

Methods and Proficiency



C&G offers a wide range of samples for proficiency

Tests for e.g. bread making quality (e.g. farinograph, falling number, Alveograph
+ moisture, protein, sugars, gluten, ash, dietary and other fiber tests, fat, fatty acids, minerals, vitamins, pH, microbiologicals, mycotoxins

Series	Flour Analysis	Frequency
HW1	Hard Wheat Flour Sample	Monthly
HW2	Hard Wheat Flour Sample	BiMonthly
SW1	Soft Wheat Flour Sample	BiMonthly
ALTFLR	Non-Wheat Flour Sample	BiMonthly
SEM	Durum Semolina Sample	BiMonthly
	Label Analysis	
SUGAR	Grain-Based Food for Sugar Analysis	Monthly
VMP	Grain-Based Food or Pet Food for Analysis of Proximates, Vitamins, and Minerals	BiMonthly
DF	Grain-Based or Pulse Based Food for Dietary Fiber Analysis	BiMonthly
GF	Grain-Based Food Sample to measure Gluten Content	BiMonthly
FEED	Grain-Based Feed or Pet Food Sample	BiMonthly
	Rheology	
ALV	Flour Sample for Alveograph	BiMonthly
AMYL	Flour Sample for Amylograph	BiMonthly
FARL	Flour Sample for Farinograph (Large Bowl)	BiMonthly
FARS	Flour Sample for Farinograph (Small Bowl)	BiMonthly
MIXO	Ground Whole Grain for Mixograph	BiMonthly
RVA	Flour or Starch Blend Sample	BiMonthly
	Food Safety	
MYCO	Ground Whole Grain for Mycotoxin Analysis	Quarterly
MICRO1	Flour Sample for Microbiological Analysis	Quarterly
EXTRA	Flour Sample for Extraneous Material Analysis	Quarterly



Mini Proficiency Teaser at Conference

Idea developed by the Proficiency Advisory Committee

Goal: To introduce participants to the LPRP program

- **A 25g sample of flour was taken by 22 attendees**
- Test for Moisture, Protein, Ash, Falling number
- 9 data sets were returned
- Statistics and provide a report like we do for the proficiency program

QA program for companies with multiple analysts

Analyst ID*	Aug-22		Sep-22		Oct-22		Nov-22		Dec-22		Jan-23	
	z-score	Value	z-score	Value	z-score	Value	z-score	Value	z-score	Value	z-score	Value
941	0.400	13.15	0.527	12.68	0.541	12.93	0.511	12.48	0.133	10.90	0.982	11.93
1211	0.449	12.95	1.767	12.95	-0.107	12.79	1.009	12.65	1.099	11.38	1.232	12.03
1274	0.060	13.07	0.069	12.55	-0.835	12.64	-2.212	11.55	-5.781	7.96	-0.724	11.25
1830	-0.830	12.86	0.115	12.54	-1.025	12.60	-1.408	11.80	0.334	11.00	-0.347	11.40
1983					0.591	12.94	0.077	12.40	-0.390	10.64		
2560	0.993	13.29	-1.125	12.32	0.978	12.61	0.335	12.42	-1.255	10.21	-1.125	11.09
3302	-0.194	13.01	0.206	12.61	0.211	12.86	-0.748	12.05	-0.893	10.39	1.032	11.95
6443	-0.194	13.01	-0.574	12.44	-0.170	12.78	0.247	12.39	0.033	10.85	0.656	11.80
8256	0.739	13.23	-0.436	12.47	0.781	12.98	0.072	12.33	0.777	11.22	2.586	12.57
9053	-0.003	12.74	-0.666	12.42	-0.883	12.63	-0.777	12.04	-1.255	10.21	-0.172	11.47
Total Reporting		57		54		48		52		49		53
Consensus value		13.06		12.57		12.81		12.31		10.83		11.54
Standard error		0.03		0.03		0.03		0.05		0.07		0.05
Std Dev		0.24		0.22		0.22		0.34		0.50		0.40
Lower limit		12.58		12.13		12.38		11.62		9.84		10.74
Upper limit		13.53		13.00		13.25		12.99		11.83		12.34

Analyst ID's can be linked to names/locations in a separate document

The reproducibility limit R was calculated as $2.80 \times \text{target s.d.}$

- Each analyst tracked and data on their performance compiled in one spreadsheet per company
- This will save QA managers having to look at multiple reports over the time period for multiple analysts. They will see all their pertinent data in one spreadsheet/report.

C&G has hundreds of official methods

Methods Search

 

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02 Acidity Methods

06 Admixture of Flours Methods

08 Total Ash Methods

11 Biotechnology Methods

14 Color and Pigments Methods

22 Enzymes Methods

28 Extraneous Matter Methods

32 Fiber Methods

04 Acids Methods

07 Amino Acids Methods

10 Baking Quality Methods

12 Carbon Dioxide Methods

20 Ingredients Methods

26 Experimental Milling Methods

30 Crude Fat Methods

33 Sensory Analysis Methods

35 Shelf Life Methods

39 Infrared Analysis Methods

42 Microorganisms Methods

45 Mycotoxins Methods

48 Oxidizing, Bleaching, and Maturing Agents Methods

55 Physical Tests Methods

57 Pulses and Pulse Products Methods

61 Rice Methods

64 Sampling Methods

70 Solutions Methods

76 Starch Methods

80 Sugars Methods

86 Vitamins Methods

38 Gluten Methods

40 Inorganic Constituents Methods

44 Moisture Methods

46 Nitrogen Methods

54 Physical Dough Tests Methods

56 Physicochemical Tests Methods

58 Special Properties of Fats, Oils, and Shortenings Methods

62 Preparation of Sample Methods

66 Semolina, Pasta, and Noodle Quality Methods

74 Staleness/Texture Methods

78 Statistical Principles Methods

82 Tables Methods

89 Yeast Methods

Planning for Upcoming Technical Webinars

- Webinar from Closer to Zero session
Featuring the 2024 conference speakers and an opportunity for Q&A
- GMO Wheat series under development
To look forward to consequences of GMO wheat being introduced



Methods

<https://www.cerealsgrains.org/resources/Methods/Pages/default.aspx>



Proficiency

<https://www.cerealsgrains.org/resources/LPRP/Pages/default.aspx>



Our 2025 Chemistry, Quality, and Technology Conference will be held November 12-13, 2025, in St. Paul, MN.

