wheat with superior milling quality producing flour with excellent colour. It is suitable for bread and noodle production.

There are three milling grades in the CWHWS class.

Moisture content, test weight and other grade determining factors

Export cargoes of CWHWS wheat, third and fourth quarters, 2012-2013

Grade determining factors assessed during grading of individual cargoes by Industry Services, Canadian Grain Commission, at time of vessel loading.	
	No. 1 CWHWS
Number of cargoes	2
Thousands of tonnes	27
Moisture content, %	
Weighted mean	12.6
Standard deviation	0.21
Minimum	12.3

Maximum	12.6
Test weight, kg/hL	
Weighted mean	84.1
Standard deviation	0.49
Minimum	84
Maximum	84.7
Wheats of other classes, %	
Weighted mean	0.435
Cereal grains other than wheat, %	
Weighted mean	0.041

Wheat, Canada Prairie Spring Red

Wheat, Canada Prairie Spring Red (CPSR), used alone or in blends, has quality characteristics suitable for the production of various types of hearth bread, flat bread, noodles and related products.

The most commonly grown varieties eligible for milling grades of CPSR are AC Foremost and 5700PR, as well as AC Crystal and 5702PR.

Quality parameter

Wheat, Canada Prairie Spring Red - Export cargo composites - Third and fourth quarters 2012-2013

Quality parameter ²	No. 1 CPSR
Wheat	
Weight per 1000 kernels, g	39.7
Protein content, %	12.4
Protein content, % (dry matter basis)	14.3
Ash content, %	1.53
Falling number, s	425
PSI	58
Milling Flour Yield	
Clean wheat basis, %	75.8
0.50% ash basis, %	76.8
Flour	
Protein content, %	11.4
Wet gluten content, %	30.2
Ash content, %	0.48
Brightness, ³ L*	91.7
Redness, ³ a*	0.35
Yellowness, ³ b*	8.57
Starch damage, %	7.3
Maltose value, g/100 g	600
Farinogram	
Absorption, %	63.8
Development time, min	6.5
Mixing tolerance index, BU	20
Stability, min	10.0
Extensogram	
Length, cm	22.7

Height at 5 cm, BU	272
Maximum height, BU	549
Area, cm ²	157
Alveogram	
Length, mm	71
P (height x 1.1), mm	97
W, x 10 ⁻⁴ joules	250
Baking (Canadian Short Process baking test)	
Absorption, %	68
Mixing energy, W-h/kg	11.6
Mixing time, min	4.2
Loaf volume, cm ³ /100 g flour	1010

² Unless otherwise specified, 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

Export cargoes of CPSR wheat, third and fourth quarters, 2012-2013

Grade determining factors assessed during grading of individual cargoes by Industry Services, Canadian Grain Commission, at time of vessel loading.	
	No. 1 CPSR
Number of cargoes	16
Thousands of tonnes	163
Moisture content, %	
Weighted mean	13.5
Standard deviation	0.21
Minimum	13
Maximum	13.7
Test weight, kg/hL	
Weighted mean	81.3
Standard deviation	1
Minimum	80.1
Maximum	83.5
Wheats of other classes, %	
Weighted mean	0.844
Cereal grains other than wheat, %	
Weighted mean	0.238

Grade determining factors assessed during grading of individual cargoes by Industry Services, Canadian Grain Commission, at time of vessel loading.	
	No. 2 CPSR
Number of cargoes	4
Thousands of tonnes	25
Moisture content, %	
Weighted mean	13.6

Standard deviation	0.22
Minimum	13.3
Maximum	13.8
Test weight, kg/hL	
Weighted mean	81.3
Standard deviation	1.41
Minimum	79.5
Maximum	82.9
Wheats of other classes, %	
Weighted mean	1.48
Cereal grains other than wheat, %	
Weighted mean	0.516

Wheat, Canada Western Red Winter

Wheat, Canada Western Red Winter (CWRW) is a hard wheat exhibiting excellent milling quality. It is available in two milling grades. Flour produced from high grade CWRW wheat performs well in the production of hearth bread (such as French-style bread) and certain types of noodles, and is also suitable for the production of various types of flat bread, steamed bread and related products.

The most commonly grown varieties eligible for milling grades of CWRW are CDC Buteo, CDC Falcon, and CDC Osprey.

Moisture content, test weight and other grade determining factors

Export cargoes of CWRW wheat, third and fourth quarters, 2012-2013

Grade determining factors assessed during grading of individual cargoes by Industry Services, Canadian Grain Commission, at time of vessel loading.			
	No. 1 CWRW	No. 2 CWRW	No. 3 CWRW
Number of cargoes	6	1	1
Thousands of tonnes	42	1	17
Moisture content, %			
Weighted mean	12.9	12.8	13.3
Standard deviation	0.24	0	0
Minimum	12.6	12.8	13.3
Maximum	13.2	12.8	13.3
Test weight, kg/hL			
Weighted mean	82.5	82.8	83.2
Standard deviation	0.45	0	0
Minimum	82.2	82.8	83.2
Maximum	83.2	82.8	83.2
Wheats of other classes, %			
Weighted mean	0.712	0.6	0.3
Cereal grains other than wheat, %			
Weighted mean	0.024	0.059	0.016

Wheat, Canada Western Soft White Spring

Wheat, Canada Western Soft White Spring (CWSWS) is a lower protein, soft wheat with weak dough properties. Flour milled from this wheat is suitable for producing cookies, cakes, biscuits and related products. Alone or in blends with stronger wheat, CWSWS wheat can also be used to produce crackers, flat bread, steamed bread and certain types of noodles.

The most commonly grown varieties of CWSWS are AC Andrew and Sadash.

Moisture content, test weight and other grade determining factors

Export cargoes of CWSWS wheat, third and fourth quarters, 2012-2013

Grade determining factors assessed during grading of individual cargoes by Industry Services, Canadian Grain Commission, at time of vessel loading.	
	No. 2 CWSWS
Number of cargoes	2
Thousands of tonnes	23
Moisture content, %	
Weighted mean	13.5
Standard deviation	0.49
Minimum	13.1
Maximum	13.8
Test weight, kg/hL	
Weighted mean	83.2
Standard deviation	0.21
Minimum	83
Maximum	83.3
Wheats of other classes, %	
Weighted mean	1.531
Cereal grains other than wheat, %	
Weighted mean	0.139

Wheat, Canada Western Extra Strong

Wheat, Canada Western Extra Strong (CWES) is a red spring wheat. The most widely grown varieties are Bluesky, Burnside, Glencross VB and Glenlea.

Flour milled from this wheat is characterized by very strong gluten. Dough made from CWES wheat flour cannot be properly developed at the normal farinograph speed of 63 rpm and must be tested at the higher speed of 90 rpm to obtain a true mixing peak.

The strong physical dough properties of CWES wheat make it ideal for blending and for specialty products in which very high gluten strength is needed.

Two milling grades have been established for this class.