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**Grain Quality in the Canadian Barley Sector:
A Review of Regulations, Industry Practices,
and Policy Issues**

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Abstract

This paper provides an overview of regulations and industry practices relating to grain quality in Canada's barley sector. Special attention is devoted to malting barley. Topics include: supply and disposition of barley in Canada; role of institutions (Canadian Grain Commission and Canadian Wheat Board); grades and standards; variety registration; malting barley selection; and recent changes in handling, procurement, and marketing.

Key Words: barley, grain quality, marketing, procurement, Canada

Highlights

Regulations concerning grain quality are a critical feature of Canada's grain marketing system. In areas such as variety licensing and grain cleaning, Canadian regulations differ substantially from those of the United States. Canada vests two public institutions, the Canadian Wheat Board (CWB) and Canadian Grain Commission (CGC), with responsibility for grain marketing and quality assurance. The CWB, as single-desk seller of western-grown wheat and barley for nonfeed use or export, has been the focus of much controversy within Canada, as well as a target for U.S. critics of state trading. The CGC is less familiar to many U.S. observers; however, it plays a major role in the Canadian system as the agency responsible for grain grading and inspection, and regulation of the grain handling industry. The CGC is charged with enhancing the marketability of Canadian grain and ensuring the integrity of Canadian grain standards.

The CWB's price pooling and grain accounting systems for malting barley are based on official grades established by the CGC. However, these grades bear little relation to the quality specifications of buyers, either in U.S. or offshore markets. This creates problems for companies that sell malting barley on behalf of the CWB: while purchase prices are tied to grades, sale prices are based on buyer specifications, which include many nongrade quality factors. Apart from the paperwork and administrative burden of board transactions, companies are enjoined from using price discounts that are unrelated to grades.

The Canadian system also confronts unique problems in handling and logistics. Traditionally, most domestic shipments of malting barley were in railcars consigned to individual producers. Single-car movements were not only inefficient from a logistical perspective, but encouraged most segregation, blending, and cleaning of barley to occur at port terminals and malt plants, rather than at primary elevators. As a result, primary elevators developed little expertise in barley testing or quality management. Deficiencies in the grain handling system are now being addressed by major line companies through new investments in elevators and equipment, training of personnel, and (most important) new procurement strategies for malting barley. Competitive pressures are forcing various changes in the relationship between Canadian producers and line companies. Contract growing and the practice of 'street pricing' are giving these companies greater control over procurement and logistics, while alleviating some of the marketing risks faced by barley producers.

Street pricing is the most significant recent change in procurement. Although introduced by handlers some years ago, it has become a dominant practice only recently—stimulated, in part, by CWB price discounts. Under street pricing, elevators make selection decisions when the producer delivers, and immediately extend the initial payment for barley that meets malting grade. This removes a source of uncertainty for producers, who under the old system could have their consigned railcars rejected at destination for quality reasons. Instead, line companies assume the risk of rejected shipments. They are no longer bound to preserve the identity of each producer's barley, but can commingle grain from many producers, blending at the point of origin to meet contract specifications and shipping at favorable, multiple-car rates.

From the perspective of U.S. barley producers, there are several causes for concern about competition with Canada. The ability of the CWB to practice price discrimination may give it

(and the Canadian malting industry) an advantage in international markets. Major reforms have been proposed for Canada's rail transportation system, with uncertain consequences for cross-border grain flows. Important changes are also occurring in Canada's grain handling sector—specifically, the development of new, high-throughput elevators on the Prairies, capable of shipping unit trains. Improvements in grain handling and logistics are sure to make Canadian barley more competitive in U.S. markets.

U.S. producers should bear in mind that while Canada is an able competitor, it also suffers from extra costs and institutional constraints. They should also recognize that the surge in malting barley exports from Canada to the United States since 1993 has been largely due to disease problems in the U.S. crop. U.S. buyers are seeking geographical diversification in their barley procurement, and Canada would help to fulfill that need with or without a board marketing system.

Grain Quality in the Canadian Barley Sector: A Review of Regulations, Industry Practices, and Policy Issues

D. Demcey Johnson*

1. Introduction

Regulations concerning grain quality are a critical feature of Canada's grain marketing system. In areas such as variety licensing and grain cleaning, Canadian regulations differ substantially from those of the United States, and involve much greater oversight and control by public institutions. Stringent quality standards have been defended as a source of competitive advantage for Canadian grain exports. This has been the subject of much analysis and debate, both from a marketing perspective (i.e., assessing buyer valuations of grain quality, differences across exporters, etc.) and in terms of the costs and benefits realized by Canadian producers. Other issues have arisen in the context of continental grain trade, as regulations associated with quality standards, in conjunction with a board system for Canadian wheat and barley, have limited commercial harmonization and reciprocal market access.

Canada vests two public institutions, the Canadian Wheat Board (CWB) and Canadian Grain Commission (CGC), with responsibility for grain marketing and quality assurance. The CWB, as single-desk seller of western-grown wheat and barley for nonfeed use or export, has been the focus of much controversy within Canada, as well as a target for U.S. critics of state trading. The CGC is less familiar to many U.S. observers; however, it plays a major role in the Canadian system as the agency responsible for grain grading and inspection, and regulation of the grain handling industry. The CGC is charged with enhancing the marketability of Canadian grain and ensuring the integrity of Canadian grain standards. Regulations administered by the CGC—for example, phytosanitary standards for Canadian grain imports and restrictions against commingling of U.S. and Canadian grain—have been in the forefront of recent bilateral disputes.

In the barley sector, the distinction between feed and malting barley is crucial. On both sides of the border, malting barley commands a price premium relative to feed and must satisfy quality requirements specified by end-users (malt companies or brewers). However, the Canadian system of 'selecting' malting barley differs from that used in the United States. Traditionally, Canadian malting barley has been selected by end-users or their agents in a lengthy, multi-stage process. Until the recent advent of 'street pricing,' producers transferred ownership (and earned rights to an unknown pool return) only after shipment and final acceptance by the selecting party. This exposed Canadian producers to the risk and expense of rejected shipments. In the United States, by contrast, malting barley prices are determined at elevators, and payments to producers are simultaneous with the selection process.

The CWB's price pooling and grain accounting systems for malting barley are based on official grades established by the CGC. However, these grades bear little relation to the quality specifications of buyers, either in U.S. or offshore markets. This creates problems for companies that sell malting barley on behalf of the CWB: while purchase prices are tied to grades, sale prices

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The Canadian system also confronts unique problems in handling and logistics. Traditionally, most domestic shipments of malting barley were in railcars consigned to individual producers. Single-car movements were not only inefficient from a logistical perspective, but encouraged most segregation, blending, and cleaning of barley to occur at port terminals and malt plants, rather than at primary elevators. As a result, primary elevators developed little expertise in barley testing or quality management. Deficiencies in the grain handling system are now being addressed by major line companies through new investments in elevators and equipment, training of personnel, and (most important) new procurement strategies for malting barley. Competitive pressures are forcing various changes in the relationship between Canadian producers and line companies. Contract growing and the practice of street pricing are giving these companies greater control over procurement and logistics, while alleviating some of the marketing risks faced by barley producers.

This paper provides an overview of regulations and industry practices relating to grain quality in the Canadian barley sector. Special attention will be devoted to malting barley, given the importance of malting quality issues and the rise in U.S. imports in recent years. The general objective is to explain how the Canadian system works, pressures for change, and implications for cross-border trade. This paper is organized as follows. The next section provides some background on the supply and disposition of Canadian barley, varieties planted, selection rates, and production and consumption trends. The third section outlines the functions of the CGC and CWB as they relate to barley; other relevant institutions and organizations are identified where appropriate. Grade standards, variety licensing, and the selection process are briefly outlined. The fourth section provides an overview of the handling, procurement, and marketing system for malting barley. Industry trends and practices that are particularly relevant for cross-border trade are highlighted. The paper concludes with a short discussion of implications.

2. Canadian Barley Supply and Disposition

During the past decade, Canadian barley production has varied between 11.0 and 15.5 million metric tonnes (Table 1). Barley acreage has declined since 1996/97, as oilseeds and other crops have advanced in western growing areas. Canadian yields averaged 54.2 bushels per harvested acre during 1989-98, about 3 bushels below the U.S. average.

Table 1. Canadian Supply and Disposition of Barley

Marketing year beginning August 1											
	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	Est. 98/99	Proj. 99/00
Supply	(thousand tonnes)										
Stocks	2,790	2,056	2,646	2,614	3,271	3,376	1,820	1,749	2,919	2,457	2,911
Production	11,784	13,441	11,617	11,032	12,972	11,690	13,035	15,562	13,647	12,699	12,402
Imports	0	1	2	3	8	8	10	19	27	150	50
Total	14,574	15,498	14,265	13,648	16,251	15,074	14,866	17,321	16,593	15,306	15,363
Usage	(thousand tonnes)										
Exports†	4,497	4,823	3,685	3,013	4,218	3,506	2,826	4,002	2,761	1,150	1,700
Seed	414	393	355	394	374	401	452	435	400	442	400
Malt‡	410	366	381	428	376	336	441	383	340	335	340
Feed/Waste	7,197	7,271	7,230	6,542	7,907	9,010	9,389	9,582	10,635	10,460	10,400
Total	12,518	12,852	11,651	10,377	12,875	13,253	13,118	14,402	14,136	12,387	12,840
Ending Stocks	2,056	2,646	2,614	3,271	3,376	1,820	1,749	2,919	2,457	2,919	2,523
Stocks/Use Ratio	16.4%	20.6%	22.4%	31.5%	28.2%	13.7%	13.3%	20.3%	17.4%	23.6%	19.6%
Harvested Acres (‘000)	11,681	11,190	10,420	9,371	10,277	10,112	10,787	12,078	11,664	10,549	10,245
Yield (bu/acre)	46.3	55.2	51.3	54.1	58.0	53.1	55.5	59.2	53.7	55.3	55.6

Source: *Canadian Grains Industry Statistical Handbook 97*, and *PCTS Market Report*, April 19, 1999.

† includes malt exports in barley equivalent. ‡ industrial and food use.

Growth in domestic feed use represents one of the most significant trends in Canada's barley sector. Domestic feed demand now accounts for over 80 percent of total usage (Figure 1). With the rise in domestic feed use, barley exports have declined in relative importance. Both trends are due, in part, to the loss of rail subsidies in 1995, which made it more costly to ship grain to export ports (Vancouver and Thunder Bay), and encouraged more livestock feeding in the Prairie provinces. Over 60 percent of the feed demand in Western Canada is for beef cattle, with the remainder going to dairy cattle, pigs, and poultry (Hickling, p. 58). Growth in Alberta's cattle industry threatens to make it a barley deficit region; likewise, Manitoba's hog industry represents a major new market for feed barley.

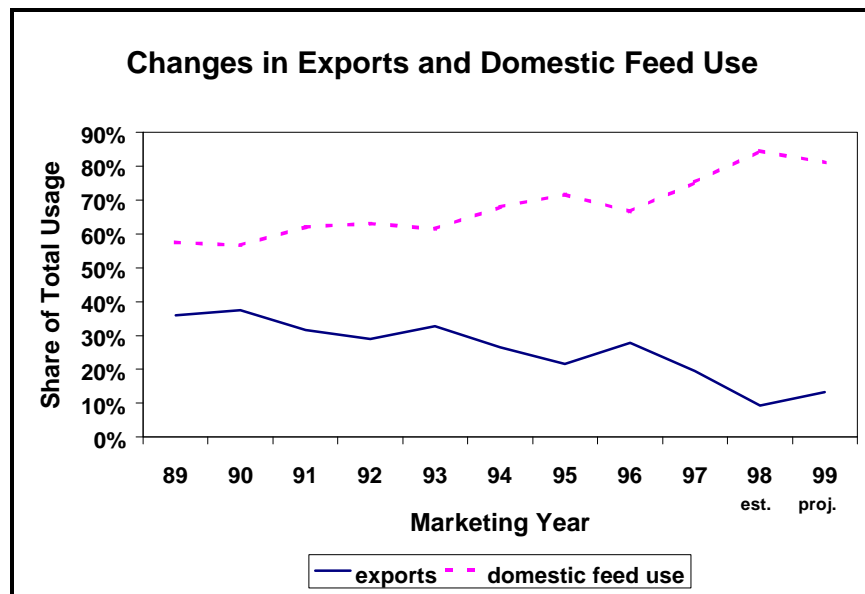


Figure 1. Changes in Exports and Domestic Feed Use.
 Source: Derived from data in *Canadian Grains Industry Statistical Handbook 97*, and *PCTS Market Report*, April 19, 1999.

Although most Canadian barley is consumed domestically as livestock feed, most barley acres are planted to malting varieties. Producers often sacrifice a smaller yield (relative to feed varieties) in hopes of earning a malting premium, which has typically averaged around Cdn \$1 per bushel. Malting varieties are dual purpose: if the quality is sufficiently good for selection, the barley is sold for malting use and the producer receives the CWB's pool price; if the barley is not selected, it can be used for livestock feed. Malting varieties now account for about three-quarters of total barley acres. Of the malting barley acres, two-row varieties account for about two-thirds, and six-row varieties one-third. Malt made from two-row varieties is most commonly used by the world's brewing industry, while malt made from six-row varieties dominates in the U.S. market. Until the 1990's, all six-row malting varieties grown in Canada were bred with a blue aleurone to make them visually distinguishable, facilitating segregation in the handling system. However, six-row malting varieties with white aleurone are preferred by U.S. brewers, and Canada's six-row

malting acres are now almost entirely planted to white-aleurone varieties, including B1602, Excel, and Robust (Table 2). As discussed below, changes in the normal process for variety registration were made in order to accommodate increased production of six-row white aleurone varieties in the 1990s.

Table 2. Seeded Area of Malting Barley Cultivars as Percent of Total Area Seeded to Malting Barley

	Six-rowed cultivars		Two-rowed cultivars		
	1997	1993-97 average		1997	1993-97 average
White aleurone †	31.4	19.8	Harrington	35.7	43.3
Argyle/Bonanza	4.3	11.5	Manley	10.0	14.6
Tankard	1.4	1.1	AC Oxbow	5.7	2.5
Duel	—	1.8	Stein	4.3	2.5
			B 1215	4.3	2.0
			Other	2.9	0.9
Total	37.1	34.2	Total	62.9	65.8

† includes B1602, Excel, Robust and Stander.

Source: Edney and Tipples, *Quality of Western Canadian Malting Barley 1997*, p.4.

Figure 2 shows the approximate breakdown of 1998 barley production in Western Canada between feed and malting varieties.¹ Total production of malting varieties is estimated at 8.6 million tonnes. However, the malting barley pool for 1998/99 is estimated at only 1.9 million tonnes, or 22 percent of malting-variety production (Cuthbert, p. 7). Normally, about 15-25 percent of malting barley is selected for malting. Industry selection rates vary by year and district, as well as by variety.

¹About 1 million tonnes of barley were grown outside of the Western provinces. The Western region for barley is comprised of Alberta, Saskatchewan, Manitoba, and a small section of British Columbia by the Peace River.

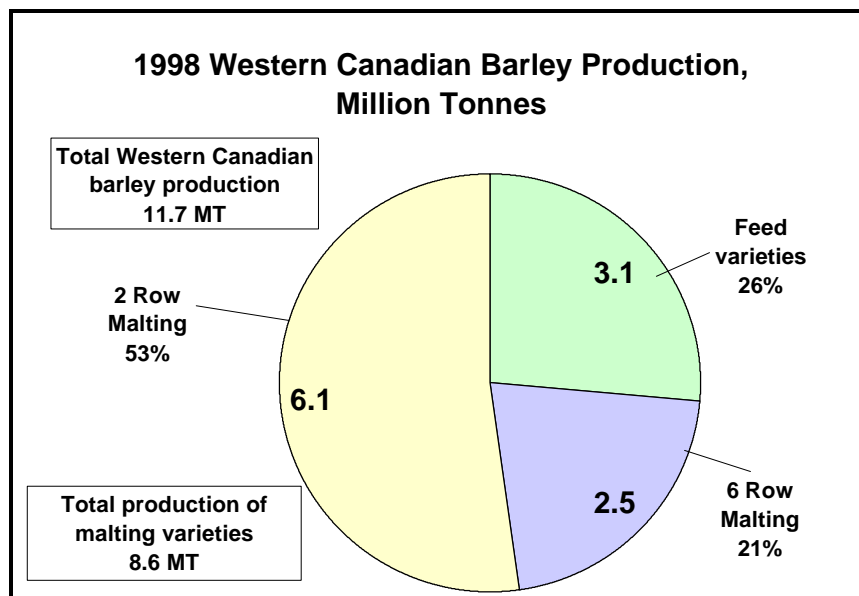


Figure 2. Supplies of Barley in Western Canada, 1998.
 Source: Cuthbert, "World Malt and Malting Barley Trade and Prospects for Canadian Malting Barley Exports," in *Proceedings of the Canadian Barley Symposium '99*.

Figure 3 shows the expected disposition of barley selected for malting. About 1.0 million tonnes will be exported as malting barley, 0.55 exported as malt, and 0.35 consumed domestically as malt (Cuthbert, p. 7). The United States has become Canada's major market for malting barley exports. Exports to the United States increased substantially in 1993/94, the first year of an extended fusarium outbreak in the Dakotas and Minnesota (Figure 4). Most exports of malting barley to the United States are of six-row varieties. Two-row varieties are expected to account for somewhat less than a third of malting barley exports to the United States in the 1998/99 marketing year. Most of Canada's offshore exports are of two-row varieties. After the United States, China is Canada's major export market for malting barley. Canadian malt capacity has increased sharply in the past decade, to about 0.9 million tonnes. Despite low world prices and stiff competition from the European Union (aided by subsidies), the Canadian malting industry now operates at a higher rate of capacity utilization than most other countries. This reflects a commitment by the CWB to maintain the price competitiveness of Canadian malt in export markets.

3. Institutional and Regulatory Framework

Two public institutions, the Canadian Grain Commission and Canadian Wheat Board, exert important influence in Canada's barley sector. Their areas of responsibility are outlined in this section. Additional details are provided about the grading system, variety licensing, and the selection process.

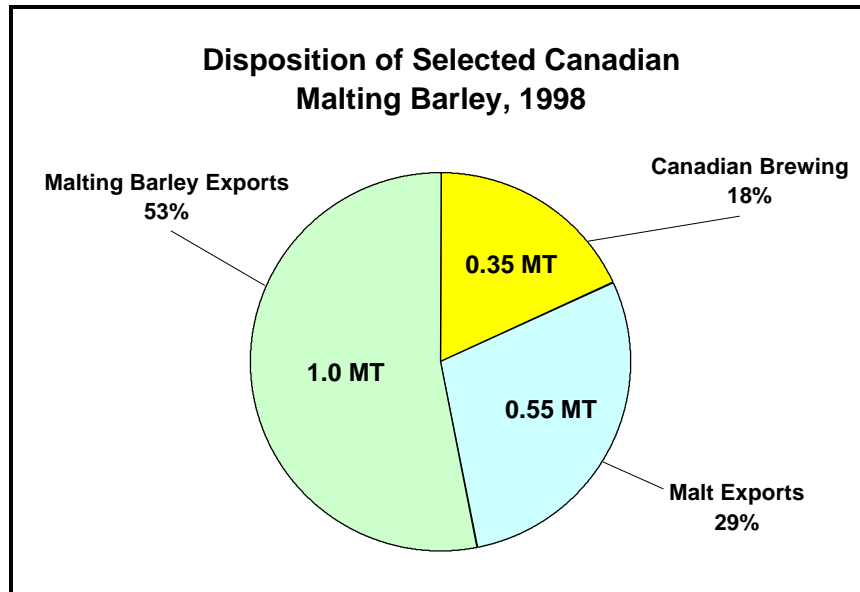


Figure 3. Disposition of Canadian Malting Barley, 1998.
 Source: Cuthbert, "World Malt and Malting Barley Trade and Prospects for Canadian Malting Barley Exports," in *Proceedings of the Canadian Barley Symposium '99*.

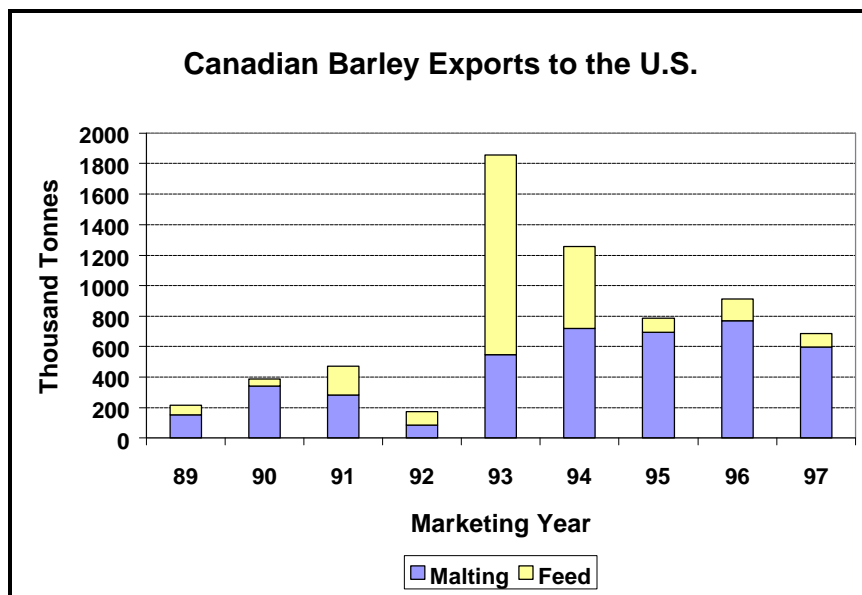


Figure 4. Canadian Barley Exports to the United States.

Source: Canadian Wheat Board, *Statistical Tables 1997-1998 Crop Year*.

Canadian Grain Commission

The CGC derives its authority from the Canada Grain Act, first enacted in 1912 and revised several times thereafter, most recently in 1988. With a staff of about 750 and a budget of about Cdn \$55 million (mostly covered by user fees), the CGC has a broad mandate, spelled out in Section 13 of the Canada Grain Act:

“...the Commission shall, in the interests of the grain producers, establish and maintain standards of quality for Canadian grain and regulate grain handling in Canada, to ensure a dependable commodity for domestic and export markets.”

The CGC is authorized to:

- “establish grain grades and standards;
- implement a system of grading and inspection for Canadian grain;
- establish and apply standards and procedures regulating the handling, transportation and storage of grain, and also regulating facilities used in such operations;
- conduct investigations and hold hearings when required;
- undertake, sponsor and promote research in grain and grain products;
- and advise the minister responsible for the Commission on matters relating to grain and grain products.” [Canadian International Grains Institute (CIGI), *Grains and Oilseeds: Handling, Marketing, Processing*, p. 95].

This is a broader purview than that of Federal Grain Inspection Service (FGIS), the U.S. agency that is most directly comparable.² CGC is responsible not only for quality assurance, but for regulating the grain handling industry.

In the area of quality assurance, CGC provides two types of services: direct and indirect. Direct services include weighing and inspection of grain loaded into vessels for export. Fees received for these services cover most of the operating budget. Lower volumes of exports through terminal elevators since 1995 (due to shifts in production, more value-added processing in the Prairies, and a rise in direct shipments to the United States) have led to budget shortfalls, forcing CGC to pare costs and introduce more fee-based services. Recently, CGC has established six new offices in the Prairies to provide industry services, supplementing existing offices at port locations. This will facilitate CGC provision of ‘outward inspection’ services for grain shipped from primary elevators. It should be noted that while CGC weighing and inspection are mandatory for offshore barley exports (upon receipt at terminal elevators), they are optional for sales to the United States. Official grading at primary elevators is not mandatory, although grain entering these elevators must be purchased under grade names. Buyers or sellers can request official grading by the CGC based on a submitted sample.

²A recent reorganization has placed FGIS within the Grain Inspection, Packers and Stockyards Administration (GIPSA) of the U.S. Department of Agriculture.

Indirect services include the setting of grain standards and grain quality research. These activities have the nature of ‘public goods,’ with benefits widely diffused and little opportunity for cost recovery.³ The Grain Research Laboratory (GRL) of CGC evaluates new lines of barley for end-use quality—an integral step in the variety registration process—and provides technical support to the CWB in its market development activities. The GRL also collects and analyzes barley samples as part of an annual crop quality survey.⁴

The CGC is the federal licensing authority for grain elevators. It regulates the tariffs they charge for services, such as elevation and cleaning, and prescribes many of their operating procedures. Licensed elevators are responsible for protecting the integrity of the grain grading system and maintaining standards for quality.

Grain Grades and Standards

Canada’s grain grading system uses a combination of numerical measurements and visual interpretation of grain samples by inspectors. As an aid to interpretation of “the degree of soundness” and other factors that are not easily quantified, standard samples are prepared annually for each grade of grain by the Inspection Division of the CGC. These are submitted to a Grain Standards Committee for approval. Producers, CGC staff, the CWB, processors, and export firms are represented on the Committee. Two standardized samples, representing minimal visual quality, are prepared for each class of grain: one for primary elevators and the other (with more stringent quality factors) for export elevators (CIGI, *Grains and Oilseeds: Handling, Marketing, Processing*, Vol. 1, pp. 96-7).

There are three major grades of ‘designated’ (malting) barley. ‘Special select’ is the top grade; ‘select’ is the middle grade; and ‘standard select’ is the lower grade. There are separate grade standards for 2-row and 6-row varieties. These are reproduced in the appendix. The official grades for malting barley are of little commercial relevance, as most sales are made on the basis of nongrade contract specifications (e.g., variety, minimum germination, maximum protein, and DON⁵). Major U.S. buyers of Canadian barley have unique quality requirements, as do many

³CGC has recently proposed a quality assurance fee in the form of a check-off when grain is first delivered to licensed elevators. (CGC Presentation to the Standing Committee on Agriculture and Agri-Food, March 11, 1999).

⁴For details on these activities, including expenditure levels, see the *Program Review of the Canadian Grain Commission*, January 1999. The Review can be downloaded from the CGC website: <http://www.cgc.ca/>

⁵DON stands for deoxynivalenol, which is a toxin associated with a fungal disease, Fusarium head blight. DON, also known as vomitoxin, is measured in parts per million (ppm); concentrations above 0.5 ppm can trigger commercial discounts.

buyers in offshore markets. With increased sophistication of buyers and competition from Europe, quality specifications are becoming tighter, especially for varietal purity.⁶

One area where export standards remain important is in the treatment of dockage. Offshore exports are generally required to be ‘commercially clean,’ meaning that dockage (i.e., small seeds and attritional material) must be lowered to less than 0.2 percent. Barley shipments to the United States need not be cleaned to export standard unless requested by the buyer. Most grain cleaning takes place at Canadian port elevators, although many of the new, high-throughput elevators in the Prairies have installed cleaning equipment and are able to meet export standards. Cleaning operations can be profitable to handlers. Apart from incentives of reduced freight costs and revenue from sale of screenings, elevators collect a standard cleaning charge of Cdn \$4.30 per tonne from producers. That amount is deducted from the initial payment received by producers on delivery of barley to a primary elevator.⁷

Variety Registration

Only registered varieties are eligible for sale as malting barley. The registration process is authorized under the Seeds Act, as amended in 1985/86, and involves close collaboration between breeders, commercial interests, and public agencies. The overall objective is to ensure that new barley varieties are as good as, or better than, existing varieties in terms of end-use characteristics, agronomics, and disease resistance. New registrations are considered annually by the Prairie Registration and Recommending Committee for Grain (PRRCG), based on technical characteristics and commercial potential. The Committee’s recommendations are subject to approval by the Plant Products Division, Food Production and Inspection Branch of Agriculture and Agri-Food Canada. (CIGI, *Grains and Oilseeds: Handling, Marketing, Processing*, pp. 539-40, 1050).

Normally, the registration process spans several years. New barley lines may be developed by private breeders, university researchers, or Agriculture Canada. Before being submitted to the PRRCG, new lines are subjected to at least three years of cooperative trials at 20 different sites. Malting tests are conducted by the Grain Research Lab of CGC. After three years, a variety can obtain an interim registration. This allows larger amounts of the variety to be grown under contract with the CWB. Plant-scale brewing tests are then conducted; these are coordinated and supported by the Brewing and Malting Barley Research Institute (BMBRI), which is funded by industry. Full registration is awarded after two years if commercial results are successful. (CIGI, *Grains and Oilseeds: Handling, Marketing, Processing*, p. 1050).

⁶Buyers from South America and China used to specify 90% varietal purity. However, Europe now offers 98% varietal purity, forcing competing exporters to do likewise. This exceeds the 95% minimum now allowed under ‘Special Select’ grade standards.

⁷Additional details are found in *The Economics of Cleaning Grain on the Prairies*, prepared by the Grain Cleaning Study Consortium for Agriculture and Agri-Food Canada.

For some U.S. malting barley varieties, registration in Canada has followed a different course. In 1987, Anheuser Busch Inc. introduced its six-row variety B1602 in Canada and began cooperative trials. After three years it applied for registration. Interim registration was granted by Ottawa over the objection of the CGC, which argued that introduction of a white aleurone barley would cause problems for a system based on visual distinguishability. To circumvent these problems, Anheuser Busch, working with the Prairie pools, developed a 'closed loop' system. The pools had exclusive rights to sell certified B1602 seed in Canada; they also signed contracts with farmers giving them exclusive rights to all production, whether graded for malting or feed. The closed loop allowed B1602 produced in Canada to be sold in the United States (or in the domestic feed market) with less disruption to the marketing and handling system. Full registration for B1602 was approved in 1991.

Commercial pressures have caused the registration process to be expedited for other U.S. malting varieties. Robust and Excel were introduced in Canada as unregistered (feed) varieties in 1992-93 by Cargill and United Grain Growers (UGG), respectively. One year after entering cooperative trials they were granted interim registration (1995); both now have full registration. Registration for these varieties was expedited because of disease problems in the U.S. barley crop, which created good marketing opportunities for six-row white aleurone varieties. Virtually no acreage is now planted to six-row blue aleurone varieties in Canada, as domestic brewers have also switched to white aleurone.

The Canadian Wheat Board

The CWB derives its mandate from the Canadian Wheat Board Act of 1935. It is a Crown Corporation governed by a Board of Directors, reporting to Parliament through the Minister of Agriculture and Agri-Food.⁸ The CWB is the exclusive seller of western-grown wheat and barley for human consumption or export. As single-desk seller, the CWB claims to exert marketing power on behalf of Canadian producers, maximizing their prices. Revenues from CWB sales are pooled by commodity, so that all producers receive the same return (except for grade differentials and location) regardless of when in the marketing year their grain is sold. The CWB also administers the federal government's initial payment guarantee. Producers receive an initial payment when they deliver a board grain to a primary elevator. They may receive an interim payment during the course of the marketing year, and final payment some months after its conclusion—after the pool accounts have been closed and marketing costs deducted. If the pool should wind up in deficit (net sales revenue less than value of initial

⁸Until recently, the CWB was governed by five appointed Commissioners. These were replaced by the Board of Directors in 1999 as a result of reforms carried out under the C-4 legislation. The Board of Directors is dominated by twelve elected producer representatives.

payments), the federal government makes up the difference. That has occurred infrequently; the last significant pool deficits for barley were in 1985/86 and 1986/87, and for wheat in 1990/91.⁹

In barley, the CWB must compete with a large and unregulated domestic feed barley market. There are important differences in payment terms between board and nonboard sales. When producers sell barley for domestic feed use, they receive immediate payment on delivery. Selling through the CWB involves not only payment delays, but uncertainty about the final payment. Producers strapped for cash must weigh the prospective returns from board sales (and attendant risks, especially for malting barley) against the cash price for feed barley. To maintain viable pools, the CWB must offer prospective returns that reward producers. This has become increasingly difficult in the last two years, as growth in domestic feed barley demand has put upward pressure on feed prices relative to world values. Lethbridge, Alberta has offered some of the world's highest feed barley prices, actually inducing inflows of feed barley from the United States in 1998.

CWB exports of feed barley have diminished in recent years (Figure 5), raising the relative importance of malting barley exports. Since 1993, the U.S. market has accounted for most of Canada's malting barley exports (Figure 6). Sales to the U.S. market are entirely through CWB-accredited exporters, including both Canadian and foreign-owned grain trading firms. Offshore markets are served by accredited exporters and through direct CWB sales. When accredited exporters make sales on behalf of the CWB, they arrange all aspects of the transaction (contract terms, freight and logistics, etc.) save the price, which is at the Board's discretion. Sales proceed only if the price is agreeable to both the CWB and the foreign buyer.

The Selection Process

The CWB is not directly involved in the selection process for malting barley. Traditionally, barley has been selected by end-users (maltsters or brewers) or their agents, based on representative samples submitted by producers. The process is now changing, as discussed below, but traditionally the system has worked as follows. A producer delivers a sample of his barley to a primary elevator and signs a CWB contract offer for selected barley. The contract specifies the tonnes offered, the (local) delivery point, and barley variety. The elevator forwards the sample to its main office (e.g., in Winnipeg) where it is shown to potential buyers (selectors). Buyers have 14 days after the producer has signed the offer in which to accept.¹⁰ If a buyer accepts the offer, copies of the signed contract are forwarded to the CWB, which notifies the producer by letter. The contract indicates a 90-day window in which the selecting company expects to ask for delivery.¹¹ Before delivery there may be one or more 'recheck samples' to

⁹These are detailed in the October 1998 GAO report, *U.S. Agricultural Trade: Canada Wheat Issues*, p. 30. The large wheat pool deficit in 1990/91 has caused Canadian authorities (Ministry of Agriculture and Agri-food, in consultation with the CWB) to be conservative in setting initial payment levels.

¹⁰The producer's offer is irrevocable during this 14-day interval. If no buyer is found, the producer can still allow the sample to be held for future selection.

¹¹This information was first provided in the 1997/98 CWB delivery contracts.

ensure that the producer's barley is in good condition, meeting minimum specifications for germination, etc. If the recheck shows quality deterioration, the selector is no longer bound to accept the barley. Assuming no deterioration, the selector calls for delivery and the producer has 21 days in which to deliver the grain to a designated elevator. The grain is loaded into a 'consigned car' for shipment, preserving the identity of the producer's grain until unloading at a malt plant or terminal elevator. The barley is still owned by the producer until it has been unloaded and graded at an export terminal, or unloaded (and accepted) at a malt plant. Not until that point does the producer receive the initial payment for his grade of barley. If the carlot is rejected at destination—for example, because of a failed germination test—the producer can deliver it to the CWB as feed, or deliver it to an off-board feed market.

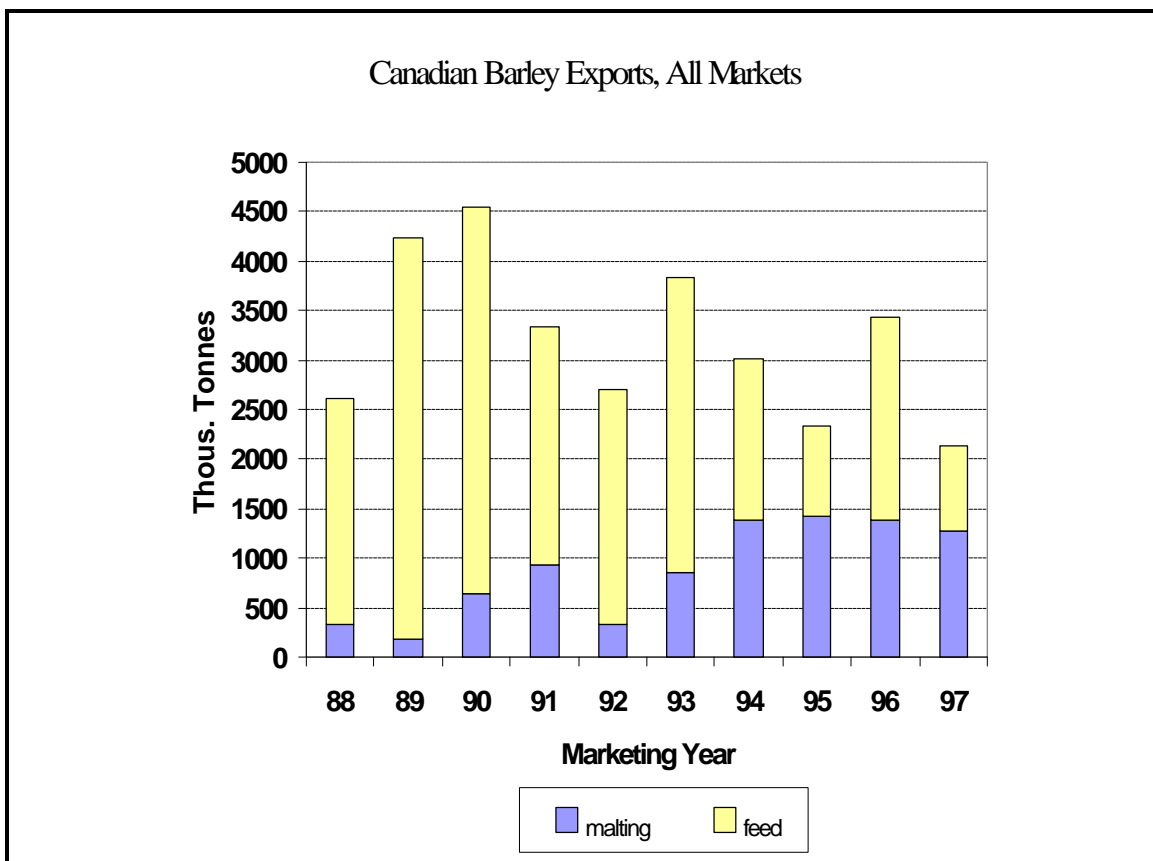


Figure 5. Canadian Barley Exports to All Markets.

Source: Canadian Wheat Board, *Statistical Tables 1997-1998 Crop Year*.

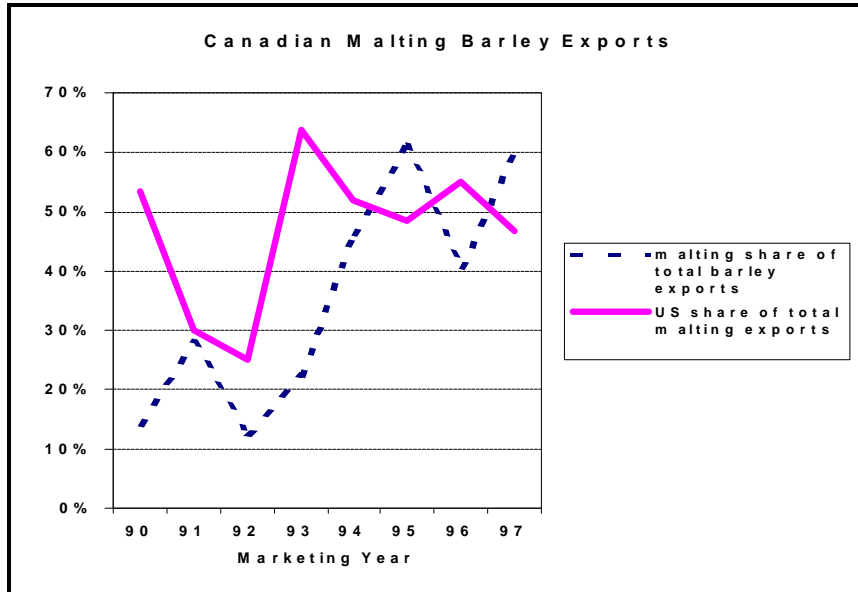


Figure 6. Malting Share of Total Barley Exports.

Source: Derived from data in Canadian Wheat Board, *Statistical Tables 1997-1998 Crop Year*.

This process has changed with the advent of ‘street pricing,’ whereby line companies select barley for malting based on their own quality evaluation and offer producers the initial payment immediately upon delivery at the local elevator. Street pricing is becoming increasingly common, accounting for most malting barley transactions in the 1998/99 marketing year.¹² From the producers’ perspective, the main advantage is that initial payments are expedited and line companies absorb the risk of subsequent rejection. The benefit to line companies is partly due to improved shipping and logistics; rather than shipping consigned railcars, they are able to acquire large volumes of barley and ship it at lower, multiple-car rates.

4. Handling, Procurement, and Marketing

This section provides a brief summary of grain handling, procurement, and marketing practices for malting barley. It is useful to begin with an overview of the grain handling industry. Figure 7 shows market shares of major grain handlers in Western Canada. Two of the regional farmer cooperatives, Manitoba Pool Elevators and Alberta Wheat Pool, recently merged to form Agricore. Two other firms, Saskatchewan Wheat Pool (SWP) and United Grain Growers (UGG), are former cooperatives that are now publicly traded. Agricore, SWP, and UGG together account for more than two-thirds of grain handling on the Prairies. Agricore and SWP have a joint venture, XCAN, which is an accredited exporter for the CWB. Other major grain handlers

¹²United Grain Growers, a major handler of malting barley, expects to use street pricing exclusively in the 1999/2000 marketing year.

are Pioneer, owned by James Richardson International (JRI), a family-held company, and Cargill. A new entrant is ConAgra, with four large new high-throughput elevators in barley-producing areas of Saskatchewan and Manitoba.

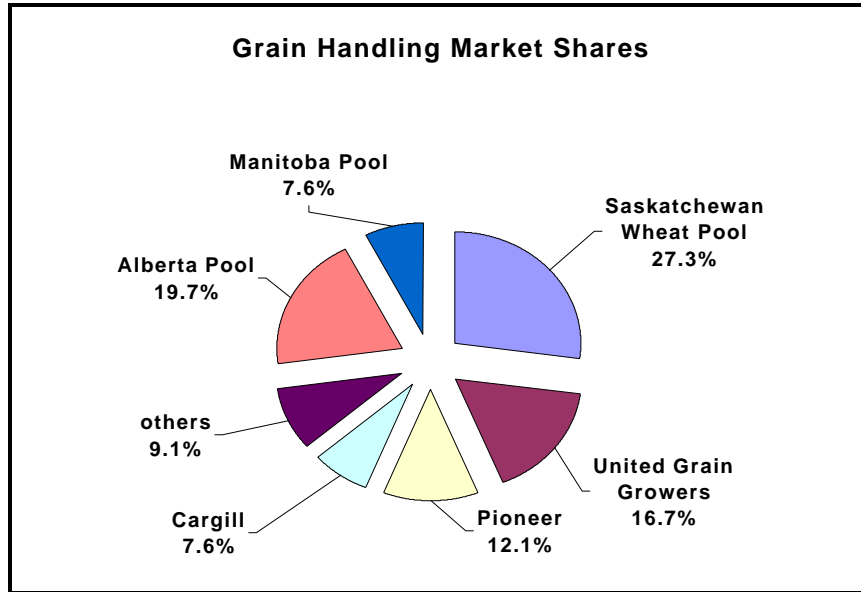


Figure 7. Shares of Major Grain Handling Firms.

Source: Rowen, "Strengths and Weaknesses of the Current Handling/Transportation System," in *Proceedings of the Canadian Barley Symposium '99*.

Several major handlers of malting barley are also involved in the malting industry. Cargill owns Ladish, a major U.S. maltster, and has a controlling interest in Prairie Malt. ConAgra owns 70 percent of Canada Malt, and SWP owns 40 percent of Prairie Malt. UGG, which is partially owned by Archer Daniels Midland (ADM), is involved in Dominion Malting. Anheuser Busch, the largest brewer and end-user of malt in North America, with three malting plants of its own in the United States, is now exploring its own direct entry in the Canadian grain handling industry. This furthers an existing trend toward vertical integration in the barley sector.¹³

The grain handling industry is now undergoing a major rationalization. Over a thousand antiquated, wooden elevators are now operating on the Prairies, but most of these are expected to close within the next several years. Taking their place are a large number of new, high-

¹³Rahr Malting of Minneapolis also owns Westcan Malting in Alberta. For further discussion of mergers, see Buschena and Gray, *Changing Structures in the Barley Production and Malting Industries of the United States and Canada*, Policy Issues Paper No. 8, Trade Research Center, Montana State University, October 1998.

throughput concrete and steel elevators. The high throughput elevators (HTEs) are able to load unit trains, and most have the ability to clean grain to export standard. UGG is in the forefront of this trend, investing in new HTEs, expanding its existing ones, and upgrading conventional elevators. It has divided the Prairies into 24 catchment areas, each served by one or more large elevators, to realize economies in grain handling and transportation. Other companies are also investing in new elevators, to the extent that there soon may be serious overcapacity in grain handling.

Grain handlers earn high elevation fees at both primary and terminal elevators.¹⁴ Handling and cleaning charges are deducted from the initial payment received by producers for board grains. Handlers recoup these charges from the CWB. Elevation fees are not constrained by regulation, although elevators must post their maximum rates with the CGC. One of the unsatisfactory aspects of this system, from a producer standpoint, is that charges may be incurred even for grain that is not cleaned to export standard or sent through an export terminal. (For their part, handlers may not know the ultimate destination of the grain when it is unloaded at primary elevators.)

Producers receive the same initial payment irrespective of which company handles their grain. Thus, handlers must use other means to compete for volume. Some companies have proprietary barley varieties. UGG, the largest seed distributor in Western Canada, has rights to Excel, Foster, and CDC Sisler (6-row varieties), and Stein (2 row); it expects more proprietary varieties to be grown under contract in future years based on the quality needs of buyers. This year, more than a quarter of the malting barley selected by UGG was grown under contract. Contract growing has distinct advantages for handlers; it secures access to grain and facilitates assembling large shipments of specified varieties. Contract terms vary across companies. JRI doesn't have its own varieties, but is involved in contract growing. If JRI does not select a producer's barley grown under contract, the producer is free to market it elsewhere. This differs from the closed-loop system used by Agricore for B1602, which gives the handler exclusive rights to all contracted production, whether for malting or feed use.¹⁵

Street pricing is the most significant recent change in procurement. Although introduced by handlers some years ago, it has become a dominant practice only recently—stimulated, in part, by CWB price discounts. Under street pricing, elevators make selection decisions when the producer delivers, and immediately extend the initial payment for barley that meets malting grade. This removes a source of uncertainty for producers, who under the old system could have their consigned railcars rejected at destination for quality reasons. Instead, line companies assume the risk of rejected shipments. They are no longer bound to preserve the identity of each producer's barley, but can commingle grain from many producers, blending at the point of origin to meet contract specifications and shipping at favorable, multiple-car rates. The CWB has encouraged this practice by offering price discounts to companies that procure at least 60 percent of their

¹⁴Country elevation charges are about 11 c/bu higher than in the United States, and terminal elevation charges are about 13 c/bu higher. Calculated from Parsons and Wilson, p. 79.

¹⁵Some B1602 grown in Alberta is also marketed in Japan for food use, as a rice extender.

selected barley this way. Discounts of Cdn \$2-3/tonne are offered, depending on the proportion of barley procurement that is street-priced. Line companies view this as compensation for their additional risk.

In this context, it should be explained that line companies procure malting barley on behalf of the CWB. When they (or other accredited exporters) make a sale, they must buy the barley from the CWB, paying whatever price the CWB requires for a given transaction and grade of barley. Thus, the CWB controls the acquisition prices paid by accredited exporters (e.g., for sales to the United States), not their final sale price. The CWB uses its own sources of market information, including bids from accredited exporters, to evaluate selling opportunities in U.S. and offshore markets.

A cumbersome feature of this system is that payments to producers, and acquisition prices paid to the CWB, are based on grades, while most selling prices are based on contract specifications. Under street pricing, grades are determined by the elevator at unloading, and producers receive higher or lower initial payments depending on the grade. (Initial payments for 1998/99 are shown in Table 3). Producers must agree to the grade to receive payment. Handlers have been known to establish lower grades than warranted by actual grain quality; this allows them to capture blending margins. Technically, producers in this situation can have their sample re-graded by the CGC, but this seldom happens in practice. Producers are usually content to take a lower initial price due to down-grading if, in exchange, the handler expedites payment and absorbs the quality risk.

Street pricing has fundamentally changed the selection process. Formerly this was based on submitted samples, so that about 12-15 people could be responsible for virtually all the barley selection in Canada. To offer a street price, primary elevators must have the expertise and equipment necessary for quality testing, as well as facilities for proper segregation, sizing, and blending. This has presented a major challenge to the grain handling industry, particularly in the area of personnel training, but offers long-term efficiency gains. For example, with improved quality management at primary elevators, it will be easier for line companies to ship barley directly to Midwestern malt plants, avoiding the expense of an extra elevation (and blending) at Thunder Bay.

In some respects, the Canadian handling and marketing system for malting barley is beginning to more closely resemble that of the United States. Canadian elevators are making selection decisions; payments to producers are more immediate; and rationalization is now underway in the handling system, in response to recent and pending deregulation of rail transportation. The variety registration process is becoming more flexible ('interim' registration is being abandoned), with greater emphasis now placed on commercial needs. A list of 'recommended malting barley varieties' is now disseminated by the Malting Barley Industry Group. (This is reproduced in the appendix). This is similar to the recommended list of the American Malting Barley Association; it conveys to producers the current variety preferences of the malting and brewing industries.

Table 3. CWB Initial Payments for Designated Barley, 1998/99

Barley Type and Grade	Initial Payment, Cdn \$/Tonne	Discounts (all grades) Cdn \$/Tonne
Special Select CW 2 Row	148	Tough 7.00
Special Select CW 6 Row	132	
Select CW 2 Row	144	
Select CW 6 Row	128	Damp \$13.50
Standard Select CW 2 Row	140	
Standard Select CW 6 Row	124	
Sample Select CW 2 Row Fusarium	108	Stones N/A
Sample Select CW 6 Row Fusarium	103	
Select CW 2 Row Hulless	136	
Select CW 6 Row Hulless	122	

Source: CWB, 1998-99 Initial Payments List No. 2, Effective December 22, 1998.

The role of the CWB remains a point of contention, on various levels. Although producers voted to retain CWB single-desk selling in 1997, there remains significant opposition among producer groups, including the Alberta Barley Commission and Western Barley Growers Association.¹⁶ Several grain companies also give voice to criticism. They complain that the CWB can be difficult to work with—especially when a shipment (e.g., to the United States) is out of contract specification. Line companies are ‘on the hook’ in such situations, not accommodated by the CWB through price adjustments. Physical grain movements and quality management are in the hands of private industry, but the CWB injects a cumbersome monitoring and paperwork process, reducing system flexibility. There are also concerns about rivalry in offshore markets, notably China, that are served both by accredited exporters and direct CWB sales.

From the perspective of grain handlers, enforcement of producer delivery contracts has been a significant problem. Until recently, producers have offered samples to multiple buyers (contrary to contract stipulations), or refused to deliver the selected barley when called for, without major penalty. Buyers of malting barley, anticipating some nonperformance by producers— as well as quality deterioration of some selected barley prior to delivery—have routinely ‘selected’ more than their expected purchases to ensure an adequate supply. Buyers had little incentive to pursue cases of nonperformance. Although the CWB could assess producers a

¹⁶These groups recently joined with U.S. organizations in a coalition pressing for free trade and an end to the CWB’s export monopoly. (“Alberta barley groups cosy with U.S. against CWB,” *The Western Producer*, May 13, 199, p. 12.)

Cdn \$6/tonne penalty for nonperformance on a delivery obligation, there was no mechanism for compensating selectors for their losses; thus, selectors had little incentive to press the CWB to take action against individuals. This situation is now changing. Starting in the 1998/99 crop year, half of the \$6 penalty is returned to selectors who incur losses due to producer nonperformance. (The other half is returned to the malting barley pool.) Funds for the selectors who experienced losses are now shared equally on a per-tonne basis. However, starting with the 1999/00 crop year, selectors will have to identify the actual costs of producer nonperformance in order to qualify for partial compensation.

While adding teeth to producer delivery contracts, the CWB is also gaining flexibility in marketing and the administration of pool accounts. As a result of the C-4 legislation which came into effect in 1998, the CWB is now able to buy barley on the cash market. It can also terminate a pool account before the end of a marketing year—something it might choose to do, for example, if prices were to drop sharply midway through a marketing year. Early termination would penalize producers who defer offering their barley to the CWB. The potential for early termination removes some of the ‘insurance value’ that producers now derive from a barley pool.¹⁷ There has even been some discussion of switching to a quarterly price pooling system. That would mark a radical change in philosophy—away from the objective of collective risk management for producers—and probably stimulate even more debate about the costs and benefits of a board marketing system.

5. Concluding Remarks

The Canadian barley sector is undergoing major change. The rise of domestic feed use and decline in offshore feed exports have left the CWB with a diminished role. The CWB retains control over malting barley, but in current market conditions is finding it more difficult to offer producers substantial premiums over feed values. Malting barley exports have increased to the United States, particularly since the onset of fusarium problems in 1993. These exports consist primarily of six-row white aleurone varieties, which until a few years ago could not be registered in Canada. In this and other areas, the Canadian system is adapting to commercial realities.

Official grades have lost their commercial relevance for malting barley; although they still serve as the basis for CWB pricing and producer payments. Sales are made on the basis of contract specifications, and buyers are becoming more demanding in terms of their quality requirements. Line companies are assuming more responsibility in the area of quality assurance. The old system of shipping consigned railcars is giving way to one in which selection and blending are performed at primary elevators, and the grain is shipped to its destination at lower, multiple-car rates. Contract growing also plays a role, enabling handlers to assemble large volumes of specified varieties.

¹⁷Pool returns reflect the average price received for CWB sales. Producers who defer entering the pool can take advantage of a rise in the domestic feed price, should that occur. If prices fall, producers have greater incentive to join the pool and claim a share of the higher sale prices contracted earlier in the marketing year.

The grain companies are close observers of CWB pricing practices. When asked whether the CWB “does a good job of pricing malting barley for Canadian producers,” respondents from several major companies offered different views. One observed that the Board is most successful in a rising market, withholding supplies to force the price higher; but in a down market its restraint can be costly to its producers. In 1998 the Board withheld sales to the United States early in the marketing year, and ultimately lost sales, due to its underestimation of supplies of malting-quality barley in North Dakota (which had been hit harder by fusarium in previous years). When pricing malting barley to the United States, the Board generally bases its price to accredited exporters on the Minneapolis market, with adjustment for freight costs. As relatively little malting barley is now publicly traded in Minneapolis (i.e., on the floor of the Minneapolis Grain Exchange), this would appear to leave some room for error. However, a merchandiser for a grain company volunteered that the Board never priced its barley below the U.S. market.

In its sales of malting barley for domestic use, the Board has somewhat less pricing discretion than several years ago. Canadian maltsters are now able to import barley from the United States (or other sources)—in fact, there have been some isolated examples of this. This means the CWB now extracts smaller premiums from the domestic malting industry. The malting industry, for its part, is still well served by a system that allows selection of malting barley supplies shortly after harvest, but requires no monetary outlays until the time of delivery. Rates of capacity utilization are also relatively high in Canada despite stiff competition from other malt exporting countries and low world prices.

From the perspective of U.S. barley producers, there are several causes for concern about competition with Canada. The ability of the CWB to practice price discrimination may give it (and the Canadian malting industry) an advantage in international markets. Major reforms have been proposed for Canada’s rail transportation system, with uncertain consequences for cross-border grain flows.¹⁸ Important changes are also occurring in Canada’s grain handling sector—specifically, the development of new, high-throughput elevators on the Prairies, capable of shipping unit trains. Improvements in grain handling and logistics are sure to make Canadian barley more competitive in U.S. markets.

U.S. producers should bear in mind that while Canada is an able competitor, it also suffers from extra costs and institutional constraints. For barley, the extra costs associated with a board marketing system may be as high as Cdn \$16/tonne.¹⁹ Other evidence supports the view that, whatever the CWB’s success in earning higher prices (measured in-store, Thunder Bay or Vancouver), the price received by Canadian producers after deduction of elevation, transportation, and other marketing costs is not better than that received by producers in the United States.²⁰ Finally, it should be recognized that the surge in malting barley exports from

¹⁸See Park et al. for discussion.

¹⁹That estimate is from Carter et al. (1998). Of course, the CWB disputes this claim.

²⁰Parsons and Wilson compared producer prices received in North Dakota and Saskatchewan. On average, North Dakota barley producers earned higher prices despite higher shipping costs to export locations.

Canada to the United States since 1993 has been largely due to disease problems in the U.S. crop. U.S. buyers are seeking geographical diversification in their barley procurement, and Canada would help to fulfill that need with or without a board marketing system.

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Appendix

Primary Grade Determinants for Malting Barley

Grade name	*Test weight kg/hl (g/0.5 litre)	*Variety	*Degree of soundness
Special select CW two-rowed	63.0 (303)	Any two-rowed variety of barley equal to or better than Harrington for malting purposes	Reasonably sound, fairly well matured, may be moderately weather-stained but not severely discolored
Special select CW six rowed	62.0 (298)	Any six-rowed variety of barley equal to or better than Bonanza for malting purposes	Reasonably sound, fairly well matured, may be moderately weather-stained but not severely discolored
Select CW two-rowed	61.0 (293)	Any two-rowed variety of barley equal to or better than Harrington for malting purposes	Reasonably sound, fairly well matured, may be moderately weather-stained but not severely discolored
Select CW six-rowed	60.0 (288)	Any six-rowed variety of barley equal to or better than Bonanza for malting purposes	Reasonably sound, fairly well matured, may be moderately weather-stained but not severely discolored
Standard select two- or six-rowed	No minimum	Any two/six-rowed variety of barley equal to or better than Harrington/Bonanza for malting purposes	Excluded from other grades of malt quality barley on account of weather staining or discoloration purposes

Grade name	Other types	Damage (%)			
		Fireburnt	Frost	Fusarium	Heated, rotted, severely mildewed
Special select CW two-rowed	2.5	Nil	0.2	Nil	Nil
Special select CW six rowed	2.5	Nil	0.2	Nil	Nil
Select CW two-rowed	5.0	Nil	1.0	0.2	Nil
Select CW six-rowed	5.0	Nil	1.0	0.2	Nil
Standard select two- or six-rowed	No limit	No limit	No limit	0.2	No limit

* Defined in the Canada Grain Regulations

Source: Official Grain Grading Guide, Canadian Grain Commission, August 1, 1998.

Primary Grade Determinants, Continued

Grade name	Damage (%)			
	Peeled and broken	Plump	Thin	Sprouted
Special select CW two-rowed	4.0	85.0	3.0	Nil
Special select CW six-rowed	4.0	75.0	4.0	Nil
Select CW two-rowed	6.0	80.0	3.0	0.5
Select CW six-rowed	6.0	70.0	4.0	0.5
Standard select CW two/six rowed	No limit	No limit	No limit	No limit

Grade name	Foreign material		
	Ergot	Excreta (%)	*Inseparable seeds (%)
Special select CW two-rowed	Nil	0.01	about 0.2, free of large oil-bearing seeds
Special select CW six-rowed	Nil	0.01	about 0.2, free of large oil-bearing seeds
Select CW two-rowed	1K	0.01	about 0.2, free of large oil-bearing seeds
Select CW six-rowed	1K	0.01	about 0.2, free of large oil-bearing seeds
Standard select CW two/six rowed	No limit	0.01	about 0.2, free of large oil-bearing seeds

Grade name	Foreign material				
	*Other cereal grains (%)	Sclerotinia (%)	Stones	*Wild oats	*Total (%)
Special select CW two-rowed	1.0	0.01	2K	0.5	1.0
Special select CW six-rowed	1.0	0.01	2K	0.5	1.0
Select CW two-rowed	2.0	0.01	2K	0.5	2.0
Select CW six-rowed	2.0	0.01	2K	0.5	2.0
Standard select CW two/six rowed	No limit	No limit	No limit	No limit	No limit

* Defined in the Canadian Grain Regulations

K: Kernel-sized pieces in 500 grams.

Source: Official Grain Grading Guide, Canadian Grain Commission, August 1, 1998.

Export Grade Determinants for Barley

Grade Name	Foreign material (%)		
	Small seeds	Attrition	Total, small seeds and attrition (%)
Special select CW two-rowed	0.1	0.2	0.2
Special select CW six-rowed	0.1	0.2	0.2
Select CW two-rowed	0.1	0.2	0.2
Select CW six-rowed	0.1	0.2	0.2
No. 1 CW	0.1	0.2	0.2
No. 2 CW	0.1	0.2	0.2

Grade Name	Foreign material (%)		
	Ergot	Large seeds	Other cereal grains
Special select CW two-rowed	Nil	0.2, free of large oil-bearing seeds	1.0
Special select CW six-rowed	Nil	0.2, free of large oil-bearing seeds	1.0
Select CW two-rowed	0.025	0.2, free of large oil-bearing seeds	2.0 [1.0]
Select CW six-rowed	0.025	0.2, free of large oil-bearing seeds	2.0 [1.0]
No. 1 CW	0.05	0.2	2.5
No. 2 CW	0.10	0.2	8.0

Values in brackets [] become effective August 1, 1999.

Export Grade Determinants, Continued

Grade Name	Foreign material (%)				
	Mineral matter		Sclerotinia	Wild oats	Total foreign material
	Stones	Total			
Special select CW two-rowed	0.02	1.5	0.01	0.5 [0.2]	1.0
Special select CW six-rowed	0.02	1.5	0.01	0.5 [0.2]	1.0
Select CW two-rowed	0.02	3.0	0.01	0.5	2.0 [1.5]
Select CW six-rowed	0.02	3.0	0.01	0.5	2.0 [1.5]
No. 1 CW	0.15	2.5	0.01	1.0	2.5
No. 2 CW	0.15	8.0	0.01	2.5	10.0

Values in brackets [] become effective August 1, 1999.

Grade name	Damage (%)			
	Heated	Plump	Thin	Peeled and broken
Special select CW two-rowed	Nil	80.0	4.0	6.0
Special select CW six-rowed	Mo;	70.0	5.0	6.0
Select CW two-rowed	0.1	75.0	4.0	7.0
Select CW six-rowed	0.1	65.0	5.0	7.0
No. 1 CW	0.5	No limit	No limit	15.0 (broken)
No. 2 CW	2.5			25.0 (broken)

Source: Official Grain Grading Guide, Canadian Grain Commission, August 1, 1998.

Recommended Malting Barley Varieties for 1999-2000 from the Malting Barley Industry Group

Recommendations from the Malting Barley Industry Group are based on anticipated markets in the 1999-2000 crop year. These recommendations are one source of information used to decide whether to grow a variety of malting barley. Other important considerations are disease resistance and the suitability of a variety's agronomic characteristics in a farming area. Consult your provincial agriculture representative, and talk to your elevator manager about local market demand for particular varieties.

Two-Row Varieties

Variety	Registration Status	Industry's Recommendation			Remarks
		Recommended	Restricted	Not Recommended	
Harrington	Full	X			widely accepted both domestically and for export
Manley	Full	X			limited demand both domestically and for export
Stein	Full	X			limited domestic and export markets (UGG variety)
B1215	Full	X			limited domestic and export markets (Prairie Pools variety)
AC Oxbow	Full	X			developing domestic market but limited export markets
AC Metcalfe	Full		X		undergoing market development and testing
CDC Stratus	Interim		X		undergoing market development and testing
CDC Lager	Interim		X		undergoing market development and testing
Klages	Full*			X	no longer in use

Seven other two-row varieties have interim registration (B1202, TR118, TR129, TR139, TR145, TR243, and TR970 (Merit). These varieties are not being grown for the commercial market. Limited quantities are being grown for market development and testing purposes.

* The Malting Barley Group is recommending de-registration of this variety.

Recommended Malting Varieties for 1999-2000, Continued

Six-Row Varieties					
Variety	Registration Status	Industry's Recommendation			Remarks
		Recommended	Restricted	Not Recommended	
Robust	Full	X			widely accepted in the USA
Excel	Full	X			accepted in the USA, with some domestic demand
B1602	Full	X			widely accepted domestically & for export (Prairie Pools Variety)
Foster	Interim	X			developing market in the USA and domestically (UGG variety)
Stander	Interim		X		very limited demand in Alberta
Bonanza	Full*			X	no longer in use
Argyle	Full*			X	no longer in use
Duel	Full*			X	no longer in use
Tankard	Full*			X	no longer in use

The six-row varieties BT433 (CDC Sisler), BT435 and BT941 have interim registration. These varieties are not being grown for the commercial market. Limited quantities are being grown for market development and testing purposes.

* The Malting Barley Group is recommending de-registration of these varieties.

<p>RECOMMENDED</p> <p>Varieties that have proven commercial market demand. Demand for some varieties may be limited.</p>	<p>RESTRICTED</p> <p>Varieties that are still undergoing market development and commercial testing. Some acreage is required for market development. Growers should only grow these varieties if they receive a commitment from a local elevator, a company with proprietary rights to those varieties or a maltster that is selecting this variety for market development and testing.</p>	<p>NOT RECOMMENDED</p> <p>Varieties that have no known commercial market demand for malting and brewing.</p>
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