

13. Buckwheat

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Determining the size of buckwheat

1. Using a Boerner-type divider, divide a representative portion of approximately 250 g from the cleaned sample.
2. Set up the Carter dockage tester as follows.

Feed control	# 6
Air control	Off
Riddle	None
Top sieve	No. 8 slotted
Centre sieve	Blank tray
Bottom sieve	None
Sieve cleaner control	Off

3. Turn on the Carter dockage tester.
4. Pour the portion into the hopper.
5. Turn off the Carter dockage tester.
6. Determine the percentage by weight of the kernels passing through the No. 8 slotted sieve.

If the percentage of kernels passing through the No. 8 slotted sieve is . . .	Then the buckwheat is . . .
20.0 or less	Large
More than 20.0	Small

Determination of dockage

Definition

Dockage is assessed and recorded to the nearest 0.1%.

Dockage is defined under the Canada Grain Act as “any material intermixed with a parcel of grain, other than kernels of grain of a standard of quality fixed by or under this Act for a grade of that grain, that must and can be separated from the parcel of grain before that grade can be assigned to the grain”. Dockage is removed by following the cleaning procedure described in this chapter.

The sample as it arrives is referred to as the uncleaned or dirty sample. Its weight is the gross weight of the sample. Dockage is assessed on the gross weight of the sample.

Dockage is assessed in two stages.

1. Follow the **Normal cleaning procedure**, using the Carter dockage tester.
2. Follow the procedure for **Cleaning for grade improvement**. This cleaning can be done at any time after the cleaning assessment has been completed.

Dockage not reported

- ▲ **Important:** Dockage is not reported for
 - Buckwheat, Sample Canada (size) Account Fireburnt
 - Buckwheat, Sample Salvage
 - Buckwheat, Sample Condemned
 - Unofficial samples declared as processed

Assessing dockage in small buckwheat

Normal cleaning procedure

- ▲ **Important:** Wear gloves and a mask to handle any samples that you suspect may contain hazardous substances.

Buckwheat is considered small when more than 20.0% of the kernels pass through the No. 8 slotted sieve.

1. Set up the Carter dockage tester as follows:

Feed control	# 6
Air control	# 6
Riddle	No. 25
Top sieve	No. 6 buckwheat
Centre sieve	No. 5 buckwheat
Bottom sieve	No. 5 buckwheat
Sieve cleaner control	Off

2. Using a Boerner-type divider, divide the uncleaned sample to obtain a representative portion.
 - Official samples shall be at least 1 kg.
 - Unofficial samples shall be at least 1 kg.
3. Turn on the Carter dockage tester.
4. Pour the sample into the hopper.
5. After the sample has passed through the machine, turn on the sieve cleaner control briefly to dislodge kernels.
6. Turn off the Carter dockage tester.
7. Snap the retainer rod of the aspiration pan lightly to loosen material gathered on the screen.
8. Determine dockage, using the list under **Composition of dockage**.

Composition of dockage

- Material other than whole kernels of buckwheat removed by the No. 25 riddle
- Material removed through the bottom No. 5 buckwheat sieve
- Material removed by aspiration other than whole sound kernels of buckwheat
- Soft earth pellets handpicked from the clean sample
- Material removed by **Cleaning for grade improvement**

Commercially clean

Samples exiting primary elevators are defined as commercially clean when the net dockage does not exceed 2.5% of the sample weight.

Any whole domestic buckwheat removed in dockage assessment is returned to the clean sample. Dockage is reduced by up to

- 0.3% for fine attritional material which passes through the No. 4.5 round-hole sieve
- 0.5% for broken or hulled buckwheat removed by aspiration or passing through the No. 5 buckwheat or the No. 6 slotted sieve

Cleaning for grade improvement

If the grade of a delivery can be improved by additional cleaning, perform the cleaning and add the additional material to dockage. Cleaning for grade improvement can be done at any time after the cleaning assessment has been completed, including on export.

1. After the cleaning assessment has been completed, examine the material to be removed and select your equipment according to the material you want to remove. See the table for the list of equipment.
2. Sieve the sample by hand using the No. 6 buckwheat hand sieve.
 - ▲ **Important:** When using a hand sieve, move the sieve from left to right 30 times, in a steady motion. One complete motion is approximately 10 cm from the center to one side, back to the center, approximately 10 cm to the other side and back to the center.
3. Weigh the additional dockage and add it to the original dockage.

Cleaning for grade improvement—Small buckwheat

Material to be removed	Equipment	Effect on composition of dockage
Foreign material	No. 6 buckwheat hand sieve	The material passing through the sieve is included in the dockage

Assessing dockage in large buckwheat

Normal cleaning procedure

- ▲ **Important:** Wear gloves and a mask to handle any samples that you suspect may contain hazardous substances.

Buckwheat is considered large when 20.0% or less of the kernels pass through the No. 8 slotted sieve.

1. Set up the Carter dockage tester as follows:

Feed control	# 7
Air control	# 6
Riddle	None
Top sieve	No. 15 round-hole
Centre sieve	No. 6 slotted
Bottom sieve	Blank tray
Sieve cleaner control	On

2. Using a Boerner-type divider, divide the uncleaned sample to obtain a representative portion.
 - Official samples shall be at least 1 kg.
 - Unofficial samples shall be at least 1 kg.
3. Turn on the Carter dockage tester.
4. Pour the sample into the hopper.
5. Turn off the Carter dockage tester.
6. Determine dockage, using the list under **Composition of dockage**.

Composition of dockage

- Material other than whole kernels of buckwheat passing over the No. 15 round-hole sieve
- Material passing through the No. 6 slotted sieve
- Material removed by aspiration other than whole sound kernels of buckwheat
- Soft earth pellets handpicked from the cleaned sample
- Material removed by **Cleaning for grade improvement**

Commercially clean

Samples exiting primary elevators are defined as commercially clean when the net dockage does not exceed 2.5% of the sample weight.

Any whole domestic buckwheat removed in dockage assessment is returned to the clean sample. Dockage in shipments is reduced by up to

- 0.3% for fine attritional material which passes through the No. 4.5 round-hole sieve
- 0.5% for broken or hulled buckwheat removed by aspiration or passing through the No. 5 buckwheat or the No. 6 slotted sieve

Cleaning for grade improvement

If the grade of a delivery can be improved by additional cleaning, perform the cleaning and add the additional material to dockage. Cleaning for grade improvement can be done at any time after the cleaning assessment has been completed, including on export.

1. After the cleaning assessment has been completed, examine the material to be removed and select your equipment according to the material you want to remove. See the table for the list of equipment.
2. Sieve the sample by hand using the No. 8 slotted hand sieve.
 - ▲ **Important:** When using a hand sieve, move the sieve from left to right 30 times, in a steady motion. One complete motion is approximately 10 cm from the center to one side, back to the center, approximately 10 cm to the other side and back to the center.
3. Weigh the additional dockage and add it to the original dockage.

Cleaning for grade improvement—Large buckwheat

Material to be removed	Equipment	Effect on composition of dockage
Foreign material	No. 8 slotted hand sieve	The material passing through the sieve is included in the dockage

Optional analysis

Where a shipper requests special cleaning of a carlot of grain at a terminal elevator, and the elevator manager agrees, dockage material will be analyzed for the presence of grain. The percentage and grade of any grain contained in the dockage will be reported.

Procedure

1. Analyze the official sample.
2. Record the following on inspection records:
 - The percentage by gross weight to the nearest 0.1% and the grade of buckwheat.
 - The percentage by gross weight to the nearest 0.1% and the grade of grain separable from dockage.
 - The percentage of dockage.

Example:

95.0% Buckwheat, No. 1 Canada

4.0% Domestic Mustard Seed, No. 1 Canada Oriental

1.0% dockage

Grading

Important definitions

Net weight of sample

The sample after cleaning and removal of dockage is referred to as the cleaned sample. Its weight is the net weight of the sample. Percentages by weight for grading refer to percentages of the net weight.

Hazardous substances in samples

Wear gloves and a mask to handle any samples that you suspect may contain hazardous substances. Hazardous substances are defined in section 1 of the *Canada Grain Regulations* as “any pesticide, desiccant or inoculant”.

Processed sample

An unofficial sample of grain declared to be conditioned or cleaned to meet end user specifications, and whereas, the determination of dockage and/or determination of commercially clean are not performed or reported.

Rounding rules

Rounding rules are outlined in [schedule 3 of the *Canada Grain Regulations*](#). When official inspection results are expressed numerically, they should be expressed to the same decimal precision as the applicable tolerance in the primary and export grade determination tables.

Non-registered varieties

A registered variety refers to varieties of crops that have been granted variety registration in Canada. Species, kinds or types of crops subject to variety registration in Canada are listed in Schedule III of the *Seeds Regulations*. Not all crops are subject to registration. The Canadian Food Inspection Agency (CFIA) is responsible for the registration of varieties in Canada. Consult the CFIA’s [database of varieties registered in Canada](#) online to determine if a given variety is registered in Canada.

Where grain of any kind is not a registered variety under the *Seeds Act*, no person shall, except with the permission of the Canadian Grain Commission, assign a statutory grade to that grain which is higher than the lowest grade established by regulation for that kind of grain.

Representative portion for grading

All grading is done on representative portions divided down from the clean sample, using a Boerner-type divider.

The optimum representative portion is the representative sample size within the minimum and maximum range used to obtain the most accurate result when assessing an objective factor. It is determined by taking into consideration the tolerance and concentration of the objective factor being assessed.

Representative portion of buckwheat for grading (in grams)

Grading factor	Sample portion size range	
	Minimum	Maximum
Cereal grains	50 g	250 g
Damage	10 g	50 g
Dehulled	10 g	50 g
Ergot	500 g	working sample
Excreta	working sample	working sample
Fertilizer pellets	working sample	working sample
Fireburnt	working sample	working sample
Immature	10 g	50 g
Matter other than cereal grains	50 g	250 g
Odour	working sample	working sample
Sclerotinia sclerotiorum	500 g	working sample
Size	250 g	250 g
Soft earth pellets	working sample	working sample
Stones	working sample	working sample
Treated seed	working sample	working sample

Grading factors

Cereal grains (CGRN)

Cereal grains in buckwheat include wheat, rye, triticale, barley, oats and groats, including wild oat groats that remain in the clean sample.

Contaminated grain (CONTAM GRN)

▲ **Important:** Wear gloves and a mask to handle any sample that is suspected of containing contaminated grain.

Grain is contaminated for the purposes of the *Canada Grain Act* if the grain contains any substance in sufficient quantity that the grain is either

- (a) adulterated for the purposes of the *Food and Drugs Act*; or
- (b) contaminated within the meaning of the regulations made under section 51 of the *Safe Foods for Canadians Act*.

Treated seed

Treated seed is grain that has been adulterated with an agricultural chemical for agronomic purposes. The types of agricultural chemicals used to treat seed include pesticides, fungicides and inoculants. These seed dressings contain a dye to render the treated seed visually conspicuous. The colour of the dye varies depending upon the type of treatment and the type of grain. The current Canadian colour standard for pesticide and fungicide seed treatments for cereal (including corn) is red or pink. The colour standard for pesticide and fungicide seed treatments for canola is blue; however, green has also been used. Pulse crop (including soybeans) pesticide and fungicide seed treatments are typically blue or green. The coatings or stains may appear greasy or powdery and the surface area covered may range from tiny flecks to complete coverage.

Other chemical substances

Other chemical substances refers to any chemical residues either adhering to the kernel or remaining in the sample and to samples having a chemical odour of any kind.

Extraneous material

Can be defined as glass, metal, wood (including wood pellets), plastic or any other material not already defined in the Official Grain Grading Guide.

Procedure

If a sample is suspected of being coated with a pesticide, desiccant, inoculant or if the sample contains evidence of extraneous material, including any foreign chemical substance other than fertilizer pellets (FERT PLTS), the sample shall be graded 'Buckwheat, Held IP Suspect Contaminated Grain' and submitted to the Canadian Grain Commission. Determination as to whether grain is contaminated will be made by the Grain Research Laboratory in consultation with the Chief Grain Inspector for Canada. Samples deemed to be contaminated are graded 'Buckwheat, Sample Condemned'.

Damage (DMG)

Damage includes all dehulled seeds and seeds that are frosted, mouldy, or otherwise unsound. The hull of damaged kernels collapses under pressure, as when rolled between the thumb and forefinger.

Dehulled (DHULL)

Dehulled buckwheat is buckwheat with its hulls removed.

Earth pellets (EP)

- Hard earth pellets are pellets that do not crumble under light pressure.
See **Stones (STNS)**.
 - Soft earth pellets are pellets that crumble under light pressure.
See **Soft earth pellets (SEP)**.
-

Ergot (ERG)

Ergot is a plant disease producing elongated fungal bodies that have a purplish-black exterior, a purplish-white to off white interior, and a relatively smooth surface texture.

Excreta (EXCR)

Excrement from any animal including mammals, birds and insects.

▲ **Important:** Wear gloves and a mask to handle any samples that you suspect may contain excreta.

Extraneous material

See **Contaminated grain (CONTAM GRN)**

Fertilizer pellets (FERT PLTS)

Fertilizer pellets are a manufactured plant nutrient product used by producers in the production of grain. They are typically small, round or irregular shaped and usually white, grey, brown, pink or reddish in colour.

Procedure

- Handpick any fertilizer pellets and determine the concentration in the net working sample.
 - Fertilizer pellets are assessed as stones (STNS) when the concentration does not exceed 1.0% of the net sample weight.
 - Samples containing fertilizer pellets in excess of 1.0% of the net sample weight are graded 'Buckwheat, Held IP Suspect Contaminated Grain'. The sample should be submitted to the Canadian Grain Commission. Determination as to whether grain is contaminated will be made by the Grain Research Laboratory in consultation with the Chief Grain Inspector for Canada. Samples deemed to be contaminated are graded 'Buckwheat, Sample Condemned'.
-

Fireburnt (FBNT)

Fireburnt samples are samples that contain kernels that show any evidence of being charred or scorched by fire.

Immature (IM)

Immature kernels

- Do not contain a groat or have a severely shriveled groat
 - Have a hull which collapses under pressure
-

Matter other than cereal grains (MOTCG)

Matter other than cereal grains includes weed seeds and other grains that are not readily removable and may include canola, peas, lentils, beans, corn, and other domestic or wild seeds that remain in the cleaned sample.

Odour (ODOR)

There is no numeric tolerance for odour. Consider

- The basic quality of the sample
- The type and degree of the odour
- The presence of visible residue causing the odour

If odour is the grade determinant and there is . . .	Then the grade is . . .
A distinct objectionable odour not associated with the quality of the grain, but not heated or fireburnt	Buckwheat, Sample Canada (size) Account Odour
A distinct heated odour	Buckwheat, Sample Canada (size) Account Heated
A distinct fireburnt odour	Buckwheat, Sample Canada (size) Account Fireburnt

Sclerotinia sclerotiorum (SCL)

Sclerotinia sclerotiorum is a fungus producing hard masses of fungal tissue, called sclerotia. The sclerotia vary in size and shape, have a coarse surface texture, vary in exterior color from dark black to gray to white and have a pure white interior.

Size

Size is evaluated using a No. 8 slotted sieve. The size, large or small, is added to the grade name; for example, 'Buckwheat, No. 1 Canada Large'.

If the percentage of kernels passing through the No. 8 slotted sieve is . . .	Then the buckwheat is . . .
20.0 or less	Large
More than 20.0	Small

Soft earth pellets (SEP)

Soft earth pellets are

- Earth pellets that crumble into fine dust under light pressure, using a finger only— if they do not crumble, they are considered stones (STNS).
- Any non-toxic material of similar consistency

Procedure

1. Handpick soft earth pellets from a representative portion of the cleaned sample.
 2. Soft earth pellets are removed as dockage. See **Composition of dockage**.
-

Stones (STNS)

Stones are hard shale, coal, hard earth pellets, and any other nontoxic materials of similar consistency. Fertilizer pellets are assessed as stones when constituting 1.0% or less of the net sample weight. See **Fertilizer pellets (FERT PLTS)** for the specific procedure to be followed when samples contain fertilizer pellets.

Procedure

1. Handpick stones from a representative portion of the cleaned sample.
 2. Determine stone concentration in the net sample.
- Samples of grain grown in western Canada containing stones in excess of basic grade tolerances, up to 2.5% are graded 'Buckwheat, Rejected (basic grade) Account Stones'. The 'basic grade' refers to a grade established in the *Canada Grain Regulations* (grades listed in the first column in grade determination tables) that would have been assigned to the sample if it contained no stones.
 - Samples of grain grown in eastern Canada containing stones in excess of grade tolerances are degraded to lower grades. Samples containing stones in excess of the tolerance of the lowest grade established by regulation up to 2.5% are graded 'Buckwheat, Sample Canada Account Stones'.
 - Samples of western and eastern Canadian grain containing more than 2.5% stones are graded 'Buckwheat, Sample Salvage'.

Examples: Western Canada

Excerpt from grade determination tables for
Buckwheat, Canada

Grade name	Stones %
No. 1 Canada	0.03
No. 2 Canada	0.03
No. 3 Canada	0.03

Basic grade:..... Buckwheat, No. 2 Canada Large

Reason for basic grade:..... 2.0% Dehulled

If the above sample contained	Grade in western Canada
0.06% stones	Buckwheat, Rejected No. 2 Canada Large Account Stones
3.0% stones	Buckwheat, Sample Salvage

Examples: Eastern Canada

Excerpt from grade determination tables for
Buckwheat, Canada

Grade name	Stones %
No. 1 Canada	0.03
No. 2 Canada	0.03
No. 3 Canada	0.03

Basic grade:..... Buckwheat, No. 2 Canada Large

Reason for basic grade:..... 2.0% Dehulled

If the above sample contained	Grade in eastern Canada
0.06% stones	Buckwheat, Sample Canada Large Account Stones
3.0% stones	Buckwheat, Sample Salvage

Test weight (TWT)

Test weight is the weight of a known volume of grain expressed in kilograms per hectolitre. For procedures, see Chapter 1 of this guide, **Test weight**.

Treated seed and other chemical substances

See **Contaminated grain (CONTAM GRN)**.

Variety (VAR)

Only varieties registered in Canada under the *Seeds Act* are eligible for the top grades of buckwheat.

The Canadian Food Inspection Agency (CFIA) is responsible for the registration of varieties in Canada. Consult the CFIA's [database of varieties registered in Canada](#) online to determine if a given variety is registered in Canada.

Primary and export grade determination tables

Buckwheat, Canada (CAN), standard of quality

Grading factor	No. 1 Canada	No. 2 Canada	No. 3 Canada
Degree of soundness	Cool and sweet	Cool and sweet	May have a ground or grassy odour, not musty or sour
Minimum test weight kg/hL (g/0.5 L)	58 (285)	55 (270)	No minimum
Variety	Any variety of buckwheat registered under the <i>Seeds Act</i>	Any variety of buckwheat registered under the <i>Seeds Act</i>	Any variety of buckwheat

Note: The size may be added to the grade name

Buckwheat, Canada (CAN), damage

Grading factor	No. 1 Canada	No. 2 Canada	No. 3 Canada	Grade, if No. 3 specs not met
Dehulled %	1	2	5	Buckwheat, Sample Canada (size) Account Damage
Immature %	1.5	1.5	5.0	Buckwheat, Sample Canada (size) Account Damage
Total % Damage	4	8	20	Buckwheat, Sample Canada (size) Account Damage

Buckwheat, Canada (CAN), foreign material

Grading factor	No. 1 Canada	No. 2 Canada	No. 3 Canada	Grade, if No. 3 specs not met
Cereal grains %	1.0	2.5	5.0	Buckwheat, Sample Canada (size) Account Admixture
Ergot %	0.00	0.05	0.25	Buckwheat, Sample Canada (size) Account Ergot
Excreta %	0.01	0.01	0.01	Buckwheat, Sample Canada (size) Account Excreta
Matter other than cereal grains %	0.2	1.0	2.0	Buckwheat, Sample Canada (size) Account Admixture
Sclerotinia %	0.00	0.05	0.25	Buckwheat, Sample Canada (size) Account Admixture
Stones %	0.03	0.03	0.03	2.5% or less - West - Buckwheat, Rejected (grade) (size) Account Stones, or East - Buckwheat, Sample Canada (size) Account Stones Over 2.5% - Buckwheat, Sample Salvage
Total % Foreign material	1	3	5	Buckwheat, Sample Canada (size) Account Admixture

Export shipments

Export shipments can be commercially clean or not commercially clean.

Commercially clean (CCLN)

Export shipments are defined as commercially clean when the net dockage does not exceed 2.5% of the sample weight.

Any whole domestic buckwheat removed in dockage assessment is returned to the clean sample. Dockage in shipments is reduced by up to

- 0.3% for fine attritional material which passes through the No. 4.5 round-hole sieve
- 0.5% for broken or hulled buckwheat removed by aspiration or passing through the No. 5 buckwheat or the No. 6 slotted sieve

Not commercially clean (NCC)

Export shipments that do not meet the standards for commercial cleanliness are referred to as not commercially clean. Such shipments are permitted only with the permission of the Canadian Grain Commission.

For samples representing not commercially clean shipments approved by the Canadian Grain Commission for shipment from terminal elevators, dockage is reported to the nearest 0.1%.

Instead of the allowance for broken seed in commercially clean shipments, a direct deduction of 0.2% is applied to establish net dockage for direct exports only.

Assessing dockage for small buckwheat

Follow the primary dockage assessment procedure, with the Carter dockage tester set as follows.

Feed control	#6
Air control	#3
Riddle	None
Top sieve	No. 5 buckwheat
Centre sieve	No. 4.5 round-hole
Bottom sieve	Blank tray
Sieve cleaner control	Off

Dockage consists of the following:

- Material other than whole domestic buckwheat which passes through the No. 5 buckwheat or the No. 6 slotted sieve, less fine attritional material, broken or hulled buckwheat constituting not more than 0.5% of the sample by weight
- Material in excess of grade tolerances which is handpicked from the cleaned sample, other than cereal grains
- Material removed by **Cleaning for grade improvement**

Assessing dockage for large buckwheat

Follow the primary dockage assessment procedure, with the Carter dockage tester set as follows.

Feed control	#6
Air control	#3
Riddle	None
Top sieve	No. 6 slotted
Centre sieve	No. 4.5 round-hole
Bottom sieve	Blank tray
Sieve cleaner control	Off

Dockage consists of the following

- Material other than whole domestic buckwheat that passes through the No. 6 slotted sieve, less fine attritional material, broken or hulled buckwheat constituting not more than 0.5% of the sample by weight
- Material in excess of grade tolerances which is removed by aspiration, other than whole domestic buckwheat
- Material in excess of grade tolerances which is handpicked from the cleaned sample, other than cereal grains
- Material removed by **Cleaning for grade improvement**

Grading

Buckwheat on export is graded in accordance with the primary and export grade determination tables.