



Canadian Grain Commission
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des grains

Quality of 1998 Ontario Wheat

**A report to the Ontario Wheat Producers' Marketing Board
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Samples used to prepare composite grade samples of Canada Eastern White Winter (CEWW) wheat and Canada Eastern Red (CER) wheat were supplied by Industry Services, Canadian Grain Commission, Chatham, Ontario, in cooperation with the Ontario Wheat Producers' Marketing Board. For CER wheat, separate sets of composites were prepared representing soft red winter, hard red winter and hard red spring wheat varieties. Preparation of the composites and quality analysis were carried out by the Grain Research Laboratory, Canadian Grain Commission, Winnipeg. Results are shown in Table 1-4. Data for the corresponding No. 1 grade from the 1997 harvest survey are shown where available for comparative purposes.

Quality of Canada Eastern White Winter Wheat

Table 1 shows data for the Canada Eastern White Winter wheat grade composites. Both grades show test weights lower than the value obtained for last year's No. 1 grade. Wheat protein content is similar to last year while wheat ash content is much lower. Wheat falling number and flour amylograph peak viscosity values are lower and wheat and flour alpha-amylase activities are higher. Both grades show good milling performance.

Rheological test results indicate that dough strength properties are similar to last year while cookie quality is superior. Electrophoretic analysis of the composites shows a predominance of the variety Harus followed by Karena.

Quality of Canada Eastern Red Wheat – Soft Red Winter Wheat Varieties

Quality data for Canada Eastern Red wheat composites representing soft red winter wheat varieties are shown on Table 2. Test weights are similar to last year. Both grades show higher protein content than 1997. Wheat ash content is much lower than last year. High wheat falling number and flour amylograph peak viscosity values and low wheat and flour alpha-amylase activities for both grades indicate a high degree of soundness in the crop. Both grades show a decrease in milling performance over last year as indicated by higher flour ash and darker flour colour. Dough strength and cookie properties appear similar to 1997. The predominant soft red winter variety is Freedom followed by W2510 as determined by electrophoretic analysis.

Quality of Canada Eastern Red Wheat – Hard Red Winter Wheat Varieties

Table 3 shows data for the top two grades of Canada Eastern Red wheat representing hard red winter wheat varieties. Test weights are comparable to last year. An increase in wheat and flour protein content and a decrease in wheat ash content is apparent for both grades compared to last year's top grade composite. Although an improvement in milling yield and flour ash content is evident in the top grade relative to 1997, flour colour is inferior. Wheat falling number and flour amylograph peak viscosity values are lower and wheat and flour alpha-amylase activities are higher compared to last year.

Dough strength properties are similar while water absorption potential is higher compared to last year. Overall baking properties are superior this year. These effects can be attributed to the increase in protein content. Electrophoretic analysis of the composites shows that the variety Fundulea predominates.

Quality of Canada Eastern Red Wheat – Hard Red Spring Wheat Varieties

Table 4 shows data for this year's No. 1 grade Canada Eastern Red wheat composite representing hard red spring wheat varieties. Comparable data from last year are not available. A high test weight is evident for this grade. Wheat falling number and flour amylograph peak viscosity values are similar to this year's top grade of Canada Eastern Red wheat representing hard red winter wheat varieties. Protein content is within the range desirable for bread flour production. Farinograph results show medium strong dough properties while baking results demonstrate good volume but lower than desirable water absorption potential for high volume pan breads. The predominant hard red spring variety is Quantum as determined by electrophoretic analysis.

Table 1 • Ontario Wheat • Canada Eastern White Winter Wheat
Quality data for 1998 and 1997 harvest survey grade composite samples

Quality parameter ¹	1998		1997
	No. 1	No. 2	No. 1
Wheat			
Test weight, kg/hl	79.6	79.1	80.8
Weight per 1000 kernels, g	36.8	37.9	38.7
Protein content, %	10.1	10.1	10.3
Protein content, % (dry matter basis)	11.7	11.7	11.9
Ash content, %	1.36	1.40	1.57
α-amylase activity, units/g	14.5	30.5	8.0
Falling number, s	325	305	360
Flour yield, %	77.0	76.4	76.1
PSI	73	73	70
Flour			
Protein content, %	9.5	9.5	9.2
Wet gluten content, %	25.1	25.8	26.2
Ash content, %	0.50	0.52	0.50
Grade colour	-0.7	-0.5	-1.2
AGTRON colour, %	64	64	71
Starch damage, %	2.4	2.6	2.8
α-amylase activity, units/g	7.5	17.0	2.5
Amylograph peak viscosity, BU	235	125	425
Maltose value, g/100 g	1.2	1.4	1.0
AWRC, %	65	65	53
Farinogram			
Absorption, %	50.4	50.6	51.9
Development time, min	1.25	1.25	1.25
Mixing tolerance index, BU	145	145	140
Stability, min	2.0	2.0	2.0
Alveogram			
Length, mm	142	122	110
P (height x 1.1), mm	18	19	22
W, x 10 ⁻⁴ joules	52	49	52
Cookie test			
Spread, mm	84.9	83.1	81.6
Ratio (spread/thickness)	10.2	9.4	8.9

¹ Unless otherwise specified, data are reported on a 13.5% moisture basis for wheat and a 14.0% moisture basis for flour.

Table 2 • Ontario Wheat • Canada Eastern Red Wheat • Soft Red Winter Wheat Varieties
Quality data for 1998 and 1997 harvest survey grade composite samples

Quality parameter ¹	1998		1997
	No. 1	No. 2	No. 1
Wheat			
Test weight, kg/hl	80.4	79.7	80.1
Weight per 1000 kernels, g	34.8	33.6	35.0
Protein content, %	10.0	10.1	9.3
Protein content, % (dry matter basis)	11.6	11.7	10.8
Ash content, %	1.29	1.28	1.64
α-amylase activity, units/g	1.5	3.0	8.5
Falling number, s	390	375	360
Flour yield, %	75.9	75.6	76.2
PSI	71	72	71
Flour			
Protein content, %	9.2	9.2	8.0
Wet gluten content, %	23.1	23.2	20.2
Ash content, %	0.52	0.52	0.49
Grade colour	1.2	1.1	0.5
AGTRON colour, %	54	54	61
Starch damage, %	3.0	2.7	3.1
α-amylase activity, units/g	0.5	0.5	2.0
Amylograph peak viscosity, BU	560	550	375
Maltose value, g/100 g	1.1	1.1	1.0
AWRC, %	67	68	56
Farinogram			
Absorption, %	51.8	51.5	51.0
Development time, min	1.5	1.5	1.0
Mixing tolerance index, BU	130	130	125
Stability, min	2.5	2.5	2.0
Alveogram			
Length, mm	104	97	89
P (height x 1.1), mm	25	24	24
W, x 10 ⁻⁴ joules	62	58	54
Cookie test			
Spread, mm	82.0	82.3	81.9
Ratio (spread/thickness)	8.4	8.8	8.8

¹ Unless otherwise specified, data are reported on a 13.5% moisture basis for wheat and a 14.0% moisture basis for flour.

Table 3 • Ontario Wheat • Canada Eastern Red Wheat • Hard Red Winter Wheat Varieties
Quality data for 1998 and 1997 harvest survey grade composite samples

Quality parameter ¹	1998		1997
	No. 1	No. 2	No. 1
Wheat			
Test weight, kg/hl	82.9	81.6	83.1
Weight per 1000 kernels, g	36.0	34.4	33.8
Protein content, %	12.3	12.9	11.5
Protein content, % (dry matter basis)	14.2	14.9	13.3
Ash content, %	1.46	1.55	1.65
α-amylase activity, units/g	30.5	31.0	22.0
Falling number, s	270	275	340
Flour yield, %	75.4	74.6	74.4
PSI	64	63	62
Flour			
Protein content, %	11.8	12.5	10.7
Wet gluten content, %	31.4	34.1	28.1
Ash content, %	0.52	0.60	0.56
Grade colour	1.1	2.2	-0.2
AGTRON colour, %	50	40	63
Starch damage, %	4.8	4.8	4.4
α-amylase activity, units/g	15.0	16.0	6.5
Amylograph peak viscosity, BU	115	95	240
Maltose value, g/100 g	2.2	2.3	1.6
Farinogram			
Absorption, %	59.1	60.7	58.0
Development time, min	3.25	3.75	2.75
Mixing tolerance index, BU	70	70	50
Stability, min	5.0	4.5	5.5
Extensogram			
Length, cm	18	17	17
Height at 5 cm, BU	190	200	210
Maximum height, BU	250	250	260
Area, cm ²	65	65	65
Alveogram			
Length, mm	112	94	99
P (height x 1.1), mm	55	61	59
W, x 10 ⁻⁴ joules	194	173	178
Remix-to-Peak Baking Test			
Absorption, %	56	57	55
Remix time, min	1.1	1.1	1.1
Loaf volume, cm ³ /100 g flour	730	750	680

¹ Unless otherwise specified, data are reported on a 13.5% moisture basis for wheat and a 14.0% moisture basis for flour.

Table 4 • Ontario Wheat • Canada Eastern Red Wheat • Hard Red Spring Wheat Varieties
Quality data for 1998 harvest survey grade composite samples

Quality parameter ¹	1998 No. 1
Wheat	
Test weight, kg/hl	81.6
Weight per 1000 kernels, g	34.1
Protein content, %	13.4
Protein content, % (dry matter basis)	15.5
Ash content, %	1.65
α-amylase activity, units/g	31.5
Falling number, s	275
Flour yield, %	74.2
PSI	55
Flour	
Protein content, %	12.6
Wet gluten content, %	32.5
Ash content, %	0.54
Grade colour	1.0
AGTRON colour, %	51
Starch damage, %	6.7
α-amylase activity, units/g	13.0
Amylograph peak viscosity, BU	110
Maltose value, g/100 g	3.2
Farinogram	
Absorption, %	62.4
Development time, min	5.0
Mixing tolerance index, BU	30
Stability, min	8.0
Extensogram	
Length, cm	–
Height at 5 cm, BU	–
Maximum height, BU	–
Area, cm ²	–
Alveogram	
Length, mm	–
P (height x 1.1), mm	–
W, x 10 ⁻⁴ joules	–
Remix-to-Peak Baking Test	
Absorption, %	59
Remix time, min	2.1
Loaf volume, cm ³ /100 g flour	830

¹ Unless otherwise specified, data are reported on a 13.5% moisture basis for wheat and a 14.0% moisture basis for flour.