



Official Grain Grading Guide

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27. Glossary

This section describes grading factors, procedures and common terms used in grading Canadian grain.

AAFC

Agriculture and Agri-Food Canada, the federal department of agriculture.

act

Canada Grain Act. See Canada Grain Act.

aeration

Aeration is the process of passing air currents through a grain stream. This process is used to remove objectionable odours or to preserve grain quality by reducing its temperature or moisture content.

armyworm damage

See insect damage.

ascochyta blight

Ascochyta blight is a fungal disease that attacks the leaflets, stems, petioles, pods, and seeds of lentil. Heavily infected seeds usually are characterized by a half-moon shaped, light to reddish or reddish brown spot on the edge of the seed. Occasionally it appears as a brown spot on the cheek of the seed.

Ascochyta blight was first reported in Canada in 1978 and has subsequently become a serious problem. It causes yield losses and severe seed discolouration in epidemic years.

attritional material

Attritional material is material other than small seeds and broken grain passing through the No. 4.5 round-hole sieve.

audit

An audit is the official weighing and inspection of stocks of grain, grain products, or screenings in a licensed elevator, to determine if an overage or shortage of stock exists. Intervals between audits and limits for overages and shortages are prescribed in the Regulations.

At licensed terminal and transfer elevators, audits are directed by CGC staff. At licensed primary and process elevators, operators need only to supply the CGC with stock reports.

automatic mechanical sampler

An automatic mechanical sampler is a device which extracts a small representative portion from the grain flow at regular intervals.

average samples

Average samples represent the visual quality of a grade of grain in a specific location at the end of a time interval. Average samples are composited to create official carlot unload samples, cargo samples or submitted samples, by elevator, by port, or by inspection district. They provide a means of monitoring grade levels and specific grading factors.

barley of other types

In two-row barley, barley of other types is any six-row variety. In six-row barley, barley of other types is any two-row variety.

Berlese funnel

A Berlese funnel is a device for collecting insects.

Grain suspected of being infested is placed in the funnel. The funnels used by Industry Services hold up to one kilogram of grain. The funnels are placed under lights. Insects move away from the lights down the funnel and are collected in receptacles placed under the funnels.

binburnt kernels

Binburnt kernels closely resemble fireburnt kernels in colour. However, in cross section, the binburnt kernel maintains its dense structure and appears smooth and glossy, unlike a fireburnt kernel, which looks like charcoal in cross-section, has numerous air holes, and crumbles easily under pressure.

Binburnt kernels are caused by gradual heating in storage and have not been exposed to temperatures approaching ignition.

The weight of a binburnt kernel is similar to that of a sound kernel of comparable size.

blackpoint

Blackpoint is a discolouration on the germ end of kernels of grain caused by numerous species of fungi and bacteria. Blackpoint is found in barley, triticale and wheat, although there is no separate tolerance defined for blackpoint in barley.

Kernels are susceptible during periods of rainfall or humidity above 90%, particularly during filling or maturation.

Blackpoint does not usually reduce yields, but it can reduce grade and quality. Blackpoint is especially troublesome on durum wheat because black specks can appear in the semolina, making it undesirable for further processing.

bleached

Bleaching is an indication of exposure to wet conditions at or near maturity. Bleaching is caused by alternate wetting and drying of grain which causes tiny fissures to develop throughout the kernels. The fissures are caused because the grain swells a little when it is wet and doesn't dry back to the same size.

Board grain

Board grains are western grains marketed under the control of the Canadian Wheat Board (CWB). These include western wheat and barley destined for the export market, as well as domestic sales of wheat and barley for human consumption.

Domestic feed wheat and domestic feed barley may be sold either on the open market or delivered to the CWB.

brake end

The brake end is the end of a railway car where the hand brake wheel is located. Compartments or partitions in a railcar are numbered sequentially beginning at the brake end.

bunt

Bunt is characterized the presence of bunt balls or black spores. Infected grain may have a fishy odour. Common bunt is a wheat disease caused by two closely related fungi, *Tilletia caries* and *Tilletia foetida*. The disease is also called stinking or covered smut. In infected plants, kernels on headed plants are replaced with bunt balls containing black powdery spores of the fungus.

Bunt balls can be removed by following procedures for cleaning for grade improvement, as long as there is no odour. If there is an odour, the presence of bunt balls is a grading factor in wheat. If there is no odour, but kernels are tagged with bunt, the sample is considered naturally stained.

Bunt reduces yield of infected crops, and it reduces the value of the crop, even in mildly infected crops. It is not as common as it once was in Canada, because we have developed effective control measures and new cultivars that are resistant to the disease.

Canada Eastern, Canada Western, Canada

These three terms form part of the grade name; for example, Canada Eastern White Spring wheat, or Canada Western select barley. The terms refer to the geographic area (eastern or western Canada) of production as defined in the Canada Grain Act, or to Canada generally.

Canada Grain Act

The Canada Grain Act is the statutory authority empowering the CGC to regulate grain handling in Canada and to establish and maintain quality standards for Canadian grain. It was first passed in 1912. The text of the Act can be found through the CGC web site at www.grainscanada.gc.ca.

Canada Grain Regulations

The Regulations are established by Section 116 of the Canada Grain Act. They govern grain-handling procedures and define grades for grain grown in eastern and western Canada.

canola

The term “canola” was trademarked in 1978 by the Western Canadian Oilseed Crushers’ Association to differentiate the new superior low-erucic acid and low-glucosinolate varieties and their products from older rapeseed varieties.

cargo sample

A cargo sample is a composite of average samples taken as a cargo of wheat is loaded into a ship for export. Cargo samples are inspected and graded, and portions of them are sent to the Grain Research Laboratory for analysis.

caryopsis

The caryopsis is the kernel of cereal grains and grasses with the hull removed.
See *groats*.

cash crops

Cash crops are crops produced for direct sale for cash.

cash purchase ticket

A cash purchase ticket is a ticket issued indicating the grade, weight, price and amount payable to the owner of the grain for each delivery of grain to a primary elevator, process elevator or grain dealer. The ticket is a negotiable instrument and can be cashed at any chartered bank or credit union. It is defined in the Canada Grain Act.

cereal grains

Cereal grains are wheat, rye, barley, oats and triticales.

certificate

The CGC issues a number of certificates assuring grain quality. These include

- Inspection certificate, issued following an official inspection of a sample of grain
 - Certificate Final, issued on cargoes of grain for export, stipulates the grade and weight of the grain
 - Submitted sample certificate, issued for a submitted sample
 - Western Certificate (Eastern Division)
 - I-7 certificate (sample salvage)
-

Certificate Final

The Certificate Final is issued by the CGC for each cargo of export grain. The Certificate Final stipulates the grade and weight of the grain loaded on a vessel.

chlorophyll

Chlorophyll is the green pigment found in all green plants. It is essential for photosynthesis. In canola, seeds lose their chlorophyll as they ripen. However, canola seeds do not all ripen at once. Therefore in harvested canola, some seeds may still contain some chlorophyll.

class

Classes are defined under the Canada Grain Act. Class, in respect of grain, means any variety or varieties of grain designated by order of the CGC as a class.

commercially clean

Commercially clean shipments are shipments of grain whose dockage falls within allowed limits and is of a type normally present after standard commercial cleaning.

Commission

The Canadian Grain Commission is referred to as the CGC. The Chief Commissioner of the CGC reports directly to the Minister of Agriculture.

Commission Order

A Commission order is a directive of the CGC consistent with Section 118 of the Canada Grain Act. An order remains in effect only until the end of the crop year in which it is issued. Orders can be viewed from the CGC web site at <http://www.grainscanada.gc.ca/Regulatory/regmenu-e.htm#orders>.

composite sample

A composite sample is composed of a number of distinct portions, each obtained in a prescribed manner from consecutive samples. The portions are blended to make the composite.

consecutive samples

Consecutive samples are samples taken one after another in a prescribed manner from the same lot of grain.

consigned car

A consigned car is a carlot of grain delivered on the basis of an arranged sales agreement between the owner of the grain and a marketing agency.

contaminated grain

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

Contaminated is defined in the “*Canada Grain Act*” as; “Contaminated means, in respect of grain, containing any substance in sufficient quantity that the grain is unfit for consumption by persons or animals or is adulterated within the meaning of the regulations made pursuant to sections B.01.046(1), B.15.001 and B.15.002(1) of the *Food and Drugs Act*.”

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 “*Type of Grain, Sample Condemned*.”

Paragraph 76. (1) of the Canada Grain Act specifies that operators of licensed terminal or transfer elevator must inform the CGC if they find grain to be infested or

contaminated, or to have gone or to be likely to go out of condition or otherwise to require treatment. The CGC may inspect the grain.

The CGC tells the operator how to treat or dispose of the grain. If the grain has been special binned, the elevator operator may recover the costs of treating or disposing of the grain from the owner of the grain.

Paragraph 90. (1) says that a CGC inspector who believes on reasonable grounds that grain is contaminated may seize any evidence necessary to support their suspicion. Paragraph 104 says that an operator of a licensed elevator must not knowingly receive or discharge any grain, grain product or screenings that is infested or contaminated or that may reasonably be regarded as being infested or contaminated

cool and sweet

Cool and sweet are terms used to describe the condition of grain which is of a normal temperature and is free from any objectionable odour.

Cox funnel

A Cox funnel is used in determining test weight in conjunction with the 0.5-litre measure to control the flow of grain into the measure.

crop year

The crop year is from August 1 to July 31 of the following year, as defined in the Canada Grain Act. The Governor in Council may, by order, vary the period of a crop year to another period of not less than three hundred and sixty-five days.

CWB

Canadian Wheat Board.

damp

A sample of grain is identified as damp if the moisture content exceeds the tough range defined for that class of grain. In terms of moisture content, grain is classified as straight, tough, or damp. For corn, soybeans, sunflower seed and safflower seed, there are two additional classes of moisture content, moist and wet.

darkened kernels (amber durum)

Darkened kernels (amber durum) – Darkened kernels are similar in appearance to penetrated smudge with the exception that discolouration is gray to charcoal in colour rather than red to dark brown.

For grading purposes, darkened kernels should be considered as, and in conjunction with severe midge damage.

degermed kernels

Degermed kernels have had their germ removed. If the sample contains sprouted kernels, degermed kernels that are clearly not mechanically damaged are classed as sprouted. Degermed kernels are a grading factor for wheat, rye and triticale.

dehulled

Occasionally used for *hulled*.

direct hit shipments

Direct hit shipments are those shipments where Canadian grains, oilseeds and/or pulses are transferred from trucks and/or railcars directly to a vessel without added processing.

dockage

According to the Canada Grain Act, dockage is material that must be removed from grain by the use of approved cleaning equipment so that the grain can be assigned a grade. Once it has been removed from the grain, dockage is called *screenings*.

To report the percentage by weight of dockage in a sample,

For . . .	dockage is . . .
grain that is not commercially clean	reported in increments of 0.1%
eastern grains	assessed to the nearest 0.1%
export shipments authorized by the CGC to contain dockage	reported to the nearest 0.1%
grain graded <i>Sample Salvage, Sample Canada/CW/CE Account Fireburnt</i>	not reported
samples of official carlot or trucklot shipments containing dockage within established export limits for commercial cleanliness; for example, domestic buckwheat, 2.5%	what is normally present after ordinary commercial cleaning—there is no minimum canola, 2.5%, or dockage
off-grades	dockage is covered in the section describing the specific class of grain

Allowances are made for finely broken seeds in indirect export shipments.

earth pellets

Earth pellets are a type of foreign material found in grains.

Soft earth pellets include soft fertilizer pellets, except in domestic mustard seed, and any non-toxic material of a similar consistency. Earth pellets remaining in cleaned samples are handpicked and, up to specified tolerances, their percentage by weight is added to the percentage by weight of dockage in domestic shipments to terminals. Export shipments must be practically free from earth pellets.

Hard earth pellets are stones.

Eastern and western grain, mixed

Mixtures of eastern and western grain, except for corn, are graded [*class of grain*] *Sample Eastern and Western Mixed*. When the composition of the samples is known or can be established by analysis, it is recorded on the back of the inspection certificate.

Separate lots of western corn may be loaded to vessels without separation at the request of shippers.

Electronic Inspection System (EIS)

The Electronic Inspection System, used by inspectors to determine test weight, dockage and grading factor percentages, includes a computer, electronic scale and a printer.

elevator

Licensed grain elevators are of four types: primary, process, transfer and terminal.

End-use certificate

End-use certificates are issued upon request for grain imported into Canada as prescribed under the Canada Grain Act.

ergot

Ergot is a fungal disease which occurs on cereals and grasses. It is most prevalent on rye, triticale, wheat, and barley, in decreasing order of occurrence. It is rarely found on oats. The disease produces hard dense fungus bodies, called *sclerotia*, having a purplish black exterior, a purplish white to off-white interior, and a relatively smooth surface texture.

excreta

Excreta is the grading factor term used for excrement from any animal including mammals, birds and insects.

Usually excreta are removed as dockage. Any that remains may become a grading factor.

experimental grades

Experimental grades are established to provide the Canadian Wheat Board a way to market new varieties of wheat and barley to assess their acceptability in world markets.

export ready

Export ready refers to carlots which meet the following criteria:

1. The lot must meet the commercially clean specifications for the grade
2. Wheat of other classes and contrasting classes must meet the export specifications for the grade
3. Total foreign material must meet the export specification for the grade.

Carlots, which are commercially clean but do not meet the export specifications for either wheat of other classes or total foreign material, will be designated as “Not Ready for Export”.

extraneous material

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

Note: Canadian Grain Commission personnel should refer to ISO national work instruction “*Suspect Contaminated Grain, Handling Procedures*” for specific procedures to be followed when handling samples suspected of containing extraneous materials.

fair average quality (FAQ)

FAQ is a term used in grain marketing in some countries to describe the current year's grain quality on the basis of an average sample. The FAQ is a class of grain which is said to represent the quality of a commodity produced in a given year. FAQ standards of quality may change from year to year.

falling number

The falling number is a measure of enzyme activity as a result of sprouting. It is a measure of how many seconds it takes for a plunger to sink through a paste made of ground grain and water.

The test works on the principle that the presence of alpha-amylase causes the gelatinized starch to be reduced to sugars, with a loss of viscosity. The loss in viscosity results in a lower falling number. Samples of grain with high amounts of alpha-amylase will have a falling number of around 70 seconds. Grain which is sound and has low levels of enzyme will have a high falling number, for example, 350 seconds.

fertilizer pellets

Fertilizer pellets are pelletized plant nutrients which are typically small, hard and either round and white, or irregular-shaped and pink or red. Fertilizer pellets are not considered a hazardous substance however there is no visible means of assuring that material resembling fertilizer pellets is not some other contaminant. Refer to the specific grain chapter for assessment procedures.

fireburnt kernels

Fireburnt kernels are kernels burned or scorched by fire. A cross-section of a fireburnt kernel resembles charcoal, with numerous air holes. These air holes result in a low-weight kernel which crumbles easily under pressure.

The Off-Grades of Grades of Grain and Grades of Screenings Order excludes from any Class I or Class II grade any grain having a fireburnt odour or containing fireburnt kernels in excess of established tolerances, because it is not possible to separate all kernels affected by smoke or heat from samples containing grain damaged by fire.

foreign grain

If the inspector suspects that a sample or shipment of grain is not of Canadian origin, the shipper must provide a letter indicating the country of origin, before official grading occurs.

Unofficial samples

Inspection services may be provided for samples of foreign grains. Certificates or letters must clearly indicate that the grade provided is the grade the sample would qualify for if the grain had been of Canadian origin.

Official samples, terminal receipts

Inspection records and certificates specify the class of grain and, in place of the grade, the country of origin. For example, *Corn, USA origin*.

foreign material

Foreign material is material other than grain of the same class that remains in the sample after the removal of dockage. Some examples of foreign materials found in grain samples are

- Cereal grains, sometimes called other cereal grains
- Earth pellets, soft
- Ergot
- Fertilizer pellets, hard
- Large seeds
- Matter other than cereal grains
- Roughage
- Sclerotinia
- Small oilseeds
- Small seeds
- Stones

Many of the materials, such as stones, ergot, and sclerotinia have separate tolerances. Foreign material reduces the value—there is less desired grain for the weight or volume purchased. In addition, the presence of foreign material in grain compromises our reputation for clean grain.

Even the presence of other cereal grains can compromise the quality of the predominant grain. For example, the presence of barley in wheat reduces milling yield. Oats in red spring wheat reduces milling yield and gives the flour a duller colour.

free fatty acids

Oilseed quality is determined in part by the free fatty acid test.

Free fatty acids are components that reduce the smoke point in frying fats and oxidize rapidly, giving rancid flavours.

The test gives a direct measure of the processing qualities of the oil and the amount of lye required to refine oils. Top canola seed usually has less than 0.7% free fatty acids. International specifications for top grade oil are usually set at 2.0% free fatty acids.

frost damage

The severity of frost damage depends on the stage of maturity of the grain, the temperature to which the grain is exposed, and the duration of exposure.

In wheat, as the degree of frost damage increases,

- Wheat milling becomes more difficult
- Flour yield decreases
- Flour ash content increases
- Flour colour becomes darker, which may not be commercially acceptable
- Bread volume, appearance, crumb structure and crumb colour deteriorate

frost/heat stress

Frost/Heat Stress refers to wheat kernels with blistered brans as a result of exposure to freezing temperatures or prolonged hot weather conditions. The degree of blistering ranges from fine to coarse and is dependent upon the maturity of the grain, the temperature to which the grain is exposed and the duration of the exposure. Samples containing kernels affected by frost/heat stress are graded according to the degree of soundness definition as reflected in the standard or guide samples for each grade.

fusarium head blight

Fusarium head blight is a fungal disease of wheat and other cereal crops.

In wheat it is characterized by the presence of kernels that appear lifeless, thin and shrunken. The kernels show a whitish or pinkish fibrous mould usually occurring in the crease area but sometimes found in the germ of the kernel as well. The presence of the mould on individual kernels is confirmed using a 10-power magnifier.

Fusarium may produce mycotoxins such as vomitoxin. Affected grain may be unpalatable or toxic to animals, and is considered acceptable for human consumption only when virtually free of mycotoxins.

glucosinolates

Glucosinolates are natural components of canola, rapeseed, and mustard seed. These compounds are responsible for the pungent odour and sharp flavour of cabbage, brussels sprouts, radishes, broccoli and cauliflower. They are natural toxicants, associated with goitre and liver damage when consumed in large quantities.

Glucosinolates may be desirable in mustard seed destined for condiment use. However, high levels in rapeseed restricted the use of this seed for feed. Breeding programs to reduce the level of glucosinolates in rapeseed produced canola.

grade certificate

A grade certificate attests to the quality of a commodity graded by official inspectors, testers and graders. It is another name for inspection certificate.

grade code

A grade code is a four-digit code used throughout the grain industry to identify each grade of each class of grain. See also *grain code*.

grades of grain

Grades of grain are defined by specifications in

- The Canada Grain Regulations
- The Official Grain Grading Guide

Class	Authority	Example
I	Canada Grain Regulations	<i>Wheat, No. 1 Canada Western Red Spring</i>
II (special grades)	Canada Grain Regulations	experimental grades
III (off-grades)	Off-Grades of Grain and Grades of Screenings Order	tough, damp, rejected and sample grades
IV (screenings)	Off-Grades of Grain and Grades of Screenings Order	<i>Screenings, No. 1 Feed</i>

grading factor

A grading factor is a physical condition of grain, the result of growing conditions, handling procedures or storage practices. It is a visual characteristic that indicates a reduction in quality; for example, frost damage, sprouted kernels, or heated kernels. Only relevant grading factors are shown as reasons for a grade.

- If a sample of wheat grades No. 3 for one particular reason, there is no need to list other factors that might be acceptable in a higher grade.
- If the sample is No. 3 for a combination of reasons, the combination must be shown in order of importance.

grain

A grain is any seed named in the Canada Grain Act or designated by the Canada Grain Regulations as a grain.

grain code

A grain code is a two-digit code used throughout the industry for each class of grain. See also *grade code*.

grass-green kernels

Grass-green kernels are kernels of wheat that are distinctly green because of immaturity.

grasshopper damage

See insect damage.

groats

Groats are hulled grains, and refer to the caryopsis of domestic or wild oats; that is, it is the kernel with the hull removed.

hard vitreous kernels - HVK

Vitreousness is the natural translucence of a kernel that is a visible sign of kernel hardness. Hard vitreous kernels (HVK) are a grade determinant for the amber durum wheat class in Canada and the red spring and red winter wheat classes in western Canada.

HVK content is related to protein content and milling quality, which are particularly important in durum wheat. Non-vitreous kernels are produced under cool maturation conditions, abundant soil moisture and insufficient nitrogen. Flours milled from non-vitreous wheat have reduced protein content and produce poor loaf volumes. Non-vitreous kernels are not as significant in soft wheats, since low protein is desirable for most soft wheat end-products.

hazardous substance

A hazardous substance is defined in the Regulations as any pesticide, herbicide or desiccant.

heated kernels

Heated kernels have the light tan to dark brown colour or an odour typical of grain that has heated in storage. The term includes kernels discoloured from artificial drying, but not binburnt or fireburnt kernels.

hulled

Hulled kernels have the hulls removed, e.g., oat groats, peeled barley and hulled sunflower seeds.

hulless

Hulless kernels have naturally loose hulls or no hulls, e.g., wheat, hulless oats and barley.

identity-preserved

In a primary elevator, identity-preserved or special bin grain is held in a separate bin at the request of the owner.

immature

Immature damaged soybeans are characterized by a green exterior appearance in conjunction with green discoloration penetrating the cotyledon. Examination of the cotyledons is determined by cutting the soybeans in cross section. For grading purposes, immature damaged soybeans are considered as part of the "Total Damage" grade specification.

Soybeans that are green in appearance and have no discoloration of the cotyledon or just a halo of green around the outside of the cotyledon are to be assessed against the overall colour of the sample.

indirect shipment

An indirect shipment from a terminal elevator is one that will be reloaded at a transfer elevator for delivery to the buyer.

Industry Services Automation

Industry Services Automation (ISA) is a networked computerized system that is incorporated into the visual grading system used by the CGC's Inspection Services for the analysis of dockage and grading factors, test weight, and moisture content. The workstation consists of a computer terminal, keyboard, and Mettler electronic scale. The output from the ISA represents the original and official Inspection Report.

insect damage

For CWRs, CWHWS and CWAD, there are specific limits for kernels damaged by grasshopper and armyworm, midge and sawfly.

Grasshopper and armyworm damage

Grasshoppers and armyworms chew out sections of kernels, particularly the ends and sides. At an early stage, armyworms may chew tunnels through the kernels. This destroys the endosperm, and leaves the exposed chewed areas susceptible to fungal and bacterial infections. Heavy discolourations and moulds may result.

Orange wheat blossom midge

The orange wheat blossom midge causes a distinct form of damage. Grade tolerances for midge have existed for many years based primarily on the shrivelling and distortion of midge-damaged kernels. The tiny midge larvae feed directly on the developing kernels in the heads of wheat. The extent of damage largely depends on the number of larvae feeding on each kernel.

Only recently have the full effects of midge damage on Canadian red spring bread wheat quality been studied, revealing the seriousness of midge damage to quality. The shrunken distorted grains reduce flour yields and produce dark flours with increased flour ash. Severely midge-damaged wheat exhibits weak, sticky dough properties, low baking absorption and poor bread quality. Protein content is abnormally high, but gluten protein quality is distinctly inferior.

insect infestation

The Canada Grain Regulations establish procedures for handling infested grain at primary elevators. Grain found infested at terminal or transfer elevators is handled and treated under the direction of an officer of the CGC.

According to the Canada Grain Act, infested grain is grain that contains any injurious, noxious or troublesome insect or animal pest.

insect parts

Insect parts refers to pieces of insects such as grasshoppers and lady bugs that remain in the sample after cleaning or processing. Samples are analyzed for the percentage of insect fragments and graded according to established tolerances.

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*.

inspection certificate

A CGC grain inspector issues an inspection certificate following an official inspection of a sample of grain. The certificate must state

- Where the grain was grown in Canada
 - The grade according to the Canada Grain Act
 - Dockage
 - Other relevant information
-

invisible losses

Invisible losses are normal losses of weight of grain during normal handling. Shrinkage allowances are provided to prevent gross weight losses from affecting the net weight of an elevator's grain stocks.

Invisible weight losses are primarily from

- Dust losses during handling
 - Moisture losses during storage
 - Unexplained weight losses in oilseeds during storage
-

iodine value

Iodine value is a measure of the total amount of unsaturated fatty acids in an oil. In flaxseed, iodine values of 189 or greater are required for the manufacture of paints and inks. Lower values, around 182, are needed for the manufacture of linoleum.

K

The letter K in grade tables refers to the number of kernels or kernel-sized pieces of a particular grading factor in a 500-gram sample.

laker

A laker is a long, shallow draft ship designed to transport cargoes within the inland water system of the St. Lawrence Seaway.

large seeds

Large seeds are considered foreign material in some classes of grain. Large seeds include domestic and wild seeds that remain on top of the No. 4.5 round-hole sieve.

load lines

Load lines are the centimeter graduations by which the level of grain in a railcar is measured.

manufactured products

Manufactured products are materials other than grain cleanings and includes materials such as malted, crushed, or ground grain which cannot be assigned a grade. Inspection may be performed on request. Certificates issued have only the composition endorsed on the back, providing the identification of the components is unquestionable; for example, *80% crushed wheat, 15% crushed barley, 5% whole wheat*. On the face of the certificate, *Manufactured product* is indicated.

marine leg

A marine leg is a mechanical device used to offload bulk grain from the hold of a vessel, normally from a laker into a transfer elevator.

matter other than cereal grains

Matter other than cereal grains is a type of foreign material. It includes large seeds and seeds of such grains as buckwheat, peas, corn and beans, and may include coarse vegetable matter.

midge damage

Midge damage is found mostly in wheat, although it has been detected in barley, rye, and some grasses.

The only part of the plant damaged is the developing seed. When a kernel of grain is attacked either it will not develop or it will develop as a shrivelled, deformed kernel. Infestations of the wheat midge can significantly reduce yield. They are most severe when rainfall is high during the spring or summer.

See *insect damage*.

mildew

Mildew is a fungal condition that affects wheat, barley and a number of other grains. It develops in unthreshed kernels of grain, usually under conditions of excessive moisture. It should not be confused with the disease powdery mildew, which attacks the leaves, reducing yield.

Downy mildew, caused by *Peronospora manshurica*, can sometimes form a white coating on soybeans. These are spores of the fungus. They do not affect the processing or safety of the seed, but can affect the appearance.

mineral matter

Mineral matter refers to stones, earth pellets, and fertilizer pellets that may be found in samples of grain.

moist

A sample of grain is identified as moist if the moisture content exceeds the *damp* range established for that class of grain.

moisture content

Moisture content is a measure of the water content of grain.

Grain that is within acceptable limits of moisture is referred to as a straight grade. With increasing moisture content, grain may be referred to as *tough*, *damp*, *moist* and *wet*. See Chapter 2, *Moisture testing*.

mudball bean

Mudball beans are beans or soybeans completely covered with caked-on mud.

mycotoxins

Mycotoxins are poisonous substances produced by some species of fungi.

For example, several *Fusarium* species can cause a disease called fusarium head blight. One of the more important species of fusarium, *Fusarium graminearum*, can produce several mycotoxins, most commonly, deoxynivalenol or vomitoxin, which, when present in feed grain, is distasteful and can reduce the rate of weight gain in some animals.

In corn, *Fusarium graminearum*, also called *Gibberella zeae*, causes the disease gibberella ear rot. Besides deoxynivalenol, another compound known as zearalerone may be formed. This compound has estrogen-like effects, especially in pigs and cattle.

non-Board grain

Non-Board grain is grain marketed through the open market system. Such grain includes domestic feed wheat and barley, rye, oilseeds and specialty crops.

non-vitreous

See hard vitreous kernels (HVK).

not commercially clean

Shipments of grain whose dockage content falls outside of allowed limits.
See *commercially clean*.

objectionable odour

An objectionable odour is one not normally associated with grain, such as skunk, sour, musty, oil, or gas. Heated or fireburnt odours are identified specifically and not included in the general category of objectionable odour.

Off-Grades of Grain and Grades of Screenings Order

The Off-Grades of Grain and Grades of Screening Order is issued by the CGC. It provides the authority for the application of the grading terms rejected, sample, tough, damp, moist, and wet, and defines grades of screenings.

The Off-Grades of Grain and Screenings Order is available through the CGC web site at www.cgc.ca. The direct address is

<http://www.grainscanada.gc.ca/Regulatory/regmenu-e.htm#orders>

official carlot unload sample

An official carlot unload sample is a sample taken by a CGC grain inspector or by any sampling device authorized by the CGC as a railcar is unloaded at a terminal elevator.

official grading

An official grading is one conducted by an inspector of the CGC on an unofficial sample.

official inspection

An official inspection is done when an official sample of grain is graded by a CGC inspector.

official sample

An official sample of grain is drawn under the direct control or continuous supervision of an authorized employee of the CGC.

official weighing

An official weighing is done on approved equipment under the supervision authorized by the CGC or in a manner authorized by the CGC.

oilseeds

Oilseeds include flaxseed and solin, canola and rapeseed, soybeans, safflower and sunflower seed.

optional analysis

Where a shipper requests special cleaning of a carlot of grain at a terminal or transfer elevator, and the elevator manager agrees, dockage material will be analysed for the presence of grain. The percentage and grade of any grain contained in the dockage will be reported and elevator stocks will be adjusted on the basis of the analysis. Agreement between the shipper and unload elevator must be conveyed to the CGC in writing prior to the analysis being performed.

Order of Precedence

The following list is used to assign reasons for *Sample* grades.

1. Sample Account Admixture, Contaminated grain
2. Sample Salvage
3. Sample Account Fireburnt
4. Sample Account Excreta
5. Sample Account Fusarium
6. Sample Account Ergot
7. Sample Account Odour
8. Sample Account Rotted
9. Sample Account Heated
10. Sample Account Mildewed
11. Sample Account Damaged
12. Sample Account Damage and Foreign Material
13. Sample Account Dehulled
14. Sample Account Stained Kernels
15. Sample Account Sprouted
16. Sample Account Admixture
17. Sample Account Splits
18. Sample Account Lightweight
19. Sample Account Stones
20. Sample Account Mixed Colours

other cereal grains

A cereal grain mixed into another type of cereal grain is considered foreign material. The presence of other cereal grains affects the processing quality of the main grain.

In . . .	other cereal grains are . . .
wheat	rye, barley, oats, triticale
rye	wheat, barley, oats, triticale
barley	wheat, rye, oats, triticale
oats	wheat, rye, barley, triticale
triticale	wheat, rye, barley, oats

other matter

Other matter refers to inseparable material excluding cereal grains, large seeds, wild oats, stones, mineral matter, ergot and sclerotinia.

out of condition

Grain which is out of condition has deteriorated in storage. Grain that is damp, heating or spoiling in storage requires special treatment such as drying or aeration to preserve its quality or to prevent further deterioration.

Paragraph 76. (1) of the Canada Grain Act specifies that operators of licensed terminal or transfer elevator must inform the CGC if they find grain that is or is likely to go out of condition. The CGC may inspect the grain. The CGC tells the operator how to treat or dispose of the grain. If the grain has been special binned, the elevator operator may recover the costs of treating or disposing of the grain from the owner of the grain.

pass-on slip

A pass-on slip is a document given to the captain or mate of a vessel by the CGC inspector when grain is loaded into the vessel from a terminal elevator. The information on the slip includes the vessel name, exact storage of all grades of grain loaded, a diagram of the stowage plan, the date, and the loading terminal. This slip is collected by the inspector in charge of the next loading elevator.

pink kernels

Pink pigment in wheat kernels is an indication of immaturity.

primary elevator

A primary elevator is a licensed elevator used to accept deliveries of grain directly from producers for storage or forwarding.

process elevator

A process elevator is an elevator which is used principally to receive and store grain for processing directly into other products.

processed sample

A processed sample is a sample of grain that appears to have been cleaned at seed cleaning plants before being delivered to terminal or transfer elevators. See *unprocessed sample*.

producer car

A producer car is a railcar that is loaded and shipped by a producer to a terminal elevator. Producers apply to the CGC to have a railcar allocated to them.

pulses

Pulses are crops grown for their edible seeds, such as peas, lentils, chick peas or beans.

reference variety

A reference variety of a grain is a variety currently listed as registered in Canada by AAFC.

registered variety

A registered variety is a variety of grain registered under the authority of the Canada Seeds Act and listed on the Variety Order List.

Regulations

Canada Grain Regulations. The Regulations can be viewed through the CGC web site at www.grainscanada.gc.ca

The direct address is
<http://www.grainscanada.gc.ca/Regulatory/Regulations/regs1-e.htm>.

rejected grades

Rejected grades are defined in the Off-Grades of Grain and Grades of Screenings Order. The term is not used in grading eastern grain. Numerical grades of western grain may be graded rejected only because of stones. If the stones are removed, the Rejected designation is dropped.

representative portion

The terms “Minimum”, “Optimum” and “Export” refer to the minimum sample portion to be analyzed when a factor is present in varying concentrations.

Minimum—The minimum portions allow inspectors to exercise judgment regarding sample sizes to be analyzed. This would be appropriate when reporting concentrations of factors that would not determine grade. However, minimum sample portions may also be used when the factor present has determined the grade, if the concentration is well within tolerance levels for that grade. Minimum portions may be used when the grade would not be altered by analysis of a larger sample.

Optimum—The optimum sample portion should be analyzed for those factors that would determine the grade when concentrations appear to be within the range of statutory grade specifications, if it appears that the concentration could result in downgrading of the grain. If the concentration of a factor is only marginally in excess or less than a tolerance, the inspector should exercise judgment and pick a larger sample portion.

Export—The export portions are the minimum sample portions to be picked for specific factors when analyzing export samples. These standards do not prevent the inspector from analyzing larger portions when appropriate.

representative sample

Grades are based on samples. To ensure samples adequately reflect the entire lot of grain, proper sampling procedures must be used. Official samples are taken using continuous sampling devices. The CGC publishes a factsheet on sampling procedures, called *Taking a Representative Sample*.

retention time

See *storage of samples*.

rotted

Rotted kernels are decomposed or decayed because of bacteria or fungi. Rot is usually indicated by blackening, discolouration and softening of all or part of the kernel.

roughage

Roughage is a type of foreign material found in grains. It includes chaff, loose hulls, empty seed pods, knuckles, etc., that are readily removable by aspiration, handpicking, or other cleaning procedures.

running sample

A running sample is a sample obtained while grain is being conveyed on a belt or as it flows from a spout.

saltie

A saltie is a vessel designed for ocean navigation.

sample

A sample is a portion of grain taken to represent an entire truckload, carload or cargo.

The size of a sample to be analysed for the presence of specific grading factors is established for each class of grain in its section. The term approximate is often used, allowing inspectors to take into consideration the concentration of the grading factor in the sample.

Types of samples include

- average sample
 - cargo sample
 - composite sample
 - consecutive sample
 - official carlot unload sample
 - official sample
 - processed sample
 - running sample
 - standard sample
 - submitted sample
 - unprocessed sample
-

Sample eastern and western mixed

See *Eastern and Western Grain, Mixed*.

sample grades

Sample grades are defined in the Off-Grades of Grain and Grades of Screenings Order. Grain that is not eligible for Class I or II grades under the Canada Grain Act is graded *Sample*. With the exception of sample salvage, reference is made in all sample grades to Canada (CAN), Canada Western (CW) or Canada Eastern (CE); for example, *Barley, Sample CW Account Heated*.

Only the major grading factor forms part of the grade name. Secondary reasons for a sample grade are noted in remarks; for example, a sample of rye having a strong chemical odour and containing 9.0% by weight of heated kernels might have the following comments:

- The grade is *Rye, Sample CW/CE, Account Odour*.
- The inspector's remarks on form I-12 are *strong chemical odour, 9.0% heated*.

The remarks section of the inspection record for samples graded *Sample CW/CE/Canada* may include the following:

- For wheat, the class or classes of wheat eligible for sample grades
- The nature and concentration of admixture in samples graded *Sample CW/CE/Canada, Account Admixture*
- The kind of odour in samples graded *Sample CW/CE/Canada, Account Odour*

When sample grades are assigned, the reason shown for the grade is selected according to the Order of Precedence.

sample interval

A sample interval is the time between the repeated sample-capturing action of a sample method or device.

sample retention time

Sample retention times are outlined in specific Inspection procedures located online at K:\Isqms\03 – Procedure Manual\Procedures (English – French).

sample salvage

Any grain salvaged from a wreck in transit containing over 2.5% by weight of stones or any other conspicuous ground material, removable or not, is graded [*class of grain*], *Sample Salvage*. For example, *Wheat, Sample Salvage*.

- Admixtures of inseparable seeds or other grains are disregarded if they do not exceed the tolerances permitted in the lowest grade of that grain.
- The composition of official samples is entered on inspection records and endorsed on the back of certificates.
- The composition of unofficial samples is shown on the face of form I-7 certificates and the I-12 form.

sample size to be analysed

The size of a sample to be analysed for the presence of specific grading factors is established for each class of grain in its section of this guide.

sawfly damage

The wheat stem sawfly has caused serious harvest losses to spring wheat in the prairie region. It attacks the base of stems causing tillers of mature plants to break off. Early swathing can reduce spring wheat harvest losses, but the most effective means of managing this insect pest has been the production of resistant cultivars.

See *insect damage*.

scab damage

Scab damage refers to kernels of wheat that have been severely affected by fusarium. Scab damage is included in and assessed as fusarium damage for grade assessment. The percentage concentration of scab damage may be recorded for specific markets upon request.

- Scab kernels must be completely dull, lifeless, with a chalky appearance, and
- Must have no semblance of soundness and no visible natural wheat colour, and
- Scab kernels must have a white or pinkish fibrous growth

Note: If there is any natural wheat colour, the kernel is not to be considered as scab damage

scalp

Scalping refers to the removal of roughage material in a sieving process.

sclerotia

Sclerotia are hard, compact masses of fungal mycelium that serve as resting or survival structures.

One type of sclerotia is the mass of fungal tissue produced by the soil-borne fungus *Sclerotinia sclerotiorum*, which attacks crops such as sunflower and canola. Infections result in yield loss. While it does not attack cereal crops, sclerotia may be found as contaminants in samples of cereal grains from infected fields.

screenings

Screenings is dockage material that has been removed by cleaning from a parcel of grain. Screenings qualify for Class IV grades. See *Off-Grades of Grain and Grades of Screenings Order*.

severely damaged

Kernels are considered to be severely damaged when

- the kernel is severely shriveled or distorted due to weather, insect, fungal and/or other reason
- in wheat, the cheeks and/or back of the kernel are ruptured

shipment order slip

The shipment order slip is given by the terminal elevator operator to the inspector in charge. It indicates the quantity and grade of grain ordered for shipment.

shrinkage allowances

A shrinkage allowance is deducted from the gross weight of grain delivered, to adjust for the normal loss of weight, sometimes called invisible losses, during handling of grain.

shrunken kernels

Shrunken kernels in wheat are whole kernels that pass through a No. 4.5 slotted sieve.

See *Thin and shrunken*.

sieves

Sieves used in dockage assessment and grading procedures are listed in the Canada Grain Regulations. The accuracy of sieves used by the CGC is regularly monitored. See Chapter 3 of this guide, *Specifications for sieves*.

small oilseeds

Small oilseeds include flaxseed, canola and domestic mustard seed.

small seeds

Small seeds are considered foreign material in some classes of grain. It includes all seeds removable through a No. 4.5 round-hole sieve.

smudge

Smudge refers to dark discolourations caused by fungal or bacterial infection. The discolouration may be brown, black, or reddish. It occurs mainly in wheat and barley.

According to the Regulations, smudge is more severe than blackpoint.

If discolouration occurs on . . .	Then the kernel is considered . . .
more than one-half of the surface, or infection extends into the crease	smudge-damaged
less than one-half of the bran surface, no discolouration in the crease	blackpoint-damaged

Penetrated smudge

Penetrated smudge is characterized by discolouration penetrating and extending throughout the endosperm, usually as a result of a serious infection of a fungus such as the various species of *Alternaria*.

Superficial discolouration

Superficial discolouration is a reddish discolouration not penetrating the endosperm. This factor will be evaluated subjectively in relation to the degree of soundness without reference to specific tolerances.

Red smudge

Red smudge is a dark reddish discolouration usually associated with durum wheat. It usually affects the entire bran portion of the kernel. Discolouration is not superficial and

cannot be removed through abrasion. Red smudge is caused by infections of the fungus *Pyrenophora tritici-repentis*, which also causes the leaf disease tan spot.

smut

See bunt.

soundness

Soundness refers to overall visual grain quality. Sound grain is reasonably well matured and reasonably free from kernels damaged by frost, mildew, bleaching, or weather.

special bin grain

In a primary elevator, special bin grain is held in a separate bin at the request of the owner. It is sometimes referred to as identity-preserved.

In a terminal elevator, special bin grain is held by authority of the CGC in bins registered by bin numbers in the owner's name.

special cleaning

Special cleaning refers to any cleaning of grain in addition to the usual dockage assessment procedures. Special cleaning is used to improve the grade of the grain.

special crops

Special crops are considered to be beans, buckwheat, chick peas, corn, fababeans, lentils, mustard, peas, safflower, soybeans, sunflower, and triticale.

spiral cleaner

The spiral cleaner removes flat seeds from yellow mustard seed.

sprouted

Kernels are classed as sprouted when any of the following conditions exist:

- Growth is evident in the germ area.
- Bran is noticeably split over the germ.
- The germ is removed and there is discolouration normally attributable to sprouting.
- The germ, though intact, is distinctly swollen because of growth.

Severely sprouted

Kernels are considered severely sprouted when

- Sprouts extend beyond the normal contours of the germ
- Kernels are severely degenerated as an apparent result of advanced sprouting

stained kernels

Staining can be artificial or natural.

Artificial stain

- Includes any stain on kernels caused by contact with foreign substances such as dye or adhered foreign material such as oil, grease, paint or soot
- Does not include any stain caused by poisonous substances

Natural stain

Natural stain is any stain on kernels caused by contact with natural substances such as smut spores, soil, or weeds.

Consideration is given to the incidence of affected kernels and the nature and severity of the stain.

The nature of the adhered material is indicated on inspection records.

When the nature of the material is in doubt, the sample is sent to the Chief Grain Inspector for review, and, if necessary, for laboratory analysis.

See *weed stain*.

standard samples

The Eastern and Western Standards Committees meet annually and recommend to the CGC primary and export standard samples of grain for use in grading during that crop year.

Primary standard samples

Primary standard samples are prepared for most grades of grain and represent as nearly as possible the minimum quality of each grade, considering the predominant grading factors in the current crop. They are used as visual guides to grading grain before and on delivery at terminal elevators, and on shipments from terminal elevators when no export standard sample is established for a grade.

Export standard samples

Export standard samples are created only for Canada Western grains. They are prepared for most grades of wheat and general purpose grades of barley and govern grading of shipments out of terminal, transfer, and process elevators. They are intended to ensure that the buyer receives grain that is reasonably close in quality to the average of the grade.

Minimum test weights, maximum limits of admixtures and grading factors in general are demonstrated in the export standard samples. However, overall quality is always considered. An export shipment may be assigned a certain grade although the shipment is slightly below the requirements in one factor, provided that in the judgment of the inspector it is sufficiently superior in other factors to be equal in overall quality to the export standard sample. Final decisions on the grade of such shipments are made only by senior officials of CGC's Inspection Services.

stones

Stones are hard shale, coal, hard earth pellets, and any other non toxic materials of similar consistency. Fertilizer pellets are assessed as stones, except in Domestic mustard Seed, when constituting 1.0% or less of the net sample weight. (See *Fertilizer pellets* for specific procedures to be followed when samples contain fertilizer pellets.)

Stones are considered foreign material in grain samples.

Stones removed are classified as dockage if they are readily removable by ordinary cleaning methods or by special cleaning procedures.

stowage

Stowage refers to the location or hold where grain has been loaded to a vessel.

straight

Straight grades of grain are those within accepted limits of moisture. With increasing moisture content, grain is graded *tough*, *damp*, moist, or *wet*.

submitted sample

A submitted sample is an unofficial sample sent in by a grain company or producer for grading or for other tests. The CGC charges a fee for any analysis on a submitted sample.

terminal elevator

A terminal elevator is a licensed elevator used principally to receive grain and condition grain for export.

An inland terminal elevator is an elevator—licensed as a primary elevator—for receiving and conditioning of the grain for direct or indirect export.

test weight

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

thin and shrunken

Hot dry conditions during maturation of wheat can severely reduce kernel size and cause shrunken kernels. As a result

- Test weight is reduced
 - Flour yield is reduced
 - More small kernels are removed during cleaning
-

tombstone kernels

Tombstone kernel is an obsolete term for a fusarium-damaged kernel.

tough

Grain is identified as tough if the moisture content exceeds the *straight* range established for that class of grain but is not *damp*.

transfer elevator

A transfer elevator normally

- Receives grain that has been officially graded and weighed at a terminal elevator
- Stores that grain before it is loaded to vessels for export

treated seed and other chemical substances**Treated seed**

Treated seed is grain that has been coated with an agricultural chemical for agronomic purposes. These include protection of the germinating seed from insects and pathogens, and increasing the availability of nutrients to the seed when planted. Seed treatment dressings may contain one or more insecticides or fungicides, and seed inoculants usually contain either a fungus or bacteria. Both types of 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 standards for pesticide seed treatments are: cereals- pink or red, canola - baby blue or green.

Seed treated with an inoculant may have a green stain. The coatings or stains may appear greasy or powdery and surface area distribution ranges 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.

trier

A trier is a hollow cone-shaped device used to obtain samples manually from bagged grain.

unofficial sample

An unofficial sample is a sample drawn without the supervision of an authorized employee of the CGC.

unprocessed sample

Unprocessed samples of grain are those which have not been cleaned commercially.

See also *processed sample*.

unregistered variety

Unregistered variety is sometimes used for the term non-registered variety.

See *registered variety*.

Variety Order List

The Variety Order List lists the varieties of seeds that have been registered for production in Canada under the authority of the Canada Seeds Act. Section 28 of the Canada Grain Act authorizes the grading of varieties not included under the Order into the lowest grade established by regulation for that kind of grain.

vomitoxin

Vomitoxin or deoxynivalenol is a mycotoxin produced by *Fusarium graminearum*.

Western Certificate (Eastern Division)

The Western Certificate (Eastern Division) is an export certificate issued in eastern Canada for corn loaded to a laker. It includes a statement of agreement between the shipper and purchaser indicating further inspection is not required.

1. The shipper originates the request for this type of certification before shipment.
 2. The Western Certificate is issued to indicate quality at initial loading.
 3. Any subsequent handling that increases breakage and lowers the grade becomes the responsibility of the buyer rather than the seller.
-

weed stain

A weed stain is a type of natural stain. A weed stain refers to

- The blotched or stained appearance of kernels caused by contact with the sap from green foliage of such weeds as Russian thistle
 - Kernels with adhered foliage of weeds
-

wet

A sample of grain is identified as wet if the moisture content exceeds the moist range established for that class of grain. With increasing moisture content, grain is graded *straight, tough, damp, moist, or wet*.

wheat classes

The following wheat classes are produced in Canada and are graded according to specifications detailed in the Guide.

Canada Western/Eastern Amber Durum (CWAD) (CEAD)
Canada Western Red Spring (CWRS)
Canada Western Hard White Spring (CWHWS)
Canada Western Red Winter (CWRW)
Canada Prairie Spring Red (CPSR)
Canada Prairie Spring White (CPSW)
Canada Western Extra Strong (CWES)
Canada Western/Eastern Soft White Spring (CWSWS) (CESWS)
Canada Eastern White Winter (CEWW)
Canada Eastern Red (CER)
Canada Eastern Red Spring (CERS)
Canada Eastern Hard Red Winter (CEHRW)
Canada Eastern Soft Red Winter (CESRW)
Canada Eastern Hard White Spring (CEHWS)

wheats of other classes

Other classes of wheat are all classes of wheat including non-registered varieties, other than the predominant class in the sample. Contrasting classes are classes of a different coloured wheat; for example CWAD is a contrasting class in CWRS.

wild oats

Wild oats is an annual grassy weed. It reduces crop yield, increases dockage and cleaning costs, lowers the grade, and is costly to control. Seeds of wild oats vary in colour from white to black. They are normally more slender than domestic oats and have a slanting, circular, depressed scar—sometimes called a sucker mouth—at their base, and a bent twisted awn.

working sample

A working sample of grain is usually around 1000 grams. It may be more or less, at the discretion of the inspector.

www.grainscanada.gc.ca

The World Wide Web address for the Canadian Grain Commission.

