

2. Moisture testing

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Introduction to moisture testing

Moisture testing means analyzing a grain sample for the percentage of moisture contained within it.

Moisture content can affect the test weight and the appearance of the grain. Grain that is too moist is susceptible to deterioration.

Moisture tests are performed on samples free of dockage.

Moisture tests on corn are performed after the removal of cracked corn and foreign material (CCFM).

Industry Services will determine the moisture content of grain with a Unified Grain Moisture Algorithm (UGMA) moisture meter or with a Near-infrared transmittance (NIT) instrument.

Model 919/3.5” moisture meter conversion tables continue to be monitored and updated. Conversion tables, moisture calculators and guidelines for using the model 919/3.5” moisture meter can be found at <https://grainscanada.gc.ca/en/grain-quality/grain-grading/grading-factors/moisture-content/>

Samples testing within 0.5% (+) or (-) of the tough, damp, moist or wet cut off levels, are to be retested three (3) times using different moisture meters when possible. The final reported moisture content will be an average of the three tests.

Moisture specifications

Grain that contains excessive moisture shall be graded according to the specifications for the grade that would be assigned to that grain if it did not contain excessive moisture, except that there shall be added to and made part of the grade name the word “Tough”, “Damp”, “Moist” or “Wet” according to the percentage of moisture set out in the [Off Grades of Grain and Grades of Screenings Order](#).

The chart on the next three pages outlines the moisture specifications and, if the model 919/3.5' moisture meter is used, the conversion table number and representative portion required to determine the moisture content of each type of grain is provided.

Conversion tables are not available for all grains. The following information can be found on the CGC website.

- Conversion tables for applicable grains. See [Conversion tables for use with Model 919/3.5" or equivalent moisture meters](#)
- For wheat, oats and barley samples with low test weight, normal procedures for determining moisture content will give inaccurate results. See [Estimating moisture content for lightweight wheat, oats and barley samples](#).
- For samples with moisture values above the range of the conversion table using the 919/3.5' moisture meter, see [High moisture samples](#).
- For beans for which there are no conversion charts, see [Beans with no conversion tables](#).

Grain	Moisture Meter Model 919/3.5"		Moisture specifications				
	Weight (g)	Date and Conversion table Number	Straight (%)	Tough (%)	Damp (%)	Moist (%)	Wet (%)
Barley							
Food (covered) (>52 kg/hl)	225	2022-07, 14	less than 13.6	13.6-17.0	over 17.0		
Food (hulless)	225	1994-08, 1	less than 14.1	14.1-17.0	over 17.0		
General purpose (covered) (>52 kg/hl)	225	2022-07, 14	less than 14.9	14.9-17.0	over 17.0		
Lightweight (covered) (< 52kg/hl)	200	1979-rev., 10	less than 14.9	14.9-17.0	over 17.0		
General purpose (hulless)	225	1994-08, 1	less than 14.9	14.9-17.0	over 17.0		
Malting (covered) (>52 kg/hl)	225	2022-07, 14	less than 13.6	13.6-17.0	over 17.0		
Malting (hulless)	225	1994-08, 1	less than 13.6	13.6-17.0	over 17.0		
Beans							
Azuki	250	2010-07, 1	less than 18.1	No tough	over 18.0		
Black	250	2018-07, 3	less than 18.1	No tough	over 18.0		
Cranberry	225	2006-07, 2	less than 18.1	No tough	over 18.0		
Dark red kidney	250	2006-07, 2	less than 18.1	No tough	over 18.0		
Great northern white	250	2016-07, 1	less than 18.1	No tough	over 18.0		
Light red kidney	250	2011-07, 1	less than 18.1	No tough	over 18.0		
Otebo	250	2014-07, 1	less than 18.1	No tough	over 18.0		
Pea Bean	250	2019-07, 3	less than 18.1	No tough	over 18.0		
Pinto	250	2007-07, 2	less than 18.1	No tough	over 18.0		
Small red	250	2014-07, 1	less than 18.1	No tough	over 18.0		
White kidney	250	2011-07, 1	less than 18.1	No tough	over 18.0		

Grain	Moisture Meter Model 919/3.5”		Moisture specifications				
	Weight (g)	Date and Conversion table Number	Straight (%)	Tough (%)	Damp (%)	Moist (%)	Wet (%)
Buckwheat	225	1978-04, 3	less than 16.1	16.1-18.0	over 18.0		
Canary seed	250	2021-07, 1	less than 13.1	13.1-17.0	over 17.0		
Canola and rapeseed	250	2014-07, 6	less than 10.1	10.1-12.5	over 12.5		
Chickpeas	250	2020-07, 2	less than 14.1	14.1-16.0	over 16.0		
Corn							
Under 19.9% moisture	250	2000-07, 6	less than 15.6	15.6-17.5	17.6-21.0	21.1-25.0	Over 25.0
20.0% moisture and over (adjusted moisture value using table 11A result and according to test weight. Refer to page 2-7 for details)	175	2000-07, 11A + 2000-07, 11B	less than 15.6	15.6-17.5	17.6-21.0	21.1-25.0	Over 25.0
Faba beans	250	1977-02, 2	less than 16.1	16.1-18.0	over 18.0		
Flaxseed	225	2013-07, 7	less than 10.1	10.1-13.5	over 13.5		
Lentils							
Lentils, other than red	250	2026-07, 4	less than 14.1	14.1-16.0	over 16.0		
Lentils, red	250	2018-07, 4	less than 13.1	13.1-16.0	over 16.0		
Mixed grain		Use the conversion table and tough and damp ranges for the predominant grain.					
Mustard seed (domestic)							
Brown mustard	250	2007-07, 11	less than 9.6	9.6-12.5	over 12.5		
Oriental mustard	250	2007-07, 10	less than 9.6	9.6-12.5	over 12.5		
Yellow mustard	250	2007-07, 9	less than 9.6	9.6-12.5	over 12.5		
Oats							
Hulled oats	200	2001-08, 6	less than 13.6	13.6-17.0	over 17.0		
Hulless oats	200	2009-07, 1	less than 13.6	13.6-17.0	over 17.0		
Lightweight oats (<48 kg/hl – calibrate at 73)	140	2003-08, 1	less than 13.6	13.6-17.0	over 17.0		

Grain	Moisture Meter Model 919/3.5"		Moisture specifications				
	Weight (g)	Date and Conversion table Number	Straight (%)	Tough (%)	Damp (%)	Moist (%)	Wet (%)
Peas, green and yellow	250	2025-07, 4	less than 16.1	16.1-18.0	over 18.0		
Rye	250	2022-07, 6	less than 14.1	14.1-17.0	over 17.0		
Safflower seed (calibrate at 73)	150	1992-08, 1	less than 9.6	9.6-13.5	13.6-17.0	17.1-22.0	over 22.0
Soybeans	225	2014-07, 9	less than 14.1	14.1-16.0	16.1-18.0	18.1-20.0	over 20.0
Sunflower seed (calibrate at 73)	150	1978-10, 3	less than 9.6	9.6-13.5	13.6-17.0	17.1-22.0	over 22.0
Triticale	250	1981-08, 1	less than 14.1	14.1-17.0	over 17.0		
Wheat							
CWRS (>66kg/hl)	250	2021-07, 12	less than 14.6	14.6-17.0	over 17.0		
lightweight (<66 kg/hl)	225	1979-08, 9	less than 14.6	14.6-17.0	over 17.0		
CWHWS	250	2005-08, 1	less than 14.6	14.6-17.0	over 17.0		
CWAD	250	2020-07, 5	less than 14.6	14.6-17.0	over 17.0		
CWRW	250	2021-07, 6	less than 14.6	14.6-17.0	over 17.0		
CWSWS	250	2025-07, 6	less than 14.6	14.6-17.0	over 17.0		
CWES	250	2002-08, 2	less than 14.6	14.6-17.0	over 17.0		
CPSW	250	2021-07, 3	less than 14.6	14.6-17.0	over 17.0		
CPSR	250	2021-07, 3	less than 14.6	14.6-17.0	over 17.0		
CNHR	250	2023-07, 2	less than 14.6	14.6-17.0	over 17.0		
CWSP		Use the conversion table and tough and damp ranges appropriate to the predominant colour and characteristics of the sample.					
CERS	250	2024-07, 2	less than 14.6	14.6-17.0	over 17.0		
CEHRW	250	2023-07, 2	less than 14.6	14.6-17.0	over 17.0		
CESRW	250	2024-07, 3	less than 14.6	14.6-17.0	over 17.0		
CEAD	250	2020-07, 5	less than 14.6	14.6-17.0	over 17.0		
CEWW	250	2019-07, 6	less than 14.6	14.6-17.0	over 17.0		
CEOW		Use the conversion table and tough and damp ranges appropriate to the predominant colour and characteristics of the sample.					
CEFD		Use the conversion table and tough and damp ranges appropriate to the predominant colour and characteristics of the sample.					

Determining moisture content for special cases

Optional analysis

An optional analysis is the process of determining the weight and grade of grain which would otherwise be assessed as dockage. If a sufficient quantity of grain is available, a moisture test will be done on all grains assigned a grade as part of the optional analysis.

When the grain assigned a grade as part of the optional analysis is not large enough for official moisture testing, and most of the sample is tough, damp, moist or wet, the optional analysis portion is graded tough, damp, moist, or wet without reference to a specific moisture content.

Corn (Model 919/3.5" Only)

See **Determination of dockage for corn.**

1. Remove cracked corn and foreign material (CCFM).

If the moisture content is...	Use this sieve...
25.0% or less	No. 12 round-hole
25.1 % or more	No. 14 round-hole

2. Choose the appropriate sample size by weight.

If the moisture content is...	Use a sample size of...
under 20.0%	250 g
from 20.0% to 35.0%	175 g

3. Choose the conversion table.

If the moisture content is...	Use conversion table...
20.0% or less	6
from 20.1% to 35.0%	11A - to estimate moisture content based on the dielectric reading and the temperature of the corn 11B - to adjust the preliminary moisture value according to the test weight of the corn sample

