



Canadian Grain Commission
Commission canadienne
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Improving Canada's Grain Quality Assurance System

A Discussion Paper on the Use of Variety Eligibility Declarations

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Canada

Contents

Introduction.....	2
Grain Quality Assurance Challenges	3
Challenges to KVD.....	4
Alternatives to KVD-based Segregation	6

Variety Eligibility Declaration.....	6
Variety Eligibility Declaration – Step-by-Step.....	8
Accountability	10
Wheat	10
Costs and Benefits	11
Timing	11

How to Provide Input.....	12
Discussion Questions.....	12

For Further Information	13
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Introduction

Canada is respected the world over for the quality of its grain, and the consistent, uniform quality of grain exports. We earned this reputation over many decades by putting in place a responsive quality assurance system that involves all participants, beginning with plant breeders, and involving producers, grain handlers, marketers and end-users.

Responsiveness to changing customer needs and the opportunities presented by science and technology has been the foundation of our success in domestic and international markets. The time has come, once again, to adjust our quality assurance system to meet new challenges.

In 2001, the Canadian Grain Commission (CGC) established an advisory committee to consider alternatives to relying on kernel visual distinguishability (KVD) to segregate grain. The committee was representative of producers, grain handlers, and marketers. Other participants included the Canola Council of Canada, the Canadian Special Crops Association, the Canadian Seed Growers Association, the CGC and the Canadian Food Inspection Agency.

With this paper, we are broadening the discussion to seek input from all stakeholders. In the Commission's view, the direction we have outlined is the direction we must take if Canada's reputation for grain quality is to be maintained.

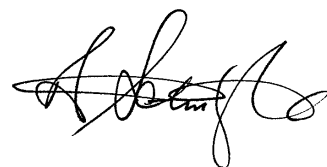
Over the coming months we will be consulting widely on the best way to move in this new direction. Our consultation is being led by Assistant Chief Commissioner Terry Harasym, and coordinated by Mrs. Pat Funk. We invite you to contribute your ideas and questions.



Chris Hamblin
Chief Commissioner



Terry Harasym
Assistant Chief Commissioner



Albert Schatzke
Commissioner

Grain Quality Assurance Challenges

Our grain quality assurance system is designed to provide customers with the quality of grain they require, consistently, year after year. A key strength of this system is our ability to segregate grain according to class, type and grade, thus enabling end-users to purchase shipments of grain with predictable processing qualities.

While considerable attention in this discussion paper is given to wheat, we stress that wheat is not the only grain that requires an effective segregation system. There are 21 different types of grain¹ recognized by the Canada Grain Act. Each is segregated into three or more grades, each of which is associated with specific end-use processing qualities. Hence, our discussion of variety eligibility declarations applies to all grains recognized by the Canada Grain Act.

Assigning grades involves a combination of visual assessment to assess damage to grain kernels and instrumental measurement to assess such factors as moisture, protein, and dockage.

In addition to grade and protein, wheat is segregated according to class. In western Canada, there are seven classes, each of which is composed of wheat varieties that have similar processing characteristics.²

Each of these classes is visually distinct from the others, and the varieties within each class are visually similar. We refer to this visual characteristic as *kernel visual*

¹ Throughout this paper, the word “grain” is used to mean cereal grains, oilseeds and special crops. The Canada Grain Act and Regulations apply to 21 such grains: barley, beans, buckwheat, canola, chick peas, corn, fababeans, flaxseed, lentils, mixed grain, mustard seed, oats, peas, rapeseed, rye, safflower seed, solin, soybeans, sunflower seed, triticale and wheat. Additional grains may be added through regulatory amendments.

² Western Canadian wheat classes:

- *Canada Western Red Spring (CWRS)* wheat is a hard wheat with superior milling and baking quality. It is offered at various guaranteed protein levels. There are four milling grades in the CWRS class.
- *Canada Western Amber Durum (CWAD)* wheat is a durum wheat producing a high yield of semolina with excellent pasta and couscous quality. There are four milling grades in the CWAD class.
- *Canada Western Extra Strong (CWES)* wheat is a hard red spring wheat with extra-strong gluten suitable for blending purposes and for special bread products. There are two milling grades in the CWES class.
- *Canada Prairie Spring Red (CPSR)* wheat is a medium-strength wheat suitable for the production of certain types of hearth breads, flat breads, steamed breads, noodles and related products. There are two milling grades in the CPSR class.
- *Canada Western Red Winter (CWRW)* wheat is a hard wheat suitable for the production of a wide variety of products including French breads, flat breads, steamed breads, noodles and related products. There are two milling grades in the CWRW class.
- *Canada Prairie Spring White (CPSW)* wheat is a medium-strength wheat suitable for the production of various types of flat breads, noodles, chapatis and related products. There are two milling grades in the CPSW class.
- *Canada Western Soft White Spring (CWSWS)* wheat is a soft wheat of low protein content for production of cookies, cakes and pastry as well as various types of flat breads, noodles, steamed breads and chapatis. There are three milling grades in the CWSWS class.

distinguishability, or KVD, and it is a requirement that must be met if a wheat variety is to be registered for production.

KVD enables rapid, low-cost segregation of wheat into classes. It has also been key to maintaining uniformity of quality within shipments and consistency of quality from shipment to shipment. While KVD is not a variety registration requirement in other grains, the ability to distinguish between grain varieties is useful for segregating them.

The ability to make these segregations enables end-users to purchase the specific qualities they need. Imagine the impact on a bakery's operation if the flour purchased for bread making was more suited to cookie production or if the quality varied considerably within or between shipments.

Challenges to KVD

Although KVD is still an effective tool for segregating wheat, we are entering a period where additional tools are required.

Despite its advantages, there are some costs associated with maintaining KVD. Wheat breeders have said that one of the most significant of these is the constraint it places on their ability to quickly improve agronomic and quality characteristics.

KVD is also under some pressure from the demand for specialty quality types. Such varieties have quality characteristics that differ from those of varieties that meet established milling and baking quality requirements. An example is AC Navigator, a variety of durum wheat that was registered even though it is visually indistinguishable from conventional Canada Western Amber Durum wheat and has different end use qualities.

There are also two types of white wheat varieties that have been registered within the Canada Prairie Spring White (CPSW) class that have fundamentally different hardness and protein qualities.

Canadian crop production of non-registered varieties, often from the United States, presents a serious problem. The grading system can accommodate non-registered varieties in the lowest grade (i.e., feed wheat) only if they are visually distinguishable from the registered wheat classes. Visually indistinguishable non-registered varieties have the potential to compromise the Canadian quality assurance system if they are misrepresented anywhere within the grain handling system. They can also cause significant financial losses for grain handling companies and marketers.

While segregation of other grains, oilseeds and pulses does not rely on KVD to the same extent as wheat, it is used, for example, to segregate three classes of mustard seed. However, as different quality types of these crops are introduced, some means of segregating them into groupings of varieties with similar intrinsic quality factors will be needed.

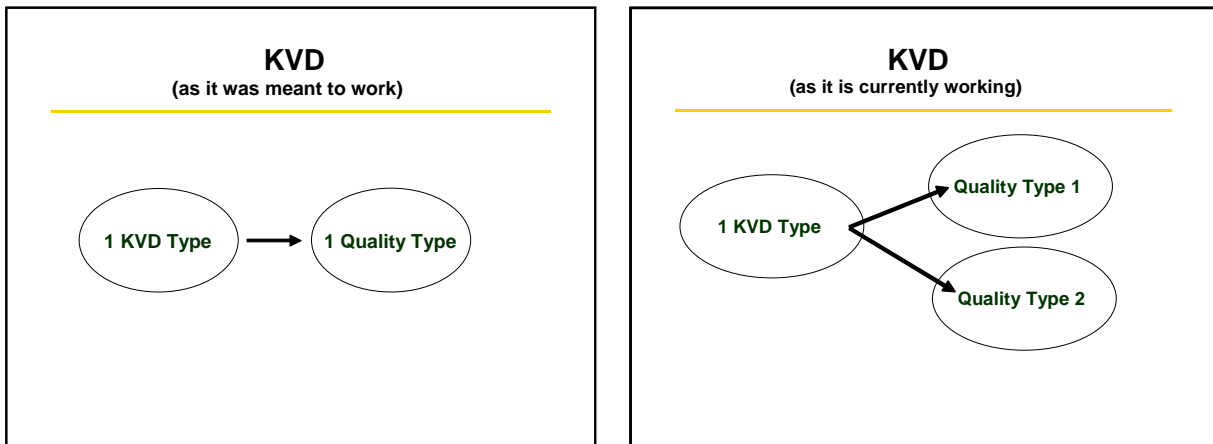
Table 1 shows various types of grains that currently cannot be segregated into different quality types based on visual inspection because the kernels or seeds have the same appearance.

Table 1. Visually Indistinguishable Quality Types

	Quality type 1	Quality type 2	Quality type 3
Canola/Rapeseed	High erucic	Low erucic	
Mustard	Condiment type	Oil type	
Barley	Malting	Feed	
Wheat Classes³			
CWSWS	Export quality	Domestic high quality	High amylograph
CPSW	AC Vista	AC Karma	
CPSR	AC Crystal	Taber	High yielding feed
CWES	Glenlea	Wildcat & others	
CWRW	AC Readymade	Kestrel and feed types	
CWAD	Conventional	Extra strong (AC Navigator)	
CWRS	Conventional	Non-registered US varieties	

In addition to the problem of multiple quality types within a particular kernel type, we are also facing distinguishability problems between wheat classes. Grain inspectors have had difficulty distinguishing between CPSW and bleached or piebald durum wheat. Some varieties of CWES and CPSR are also difficult to distinguish.

The following illustrates the problem that is emerging in some cases with KVD.



Producers are looking for improvements in yield, disease resistance, maturity rate, and tolerance to drought and cold. However, KVD requirements make it more difficult for breeders to make these improvements. For example, a Fusarium-resistant feed wheat (variety HY644) was recently denied registration, in part, because it was not visually distinguishable from Canada Western Red Spring wheat.

³ Wheat classes: CWSWS (Canada Western Soft White Spring), CPSW (Canada Prairie Spring White), CPSR (Canada Prairie Spring Red), CWES (Canada Western Extra Strong), CWRW (Canada Western Red Winter), CWAD (Canada Western Amber Durum), CWRS (Canada Western Red Spring)

If this or other indistinguishable CWRS-look-alikes were to be produced in large amounts, they would compromise the quality of shipments of Canada's premium wheat class. We had ample evidence of this in 2002, when a grain company reportedly lost several hundred thousand dollars when a train shipment of milling wheat was downgraded to feed because it contained excessive levels of non-registered US wheat varieties.

Other companies have also had difficulties with non-registered varieties.

End-users continue to expect consistent, uniform quality. At the same time, there may be market opportunities for a wider variety of quality types. KVD requirements have sometimes prevented the registration of varieties with different end-use qualities.

For these various reasons, our grain quality assurance system must continue to evolve. We cannot continue indefinitely to rely on KVD and satisfy the demands of farmers for agronomically superior varieties. Neither can we rely on it and satisfy market opportunities for a broader array of end-use qualities.

Alternatives to KVD-based Segregation

There are two alternatives to KVD-based grain segregation

- Segregation based on variety testing
- Segregation based on variety declaration

We have technology that allows us to identify visually indistinguishable grain varieties with enough precision for most requirements. Unfortunately, current technology requires a laboratory; and it is relatively slow and expensive. Although considerable effort is being made to develop affordable, reliable, rapid technology that can be used outside of a laboratory setting, it is not available today, and will not be available for a number of years.

Declaration systems, that is, systems in which the seller of the grain declares the variety upon delivery, are in use in various parts of the world (for example, by the wheat industry in Australia and the soybean industry in eastern Canada). Such systems work best when backed up with testing and declaration monitoring. They also require the existence of deterrents to misrepresentation of grain. A strong element contributing to the success of these systems is the deterrent inherent in the risk of damage to buyer/seller relationships.

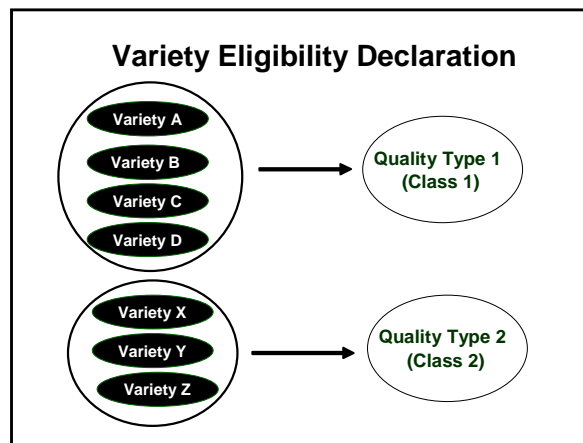
Variety Eligibility Declaration

Because of the limitations of KVD-based segregation, and because rapid variety tests are not available, the CGC believes it is necessary to introduce gradually a variety declaration-based system of grain segregation backed-up by some laboratory testing.

Such a system will bridge the gap between our current situation and the time when inexpensive, rapid testing is available. Our objectives are as follows

1. To protect and broaden Canadian producers' access to grain markets by strengthening the grain quality assurance system
2. To provide producers with a broader range of choices in what they grow and sell
3. To provide end-users more choices in what they buy, while continuing to meet their need for consistent, uniform quality

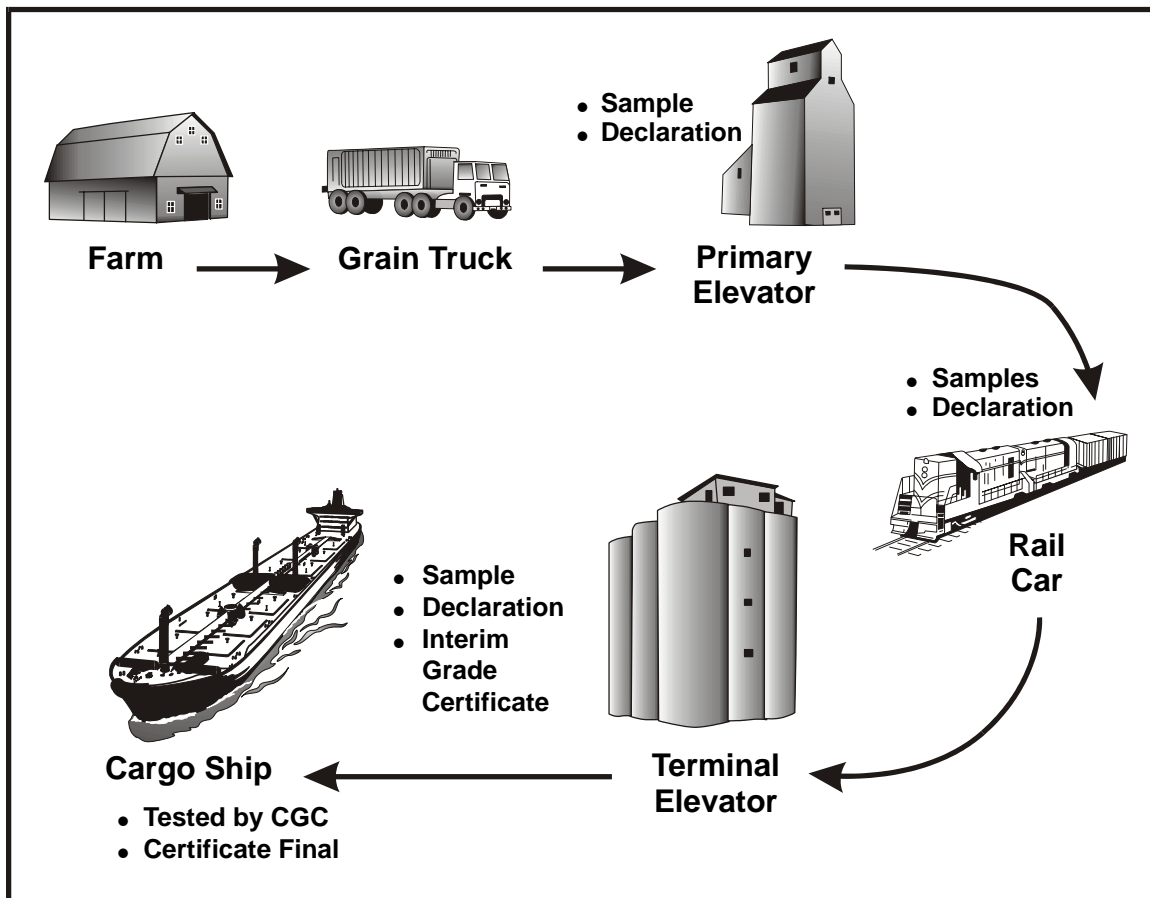
The concept is simple. Every time grain changes hands, samples would be taken, and declarations signed. Segregation would not depend completely on KVD. Building on our illustration on page 5, it would look like this



Documentation and sampling at each transfer point would make it possible to trace a cargo back to each elevator and farmer whose grain would be in a cargo. It follows, then, that it would be possible to detect the point at which unacceptable levels of unwanted varieties entered the system.

Deterrents to misrepresentation, such as payment of damages or fines or both, would be necessary for the success of a declaration system. The mechanics of enforcement are to be determined. Further discussion of this is found on page 10.

Variety Eligibility Declaration – Step-by-Step



Grain moves in a number of ways from producer to end-user. The most common scenario is illustrated above. The basic principle of the variety eligibility declaration process is that at every point a parcel of grain changes hands, samples would be taken and declarations signed. The following steps outline this process in more detail.

1. The CGC would publish lists of eligible grain varieties.
2. Farmers would take whatever measures they feel are necessary to ensure that they can accurately declare the variety or varieties they are delivering. This could involve using certified seed, or it could involve having samples variety tested by a laboratory.
3. Farmers would sign a declaration when delivering grain into the handling system. The declaration would not have to be variety-specific, but it would have to indicate that the delivery contained a variety or varieties on the CGC list of eligible varieties.
4. Farmers could choose not to make a declaration. However, their delivery would be eligible only for the lowest possible grade (for example, in the case of wheat, it would be graded as “feed.”)

5. Representative samples, acceptable to both the farmer and the buyer, would be taken from each delivery.
6. Farmers and primary elevator operators would retain samples in sealed, tamper-proof containers for a period that is yet to be determined.
7. Grain handlers would segregate grain as they do now, but instead of using KVD to determine the eligibility of a delivery, they would use the declaration.
8. A declaration would be signed at each transfer point in the handling system.
9. Representative samples acceptable to both parties would be taken from each lot of grain transferred and stored in a way that protects against tampering.
10. Complete documentation of where grain came from and where it went would be required each time grain is moved.
11. Either party and/or the CGC, depending on transfer point, would retain samples.
12. The CGC would test every cargo to ensure it contained only eligible varieties.
13. The CGC would issue an interim grade certificate covering all visual grading factors at the conclusion of loading a cargo.
14. The CGC would issue the Certificate Final after the variety testing of the cargo loading samples confirmed that the shipment met the tolerances for varieties outside the class.
15. If variety testing on the cargo samples indicated that it contained excessive levels of ineligible varieties, the shipment would be downgraded and the CGC would advise the terminal or transfer elevator operator.
16. Testing of retained samples could then be used to determine the source of contamination.
17. The party responsible for the damage to the cargo would be held accountable, in a manner yet to be determined.

Variety Eligibility Declaration Form

The exact form a variety declaration document would take is yet to be determined.

However, in general terms, the form would likely include

- Name and address of the owner of the grain being delivered
- Name and address of the party receiving the grain
- Type of grain
- A statement to the effect that the grain being delivered is made up of one or more varieties that have been designated by the CGC as eligible for delivery (lists of eligible varieties would be available at primary elevators and from the CGC)
- A space for the signature of the person declaring the eligibility of the delivery (this could be the producer of the grain or the trucker, if this is a producer delivery; or it could be an elevator agent or other shipper when the grain is transferred to another link in the handling chain)
- A space for the signature of the recipient of the grain

A representative sample would be taken and divided in two; a copy of the declaration would be placed with each sub-sample in a tamper-proof container. Each party to the transaction would keep the sample and declaration form for a specified period.

Accountability

As noted previously, the party responsible for damage to a grain cargo would be held accountable.

Broadly speaking we are considering two alternative directions

- **Industry Self-regulation - Litigation:** The party who is damaged by the misrepresentation of grain would sue the party who misrepresented the grain.
- **Government Regulation - Penalties:** Legislation would specify penalties for misrepresentation of grain deliveries. Government would enforce these laws.

When weighing the alternatives, consider the following.

Industry Self-Regulation - Litigation

With this approach, the party who suffered losses from a damaged shipment could sue the party considered to be at fault for compensation. All parties in the grain handling chain could become parties to the suit. Litigation is costly and takes time. The threat of litigation may deter misrepresentation.

Regulation

The Canada Grain Act and Regulations would be amended to establish rules for the use of declarations and an administrative process for enforcing these rules. The process would have to be fair and allow for an appeal. Fines would penalize the offender; parties that lost money would not be compensated. The CGC would investigate alleged infractions and levy fines for violations. Cases of suspected fraud would be referred to the RCMP and/or Justice Canada.

Wheat

Wheat is the commodity most affected by the erosion of KVD. The economic importance of wheat is well known, and any changes to our wheat quality assurance system must be made with care.

While there are opportunities for developing niche markets for wheat varieties that have specialized quality characteristics, most customers will continue to buy in bulk for the foreseeable future. For these customers (including all of Canada's premium markets), the most important priority is to receive wheat of consistent, uniform quality.

Therefore, any relaxation of KVD registration requirements should be done gradually, beginning with classes where shipping volumes are comparatively lower and the consequences of errors less costly.

No changes to KVD registration requirements for the major wheat classes (CWRS and CWAD) should be made until experience with relaxing them for the minor classes has shown that the system is effective.

Relaxation of KVD requirements for the minor classes should be done cautiously on a case-by-case basis; the benefits of registering a new non-KVD variety should exceed expected costs before such a variety could be registered.

Costs and Benefits

Any significant change will involve costs and therefore they have to be assessed carefully before proceeding. In our view, the cost of doing nothing would be greater than the cost of proceeding with variety eligibility declarations. If we do not find a more flexible approach to grain segregation producers and the industry will lose valuable opportunities. Costly events, such as the downgrading of a unit train of wheat can be expected. In addition to the expense of such occurrences, there is the erosion of customer confidence to consider.

A declaration system will require all participants to keep good records. Farmers will have to keep track of what they grow and what they deliver, but most producers are very good at that already. Grain handlers will need to adjust their systems as well, but the Canadian grain handling industry is among the most efficient in the world. Everyone will have to retain samples, but as we have observed, such systems are in place in other parts of the world. We can draw on their experiences.

The potential benefits go beyond meeting the current quality needs of our customers. More and more we are seeing an emphasis around the world on the ability to trace agricultural commodities back to the farm for reasons of quality and food safety assurance. Customers are saying that they need to know what is grown, how and by whom, in order that they can be confident that they are receiving a safe, high quality product. Industries that can provide these assurances will have a powerful advantage in domestic and international markets. Using variety eligibility declarations will help address concerns of this kind.

Timing

In consultation with producers and the industry, the CGC hopes to begin in 2004 to phase in the use of declarations.

How to Provide Input

The Canadian Grain Commission wishes to hear from you, individually or as part of producer or grain industry organizations by March 31, 2003. We will be scheduling meetings with stakeholder organizations over the coming months. We are available to attend meetings you organize to discuss this topic. We invite written comments. As well, you can join in an online discussion at our web site: <http://www.grainscanada.gc.ca/>.

Discussion Questions

In preparing to meet with us, or in the drafting of written submissions, we ask you to consider answering the following questions

1. Is there an alternative to the use of variety eligibility declarations that would enable us to segregate grain shipments cost effectively and to meet our customers needs?
2. What type of deterrents to misrepresentation of grain shipments should be in place?
3. What should be done if a producer or other shipper of grain chooses not to sign a variety eligibility declaration?
4. Who should investigate allegations of misrepresentation? Who should enforce?
5. What will the use of variety eligibility declarations mean to the operation of your farm or company?
6. What problems do you foresee, and do you have suggestions for how to solve them?
7. What benefits do you believe will result from the use of a variety eligibility declaration?

We need to hear from you. Please address all questions, requests for meetings and written submissions to:

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For Further Information

There are numerous resources on the CGC web site. For a range of articles, studies and papers on grain quality issues, we invite you to visit our Publication Index at <http://grainscanada.gc.ca/Pubs/pubmenu-e.htm>.

In particular, we recommend that you look at:

The Official Grain Grading Guide - the Guide is used by CGC and grain industry inspectors as a complete reference on the grading of grains, oilseeds and pulses; <http://grainscanada.gc.ca/Pubs/GGG/ggg-e.htm>

Western Canada's Wheat Quality Control System: Future Directions – a joint paper by the Canadian Grain Commission and the Canadian Wheat Board; <http://grainscanada.gc.ca/Views/discuss/future/controls-e.htm>

Identity Preserved Systems in the Canadian Grain Industry – a discussion paper prepared by the CGC in collaboration with the Canadian Wheat Board, the Canadian Seed Growers Association, the Cereal Research Centre, the Country Elevator Association, the Terminal Elevator Association, and some western grain producers; <http://grainscanada.gc.ca/Views/discuss/IP98/IPpaper-e.PDF>

Ce document est aussi disponible en français.