


22. Chickpeas

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Classes, types and varieties

Classes

There are two classes of chickpeas, Kabuli and Desi.

- Kabuli chickpeas are typically whitish to light tan in colour however there are new varieties that are black or green in color.
- Desi chickpeas are typically brown in colour and smaller than Kabuli.

The class of chickpea forms part of the grade name; for example, Chickpea, No. 1 CW Kabuli.

The method of determining the class of a chickpea is by the size and colour of the chickpea.

Determination of dockage

Definitions

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 procedures described in this section of the guide.

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 not reported

- ▲ **Important:** Dockage is not reported for
 - Chickpeas, Sample CW (class) Account Fireburnt
 - Chickpeas, Sample Salvage
 - Chickpeas, Sample Condemned
 - Unofficial samples declared as processed

Normal cleaning procedures

- ▲ **Important:** Wear gloves and a mask to handle any samples that you suspect may contain hazardous substances.
1. 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.
 2. Choose the hand sieve for the class of chickpeas that will achieve maximum removal of dockage material with minimum loss of chickpeas:
 - **Kabuli:** No. 18 round-hole sieve (large seeded)
No. 12 slotted sieve (medium seeded)
No. 14 slotted sieve
No. 16 slotted sieve
 - **Desi:** No. 12 slotted sieve
 3. Sieve the sample, using approximately 250 grams at a time, over the appropriate sieve to remove all readily removable material.
 4. Handpick all coarse vegetable matter such as pods, stems, straw, thistle tops from the sieved sample.
 5. Handpick all grasshoppers, other insects and insect parts from the sieved sample.

Composition of dockage

All material removed by sieving or handpicking or both, as defined in *Normal cleaning procedures*.

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.

Procedures

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 chickpeas.
 - 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% Chickpeas, No. 1 Canada Western Desi
4.0% Domestic Mustard Seed, No. 1 Canada Oriental
1.0% dockage

Sizing

Upon written request, samples of chickpeas may be analyzed for size Sizing procedures are as follows:

Procedures

1. Using a Boerner-type divider, divide the clean sample to obtain a representative portion of between 250 – 300 grams.
2. Pour the representative sample onto the left-hand side of the hand sieve.
3. Move the sieve from left to right 20 times, using a sifting motion. One time is one complete motion from center, to one side, to the other side and back to the center. The total distance from left to right is 20 cm or about 8 inches.
4. Determine the amount remaining on top of the sieve. Passing your hand along the underside of the sieve may be necessary in order to dislodge all the seeds.
5. Report the percent by weight of the seeds remaining on top of the sieve.

Note: The size of sieve must be clearly indicated on the written request. Generally, sizing would be done using one of the following hand sieves – No. 8, 9 or 10 mm round hole, however, the analysis can be done on any sieve size as requested.

Grading

Important definitions

Net weight of sample

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

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. The [Non-Registered Varieties of Chickpeas, Soybeans and Corn order](#) is issued annually to allow non-registered varieties of chickpeas to be graded higher than the lowest statutory grade.

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 chickpeas for grading (in grams)

Grading factor	Sample portion size range	
	Minimum	Maximum
Colour	working sample	working sample
Damage	100 g	250 g
Excreta	working sample	working sample
Fertilizer pellets	working sample	working sample
Fireburnt	working sample	working sample
Foreign material	100 g	working sample
Green	100 g	250 g
Insect parts	working sample	working sample
Mechanical damage including splits	100 g	250 g
Odour	working sample	working sample
Treated seed	working sample	working sample

Grading factors

Colour (CLR)

Colour is a grade determinant only in the Kabuli class. Colour is assessed after the removal of damaged chickpeas and chickpeas assessed as green. See *Damaged* and *Green*.

If chickpeas are . . .	Colour is . . .
Sound, well matured and have a uniform normal colour	Good
Immature, but not green, have moderate amounts of adhered soil, are lightly stained or otherwise moderately discoloured from natural causes	Fair
Do not meet the definition of fair colour	Poor

Contaminated grain

▲ **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.

Procedures

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, the sample shall be graded *Chickpeas, 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: *Chickpeas, Sample Condemned*.

Damage (DMG)

Damaged chickpeas include

- Whole or broken chickpeas that are sprouted, frost damaged, heated, damaged by insects, distinctly deteriorated or discoloured by weather or by disease, or that are otherwise damaged in a way that seriously affects their quality.

Note: for frost damaged kernels, use the following table:

Frost damage	Considered as
Frost-damaged chickpeas which are green	Green
Frost-damaged chickpeas with no green colour	Damage

Procedures

In Kabuli chickpeas, white and shriveled chickpeas and yellow or water stained chickpeas should be cut and examined for damage. If the cotyledons show

- Any signs of visible damage, they are considered damaged
- No signs of visible damage, they are considered in the evaluation of colour

Earth pellets (EP)

See *Foreign material*.

Ergot (ERG)

Ergot is a plant disease producing elongated fungus 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*

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.

Procedures

- Handpick any fertilizer pellets and determine the concentration in the net working sample.
- Fertilizer pellets are assessed as stones 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 *Chickpeas, 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: *Chickpeas, Sample Condemned*.

Fireburnt (FBNT)

Fireburnt seeds have been charred or scorched by fire. No fireburnt seeds are allowed in chickpeas.

Procedures

Samples considered fireburnt are graded *Chickpeas, Sample CW (class) Account Fireburnt*.

Foreign material (FM)

Foreign material includes

- Other classes of chickpeas
- Other grains and seeds
- Ergot and Sclerotinia
- Mineral matter, stones and earth pellets
- Any other material not removed by *Normal cleaning procedures*

Green (GR)

Chickpeas may be considered green regardless of the cause. (Does not apply to green coloured varieties)

Frost-damaged chickpeas which are green are considered under the grade determinant for *Green*.

Frost-damaged chickpeas with no green colour are considered under the grade determinant for *Damage*.

Kabuli chickpeas are considered green if they show any green colour of any size area anywhere on the seeds or seed coats.

Desi chickpeas are considered green if they show distinctly green colour throughout the seed when cut to expose the cotyledons.

Heated (HTD)

Chickpeas that have dull seed coats and discoloured cotyledons ranging from light tan to dark brown are considered heated. See *Damage*.

Heated seeds of other grains are included in the tolerance for *Damage*.

Insect parts (I PARTS)

Insect parts refers to whole or pieces of insects such as grasshoppers, lady bugs and other insects that remain in the sample after cleaning or processing.

If pulse crops come into contact with insects during the harvesting process, it may result in seed staining and earth adhering to the seed and may result in samples having an objectionable odour. Samples containing staining of this nature will be considered to be earth tagged and graded according to colour definitions. Samples having a distinct objectionable odour not associated with the quality of the grain will be graded *Type of Grain Sample Account Odour*.

Mechanical damage including splits (MDMGINCSPLTS)

In chickpeas, mechanical damage including splits includes

- Whole chickpeas with more than 10% of the chick pea broken off
- Split chickpeas

▲ **Important:** Seeds with hairline cracks and chipped seed coats are not considered mechanical damage.

Procedures

Chickpeas with mechanical damage are hand-picked from 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	<i>Chickpeas, Sample CW (class) Account Odour</i>
A distinct heated odour	<i>Chickpeas, Sample CW (class) Account Heated</i>
A distinct fireburnt odour	<i>Chickpeas, Sample CW (class) Account Fireburnt</i>

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. See *Foreign material*

Soft earth pellets (SEP)

See *Foreign material*.

Stones (STNS)

See *Foreign material*.

Treated seed and other chemical substances

See *Contaminated grain*

Primary and export grade determination tables

Chickpeas, Canada Western Kabuli (CW), standard of quality

Grading factor	No. 1 CW	No. 2 CW	No. 3 CW
Colour	Good natural colour	Fair colour	Poor colour
Variety	Any variety of Kabuli Chickpeas	Any variety of Kabuli Chickpeas	Any variety of Kabuli Chickpeas

Chickpeas, Canada Western Kabuli (CW), damage

Grading factor	No. 1 CW	No. 2 CW	No. 3 CW	Grade, if No. 3 specs not met
Damage %	0.5	1.0	2.0	<i>Chickpeas, Sample CW Kabuli Account Damaged</i>
Mechanical damage including splits %	1	2	3	<i>Chickpeas, Sample CW Kabuli Account Mechanical Damage including Splits</i>
Green %	0.5	1.0	2.0	<i>Chickpeas, Sample CW Kabuli Account Green</i>

Chickpeas, Canada Western Kabuli (CW), foreign material

Grading factor	No. 1 CW	No. 2 CW	No. 3 CW	Grade, if No. 3 specs not met
Ergot %	0.05	0.05	0.05	<i>Chickpeas, Sample CW Kabuli Account Ergot</i>
Excreta %	0.01	0.01	0.01	<i>Chickpeas, Sample CW Kabuli Account Excreta</i>
Insect parts %	0.02	0.02	0.02	<i>Chickpeas, Sample CW Kabuli Account Foreign Material</i>
Total % Foreign material	0.1	0.2	0.2	<i>Chickpeas, Sample CW Kabuli Account Foreign Material</i>

Chickpeas, Canada Western Desi (CW), standard of quality

Grading factor	No. 1 CW	No. 2 CW	No. 3 CW
Variety	Any variety of Desi Chickpeas	Any variety of Desi Chickpeas	Any variety of Desi Chickpeas

Chickpeas, Canada Western Desi (CW), damage

Grading factor	No. 1 CW	No. 2 CW	No. 3 CW	Grade, if No. 3 specs not met
Damage %	1	2	3	<i>Chickpeas, Sample CW Desi Account Damaged</i>
Mechanical damage including splits %	2.0	3.5	5.0	<i>Chickpeas, Sample CW Desi Account Mechanical Damage including Splits</i>
Green %	1.0	2.0	3.0	<i>Chickpeas, Sample CW Desi Account Green</i>

Chickpeas, Canada Western Desi (CW), foreign material

Grading factor	No. 1 CW	No. 2 CW	No. 3 CW	Grade, if No. 3 specs not met
Ergot %	0.05	0.05	0.05	<i>Chickpeas, Sample CW Desi Account Ergot</i>
Excreta %	0.01	0.01	0.01	<i>Chickpeas, Sample CW Desi Account Excreta</i>
Insect parts %	0.02	0.02	0.02	<i>Chickpeas, Sample CW Desi Account Foreign Material</i>
Total % Foreign material	0.1	0.2	0.2	<i>Chickpeas, Sample CW Desi Account Foreign Material</i>

Export shipments

Chickpeas on export are graded in accordance with the primary and export grade determination tables. Foreign material in processed chickpeas is treated as a grading factor. Cargoes containing dockage may not be shipped except with permission from the CGC.