

15. Safflower seed

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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 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 not reported

- ▲ **Important:** Dockage is not reported for
- Safflower Seed, Sample Canada Account Fireburnt
 - Safflower Seed Sample Salvage
 - Safflower Seed, Sample Condemned
 - Unofficial samples declared as processed

Normal cleaning procedure

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

1. Set up the Carter dockage tester as follows:

Feed control	# 7
Air control	# 7
Riddle	none
Top sieve	blank
Centre sieve	none
Bottom sieve	none
Sieve cleaner control	

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. Sieve portions of approximately 250 grams at a time.
4. Sift the sample over a No. 15 round-hole sieve nested over a No. 6 slotted sieve or a No. 6 buckwheat sieve or both, with a blank sieve on the bottom.
5. Turn on the Carter dockage tester.
6. Pour into the hopper the part of the sample that has passed through the No. 15 round-hole sieve.

7. From the material remaining on the top of the No. 15 round-hole sieve, handpick all whole or broken safflower seeds and return them to the cleaned sample.
8. Determine dockage, using the list that follows, under **Composition of dockage**.

Composition of dockage

- Material removed by the No. 15 round-hole sieve, except sound whole safflower seeds
- Material removed by the No. 6 slotted, the No. 6 buckwheat sieve, or both
- Material removed by aspiration, except sound whole safflower seeds
- Soft earth pellets (SEP) handpicked from the clean sample constituting up to 2.5% of the sample by weight—if the percentage of soft earth pellets is 2.5% or more, soft earth pellets (SEP) becomes a grading factor.

Commercially clean

Samples exiting primary elevators defined as commercially clean may contain up to 2.5% by weight of 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 safflower seed.
 - 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% Safflower Seed, 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 cleaned sample, 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 safflower seed for grading (in grams)

Grading factor	Sample portion size range	
	Minimum	Maximum
Damage	25 g	100 g
Dehulled	25 g	100 g
Empty hulls	100 g	250 g
Excreta	working sample	working sample
Fertilizer pellets	working sample	working sample
Heated	100 g	250 g
Matter other than cereal grains	100 g	250 g
Odour	working sample	working sample
Other grains	100 g	250 g
Rotted	50 g	100 g
Soft earth pellets	working sample	working sample
Stones	working sample	working sample
Treated seed	working sample	working sample

Grading factors

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 'Safflower Seed, 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 'Safflower Seed, Sample Condemned'.

Damage (DMG)

Damaged seeds are frosted, green, broken, heated (HTD), insect-damaged or otherwise unsound.

Dehulled (DHULL)

Intact safflower seeds are called achenes which consists of the hull containing the seed.
Dehulled seeds are broken or whole seeds without hulls.

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)**.
-

Empty hulls (HULLS)

Intact safflower seeds are called achenes which consists of the hull containing the seed.
Empty hulls are achenes with intact hulls but which contain no seeds. This also includes hulls having less than one-third of the seed attached.

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 'Safflower Seed, 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 'Safflower Seed, Sample Condemned'.
-

Foreign material (FM)

Foreign material is anything other than safflower that remains in the sample after the removal of dockage. Some types of foreign material have separate tolerances.

Heated (HTD)

Heated seeds have the colour or odour typical of grain that has heated or deteriorated in storage. Heated kernels include kernels discoloured from artificial drying, but not charred kernels. Heated seeds of other grains are included in the tolerance for heated

Matter other than cereal grains (MOTCG)

Matter other than cereal grains refers to weed seeds and other grains that are not readily removable and may include

- Canola, peas, lentils, beans, corn, other domestic or wild seeds
- Ergot (ERG) and sclerotinia sclerotiorum (SCL)

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 . . .
An excessive objectionable odour not associated with the quality of the grain, but not heated or fireburnt	Safflower Seed, Sample Canada, Account Odour
An excessive heated odour	Safflower Seed, Sample Canada, Account Heated
An excessive fireburnt odour	Safflower Seed, Sample Canada, Account Fireburnt

Other grains (OGRN)

Other grains in safflower seed include wheat, rye, triticale, barley, oats and groats, including wild oat groats that remain in the cleaned sample.

Rotted (ROT)

Seeds have the colour or odour typical of grain that has heated or deteriorated in storage. Rotted seed is considered in combination with heat-damaged kernels.

Soft earth pellets (SEP)

Soft earth pellets are pellets that crumble under light pressure—if they do not crumble, they are considered stones (STNS). These pellets can be

- Earth and fertilizer pellets (FERT PLTS)
- Any non-toxic material of similar consistency

Soft earth pellets in safflower seed are considered foreign material (FM).

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 'Safflower Seed, 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 'Safflower Seed, Sample Canada Account Stones'.
 - Samples of western and eastern Canadian grain containing more than 2.5% stones are graded 'Safflower Seed, Sample Salvage'.

Examples: Western Canada

Excerpt from grade determination tables for
Safflower Seed, Canada

Grade name	Stones %
No. 1 Canada	0.1
No. 2 Canada	0.1
No. 3 Canada	0.1

Basic grade:..... Safflower Seed, No. 2 Canada

Reason for basic grade:..... 4.0% Dehulled

If the above sample contained	Grade in western Canada
0.2% stones	Safflower Seed, Rejected No. 2 Canada Account Stones
3.0% stones	Safflower Seed, Sample Salvage

Examples: Eastern Canada

Excerpt from grade determination tables for
Safflower Seed, Canada

Grade name	Stones %
No. 1 Canada	0.1
No. 2 Canada	0.1
No. 3 Canada	0.1

Basic grade:..... Safflower Seed, No. 2 Canada

Reason for basic grade: 4.0% Dehulled

If the above sample contained	Grade in eastern Canada
0.2% stones	Safflower Seed, Sample Canada Account Stones
3.0% stones	Safflower Seed, Sample Salvage

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 safflower seed.

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

Safflower Seed, Canada (CAN), standard of quality

Grading factor	No. 1 Canada	No. 2 Canada	No. 3 Canada	Grade, if No. 3 specs not met
Degree of soundness	Well matured, good natural colour	Reasonably well matured, may be moderately weather-stained	Excluded from higher grades on account of weather-stained, may have the odour associated with low-quality seed but not distinctly sour, musty or rancid	
Variety	Any variety of safflower registered under the <i>Seeds Act</i>	Any variety of safflower registered under the <i>Seeds Act</i>	Any variety of safflower	
Empty hulls %	0.5	1.0	2.0	Safflower Seed, Sample Canada Account Hulls
Dehulled seeds %	2	5	8	Safflower Seed, Sample Canada Account Dehulled

Safflower Seed, Canada (CAN), damage

Grading factor	No. 1 Canada	No. 2 Canada	No. 3 Canada	Grade, if No. 3 specs not met
Heated %	0.0	0.0	1.0	Safflower Seed, Sample Canada Account Heated
Total % Damage	3	10	10	Safflower Seed, Sample Canada Account Damaged

Safflower Seed, Canada (CAN), foreign material

Grading factor	No. 1 Canada	No. 2 Canada	No. 3 Canada	Grade, if No. 3 specs not met
Excreta %	0.02	0.02	0.02	Safflower Seed, Sample Canada Account Excreta
Material other than cereal grains %	0.2	0.5	1.0	Safflower Seed, Sample Canada Account Admixture
Stones %	0.1	0.1	0.1	2.5% or less - West - Safflower Seed, Rejected (grade) Account Stones or East - Safflower Seed, Sample Canada, Account Stones Over 2.5%—Safflower Seed, Sample Salvage
Total % Foreign material	0.5	2.0	5.0	Safflower Seed, Sample Canada Account Admixture

Export shipments

Export shipments can be commercially clean or not commercially clean.

Commercially clean (CCLN)

Export shipments defined as commercially clean may contain up to 2.5% by weight of dockage.

Dockage is reported to the nearest 0.1%

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%.

A deduction of up to 0.2% is applied to take into account the buildup of attritional material for direct exports only.

Grading

Safflower seed on export is graded in accordance with primary and export grade determination tables.