Canadian Grain Commission | Commission canadienne des grains

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Official Grain Grading Guide

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Quality ● Service ● Innovation

24. Experimental grades of wheat and barley

Criteria for designation as experimental grades

Experimental grades for selected varieties of wheat and barley have been established to allow the Canadian Wheat Board to market test varieties that do not readily fit into the existing grade structure, but which show some promise for acceptablility in world markets.

A variety is eligible to be assigned to the grades defined in the experimental grade schedules only if the variety is designated by one of

- Agriculture and Agri-Food Canada
- Canadian Wheat Board
- Canadian Grain Commission

The criteria for a variety to be eligible for designation are

- There is evidence that Canadian producers will derive a benefit from its production either immediately or in the future.
- There is supportive data for its agronomic characteristics and end-use quality.
- The variety will be produced under contract to the Canadian Wheat Board.
- The variety will remain in the program for a specified period.

When a variety is no longer eligible for the experimental grades, the Canadian Wheat Board purchases and disposes of all existing stocks to prevent adulteration of registered varieties, unless the Canadian Grain Commission establishes a grade schedule for that variety and any other varieties of that grain having similar qualities.

Wheat

Classes and varieties

A variety from any class of wheat may be approved for eligibility for experimental grades. The class of wheat is noted in the remarks on inspection records.

Samples containing admixtures of registered Canadian or foreign varieties in excess of 5.0% by weight are graded *Canada Western Feed*.

Cleaning

- Dockage is assessed using the procedures described in Chapter 4 of this Guide.
- All special cleaning described in Chapter 4 is applied to experimental grades, provided that the grade can be improved.

Grading factors

Samples eligible for experimental grades but displaying grading factors other than stones that are above established tolerances are graded *Canada Western Feed* or *Sample* depending on the severity of the grading factors.

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*."

Samples deemed to be contaminated by the Grain Research Laboratory in consultation with the Chief Grain Inspector for Canada are graded *Wheat, Sample Condemned.*

Degermed

Tolerances apply to kernels not classed as sprouted.

Fertilizer pellets (FERT PLTS)

Fertilizer pellets are typically either small, 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.

Representative portion for analysis

Minimum—working sample	Optimum—working sample	Export—working sample

Procedures

- Handpick any fertilizer pellets and determine the concentration basis 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 *Wheat, Held IP Suspect Contaminated Grain.*

Note: Canadian Grain Commission personnel should refer to ISO national work instruction "*Suspect Contaminated Grain, Handling Procedures*" for procedures to be followed when handling samples containing fertilizer pellets.

Grass green

Tolerances are only a guide. Consider the overall quality of the sample.

Hard vitreous kernels

Vitreousness is the natural translucent colouring that is a visible sign of kernel hardness. It is a factor for hard wheat varieties only. For a full description, see Chapter 4.

Insect damage

Consider the overall quality of the sample.

Stones (STNS)

Stones are hard shale, coal, hard earth pellets, and any other non toxic materials of similar consistency. Fertilizer pellets are assessed as stones 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.)

Representative portion for analysis

Minimum—500 g Optimum—1000 g Export—1000 g

Procedures

1. Handpick stones from a representative portion of the cleaned sample.
2. Determine stone concentration in the net sample.

Note: Stones may be removed and included in dockage if the the material removed is 5.0% or less of the gross weight of the sample. See *Cleaning for grade improvement*.

- In western Canada samples of grain containing stones in excess of "basic grade" tolerances, up to 2.5% are graded *Wheat, 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 determinant tables) that would have been assigned to the sample if it contained no stones.
- In western and eastern Canada grain containing more than 2.5% stones is graded *Wheat, Sample Salvage.*

Examples: Western Canada

Excerpt from grade determinant tables for
Wheat, Canada Western Experimental

Grade name	Stones %
No. 1 CW EXPRMTL	0.03
No. 2 CW EXPRMTL	0.03
No. 3 CW EXPRMTL	0.06
CW Feed	0.10

Basic grade:..... *Wheat, No. 3 Experimental*
Reason for basic grade:..... Mildew

If the above sample contained	Grade in Western Canada
0.08% stones	*Wheat, Rejected No. 3 CW Experimental Account Stones*
3.0% stones	*Wheat, Sample Salvage*

Treated seed and other chemical substances

Treated seed

Treated seed is grain that has been coated with an agricultural chemical for agronomic purposes. 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 standards for pesticide seed treatments for cereals is pink or red and for canola is baby blue, white and 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.

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

Representative portion for analysis

Minimum—working sample	Optimum—working sample	Export—working sample

Procedures

If a sample is suspected of being coated with a pesticide, desiccant, inoculant or if the sample contains evidence of any foreign chemical substance other than fertilizer pellets, the sample shall be graded *Wheat, Held IP Suspect Contaminated Grain*.

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 treated seed or other chemical substances.

Primary grade determinants tables

Wheat, Canada Western Experimental (CW EXPRMTL)

	Standard of quality				Foreign material						Wheats of other classes or varieties	
Grade name	Minimum test weight kg/hL (g/0.5 L)	Variety	Degree of soundness	Minimum hard vitreous kernels %	Ergot %	Excreta %	Matter other than cereal grains %	Sclerotinia %	Stones %	Total %	Contrasting classes %	Total %
No. 1 CW EXPRMTL	79 (385)	Any wheat variety of the class Canada Western Experimental designated as such by Order of the Commission	Reasonably well matured, reasonably free from damaged kernels	65	0.01	0.01	0.2	0.01	0.03	0.4	0.5	1.5
No. 2 CW EXPRMTL	77.5 (378)		Fairly well matured, may be moderately bleached or frost-damaged, reasonably free from severely damaged kernels	35	0.02	0.01	0.2	0.02	0.03	0.75	1.5	3
No. 3 CW EXPRMTL	76.5 (373)		May be frost-damaged, immature or weather-damaged, moderately free from severely damaged kernels	No minimum	0.04	0.015	0.2	0.04	0.06	1.25	2.5	5
CW Feed	65 (315)	Any type or variety of wheat excluding amber durum	Reasonably sweet, excluded from other grades of wheat on account of damaged kernels	No minimum	0.1	0.03	1	0.1	0.1	10	No limit—but not more than 10% amber durum	
Grade, if specs for CW Feed not met	*Wheat, Sample CW Account Light Weight*				*Wheat, Sample CW Account Ergot*	*Wheat, Sample CW Account Excreta*	*Wheat, Sample CW Account Admixture*	*Wheat, Sample CW Account Admixture*	2.5% or less– *Rejected (grade) Account Stones* Over 2.5%– *Wheat, Sample Salvage*	See *Mixed grain*	Over 10% amber durum— *Wheat, Sample CW Account Admixture*	

Wheat, Canada Western Experimental (CW EXPRMTL), continued

Grade name	Artificial stain, no residue %	Dark, immature %	Degermed %	Fireburnt %	Fusarium damage %	Grass green %	Grasshopper, army worm %	Heated, binburnt, severely mildewed, rotted, mouldy
No. 1 CW EXPRMTL	Nil	1	4	Nil	0.25	0.75	1	0.05% including 1 binburnt kernel per 1000 g
No. 2 CW EXPRMTL	5K	2.5	7	Nil	1.0	2	3	0.4% including 4 binburnt kernels per 1000 g
No. 3 CW EXPRMTL	10K	10	13	Nil	2	10	8	1.0% including 6 binburnt kernels per 1000 g
CW Feed	2	No limit	No limit	2	5	No limit	No limit	2.5% including 2.5% binburnt kernels
Grade, if specs for CW Feed not met	*Wheat, Sample CW Account Stained Kernels*			*Wheat, Sample CW Account Fireburnt*	Over 5%—*Wheat, Sample CW Account Fusarium Damage* Over 10%– *Wheat, Commercial Salvage*			*Wheat, Sample CW Account Heated*

Grade name	Natural stain %	Pink %	Sawfly, midge %	Shrunken and broken			Smudge and blackpoint		Sprouted	
				Shrunken %	Broken %	Total %	Smudge %	Total %	Severely sprouted %	Total %
No. 1 CW EXPRMTL	0.5	1.5	2.0	4	5	7	30K	10	0.1	0.5
No. 2 CW EXPRMTL	2	5	5	4	6	8	1	20	1.5	
No. 3 CW EXPRMTL	5	10	10	4	7	9	5	35	5	
CW Feed	No limit	No limit	No limit	4	13	15	No limit	No limit	No limit	
Grade, if specs for CW Feed not met					*Sample Broken Grain*					

K Number of kernel-sized pieces in 500

Barley

Experimental grades of barley eligible for sample grades are graded with reference to Canada Western. The term Experimental is removed from the grade name. For example, *Barley, Sample CW, Account Heated.*

Cleaning and determination of dockage

- Dockage is assessed using the procedures described in Chapter 6 of this Guide.
- All special cleaning described in Chapter 6 is applied to experimental grades, provided that the grade can be improved.

Grading factors

Normal grading factors for barley apply to experimental grade of barley.

Samples eligible for experimental grades but displaying grading factors other than stones over established tolerances are graded *General Purpose* or *Sample*, depending on the severity of the factors.

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*."

Samples deemed to be contaminated by the Grain Research Laboratory in consultation with the Chief Grain Inspector for Canada are graded *Barley, Sample Condemned.*

Fertilizer pellets (FERT PLTS)

Fertilizer pellets are typically either small, 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.

Representative portion for analysis

Minimum—working sample	Optimum—working sample	Export—working sample

Procedures

- Handpick any fertilizer pellets and determine the concentration basis 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 *Wheat, Held IP Suspect Contaminated Grain.*

Note: Canadian Grain Commission personnel should refer to ISO national work instruction "*Suspect Contaminated Grain, Handling Procedures*" for procedures to be followed when handling samples containing fertilizer pellets.

Large oil-bearing seeds such as sunflower and soybean

To grade samples containing any large oil-bearing seeds such as sunflower seeds and soybeans, use the grade schedule for General Purpose barley.

Grade	Percentage allowed
No. 1 CW	nil
No. 2 CW	nil

Matter other than cereal grains (MOTCG)

To grade samples containing more than the allowed percentages of *Matter other than cereal grains*, excluding large oil-bearing seeds, use the grade schedule for General Purpose barley, or grade Sample.

Grade	Percentage allowed
No. 1 CW	0.2
No. 2 CW	0.5

Soft earth pellets

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

- Earth and fertilizer pellets
- Any non-toxic material of similar consistency

Earth pellets may be removed as dockage.

If soft earth pellets are over 10.0% of the gross weight of the sample, they become a grading factor.

1. Return the pellets to the sample.
2. Handpick soft earth pellets from a representative portion of 100 g of the cleaned sample.
3. If soft earth pellets is the grade determinant, grade the sample *Barley, Sample CW Account Admixture.*

Export shipments of barley must be practically free of earth pellets.

Stones (STNS)

Stones are hard shale, coal, hard earth pellets, and any other non toxic materials of similar consistency. Fertilizer pellets are assessed as stones 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.)

Representative portion for analysis

Minimum—500 g Optimum—1000 g Export—1000 g

Procedures

1. Handpick stones from a representative portion of the cleaned sample.
2. Determine stone concentration in the net sample.

Note: Stones may be removed and included in dockage if the the material removed is 5.0% or less of the gross weight of the sample. See *Cleaning for grade improvement*.

- In western Canada samples of grain containing stones in excess of "basic grade" tolerances, up to 2.5% are graded *Barley, 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 determinant tables) that would have been assigned to the sample if it contained no stones.
- In western and eastern Canada grain containing more than 2.5% stones is graded *Barley, Sample Salvage.*

Examples: Western Canada

Excerpt from grade determinant tables for
Barley, Canada Western Experimental

Grade name	Stones
No. 1 CW EXPRMTL	1K
No. 2 CW EXPRMTL	2K

K Number of kernel-sized pieces in 500 g

Basic grade:..... *Barley, No. 1 CW Experimental*

If the above sample contained	Grade in Western Canada
2K stones	*Barley, Rejected No. 1 CW Experimental Account Stones*
3.0% stones	*Barley, Sample Salvage*

Treated seed and other chemical substances

Treated seed

Treated seed is grain that has been coated with an agricultural chemical for agronomic purposes. 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 standards for pesticide seed treatments for cereals is pink or red and for canola is baby blue, white and 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.

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

Representative portion for analysis

Minimum—working sample	Optimum—working sample	Export—working sample

Procedures

If a sample is suspected of being coated with a pesticide, desiccant, inoculant or if the sample contains evidence of any foreign chemical substance other than fertilizer pellets, the sample shall be graded *Barley, Held IP Suspect Contaminated Grain*.

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 treated seed or other chemical substances

Primary grade determinants tables

Barley, Canada Western Experimental (CW EXPRMTL)

Grade name	Standard of quality				Foreign material						
	Minimum test weight kg/hL (g/0.5L)	Variety	Minimum designated variety %	Degree of soundness	Ergot %	Inseparable seeds %	Other cereal grains %	Sclerotinia %	Stones	Wild oats %	Total %
No. 1 CW EXPRMTL	62 (298)	Any barley variety of the class Canada Western Experimental designated as such by Order of the Commission	95	Practically sound, reasonably well matured, may contain slightly weather-damaged but not badly stained or discoloured kernels	0.02	0.2	1	0.01	1K	0.5	1
No. 2 CW EXPRMTL	60 (288)		90	Reasonably sound, fairly well matured, may contain moderately weather-damaged but not severely discoloured kernels	0.05	0.2	3	0.01	2K	1	3
Grade, if No. 2 specs not met					General purpose barley or sample grades				2.5% or less—*Barley, Rejected (grade) Account Stones* Over 2.5%—*Barley, Sample Salvage*	General purpose barley or sample grades	

Grade name	Damage						
	Fireburnt %	Frost		Heated, rotted or severely mildewed %	Peeled and broken		Sprouted %
		Severe %	Total %		Primary %	Ex terminal %	
No. 1 CW EXPRMTL	Nil	0.2	5	Nil	4	5	Nil
No. 2 CW EXPRMTL	Nil	2	5	0.05	5	6	0.5
Grade, if No. 2 specs not met	General purpose barley or sample grades						