# 2. Moisture testing

**Introduction to moisture testing.....2-2**

**Moisture Specifications.....2-3**

**Determining moisture content for special cases.....2-7**
Optional analysis.....2-7
Corn (Model 919/3.5” Only) .....2-7

# 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) | Conversion table Number | Straight (%) | Tough (%) | Damp (%) | Moist (%) | Wet (%) |
| **Barley** | | | | | | | |
| **Food (covered)** (>52 kg/hl) | 225 | 14 | less than 13.6 | 13.6-17.0 | over 17.0 | | |
| **Food (hulless)** | 225 | 1 | less than 14.1 | 14.1-17.0 | over 17.0 | | |
| **General Purpose (covered)** (>52 kg/hl) | 225 | 14 | less than 14.9 | 14.9.17.0 | over 17.0 | | |
| **Lightweight (covered)** (< 52kg/hl) | 200 | 10 | less than 14.9 | 14.9-17.0 | over 17.0 | | |
| **General Purpose (hulless)** | 225 | 1 | less than 14.9 | 14.9-17.0 | over 17.0 | | |
| **Malting (covered)** (>52 kg/hl) | 225 | 14 | less than 13.6 | 13.6-17.0 | over 17.0 | | |
| **Malting (hulless)** | 225 | 1 | less than 13.6 | 13.6-17.0 | over 17.0 | | |
| **Beans** | | | | | | | |
| **Azuki** | 250 | 1 | less than 18.1 | No tough | over 18.0 | | |
| **Black** | 250 | 3 | less than 18.1 | No tough | over 18.0 | | |
| **Cranberry** | 225 | 2 | less than 18.1 | No tough | over 18.0 | | |
| **Dark red kidney** | 250 | 2 | less than 18.1 | No tough | over 18.0 | | |
| **Great northern white** | 250 | 1 | less than 18.1 | No tough | over 18.0 | | |
| **Light red kidney** | 250 | 1 | less than 18.1 | No tough | over 18.0 | | |
| **Otebo** | 250 | 1 | less than 18.1 | No tough | over 18.0 | | |
| **Pea Bean** | 250 | 3 | less than 18.1 | No tough | over 18.0 | | |
| **Pinto** | 250 | 2 | less than 18.1 | No tough | over 18.0 | | |
| **Small red** | 250 | 1 | less than 18.1 | No tough | over 18.0 | | |
| **White kidney** | 250 | 1 | less than 18.1 | No tough | over 18.0 | | |

| Grain | Moisture Meter Model 919/3.5" | | Moisture Specifications | | | | |
|---|---|---|---|---|---|---|---|
| | Weight (g) | Conversion table Number (919/3.5") | Straight (%) | Tough (%) | Damp (%) | Moist (%) | Wet (%) |
| **Buckwheat** | 225 | 3 | less than 16.1 | 16.1-18.0 | over 18.0 | | |
| **Canary seed** | 250 | 1 | less than 13.1 | 13.1-17.0 | over 17.0 | | |
| **Canola and Rapeseed** | 250 | 6 | less than 10.1 | 10.1-12.5 | over 12.5 | | |
| **Chickpeas** | 250 | 2 | less than 14.1 | 14.1-16.0 | over 16.0 | | |
| **Corn** | | | | | | | |
| **Under 19.9% moisture** | 250 | 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 | 11A + 11B | less than 15.6 | 15.6-17.5 | 17.6-21.0 | 21.1-25.0 | Over 25.0 |
| **Faba beans** | 250 | 2 | less than 16.1 | 16.1-18.0 | over 18.0 | | |
| **Flaxseed** | 225 | 7 | less than 10.1 | 10.1-13.5 | over 13.5 | | |
| **Lentils** | | | | | | | |
| **Green Lentils** | 250 | 3 | less than 14.1 | 14.1-16.0 | over 16.0 | | |
| **Red Lentils** | 250 | 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 | 11 | less than 9.6 | 9.6-12.5 | over 12.5 | | |
| **Oriental mustard** | 250 | 10 | less than 9.6 | 9.6-12.5 | over 12.5 | | |
| **Yellow mustard** | 250 | 9 | less than 9.6 | 9.6-12.5 | over 12.5 | | |
| **Oats** | | | | | | | |
| **Hulled oats** | 200 | 6 | less than 13.6 | 13.6-17.0 | over 17.0 | | |
| **Hulless oats** | 200 | 1 | less than 13.6 | 13.6-17.0 | over 17.0 | | |
| **Lightweight oats** (<48 kg/hl – calibrate at 73) | 140 | 1 | less than 13.6 | 13.6-17.0 | over 17.0 | | |

| Grain | Moisture Meter Model 919/3.5" | | Moisture Specifications | | | | |
|---|---|---|---|---|---|---|---|
| | Weight (g) | Conversion table Number | Straight (%) | Tough (%) | Damp (%) | Moist (%) | Wet (%) |
| **Peas, Green and Yellow** | 250 | 3 | less than 16.1 | 16.1-18.0 | over 18.0 | | |
| **Rye** | 250 | 6 | less than 14.1 | 14.1-17.0 | over 17.0 | | |
| **Safflower seed** (calibrate at 73) | 150 | 1 | less than 9.6 | 9.6-13.5 | 13.6-17.0 | 17.1-22.0 | over 22.0 |
| **Soybeans** | 225 | 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 | 3 | less than 9.6 | 9.6-13.5 | 13.6-17.0 | 17.1-22.0 | over 22.0 |
| **Triticale** | 250 | 1 | less than 14.1 | 14.1-17.0 | over 17.0 | | |
| **Wheat** | | | | | | | |
| **CWRS** (>66kg/hl) | 250 | 12 | less than 14.6 | 14.6-17.0 | over 17.0 | | |
| **lightweight** (<66 kg/hl) | 225 | 9 | less than 14.6 | 14.6-17.0 | over 17.0 | | |
| **CWHWS** | 250 | 1 | less than 14.6 | 14.6-17.0 | over 17.0 | | |
| **CWAD** | 250 | 5 | less than 14.6 | 14.6-17.0 | over 17.0 | | |
| **CWRW** | 250 | 6 | less than 14.6 | 14.6-17.0 | over 17.0 | | |
| **CWSWS** | 250 | 5 | less than 14.6 | 14.6-17.0 | over 17.0 | | |
| **CWES** | 250 | 2 | less than 14.6 | 14.6-17.0 | over 17.0 | | |
| **CPSW** | 250 | 3 | less than 14.6 | 14.6-17.0 | over 17.0 | | |
| **CPSR** | 250 | 3 | less than 14.6 | 14.6-17.0 | over 17.0 | | |
| **CNHR** | 250 | 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 | 2 | less than 14.6 | 14.6-17.0 | over 17.0 | | |
| **CEHRW** | 250 | 2 | less than 14.6 | 14.6-17.0 | over 17.0 | | |
| **CESRW** | 250 | 3 | less than 14.6 | 14.6-17.0 | over 17.0 | | |
| **CEAD** | 250 | 4 | less than 14.6 | 14.6-17.0 | over 17.0 | | |
| **CEWW** | 250 | 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.

| 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<br>11B - to adjust the preliminary moisture value according to the test weight of the corn sample |