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Benefits and Costs of a Voluntary Wheat Board for the Province of Alberta

Prepared By:

Larry Martin
Holly Mayer
Jerry Bouma

GEORGE MORRIS CENTRE

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Benefits and Costs of a Voluntary Wheat Board for the Province of Alberta

Larry Martin, Holly Mayer, and Jerry Bouma[1]

EXECUTIVE SUMMARY

Many people believe that a voluntary CWB is overdue and that it should evolve as has the Australian board, and the pork boards in the prairies. This report examines some of the implications of the current system. In doing so, it examines the history of votes and plebiscites on the CWB, examines relative performance of the Prairie region in value adding for grains, and brings together the literature on the benefits and costs of the CWB.

This report has three components. In the first, we examine the grain marketing environment, changes that have been made to marketing boards in other jurisdictions, and people's attitudes about the effects of the CWB on value adding. In the second, we detail Western Canada's performance in value adding for grain based products and oilseed processing and present a picture of what the grains based value added industry in Western Canada could look like, if changes are made to the grain marketing system. In the third, we summarize considerable literature to estimate the net costs of the inefficiencies of the current system.

A summary of the results is:

1. The grain market is changing and increasingly requires good vertical coordination, while horizontal control is declining in value.
2. Resistance to change by the CWB is perceived to continuously sap energy from entrepreneurs and ties up the industry in studies, committees, and arguments.
3. A majority of producers, who quite likely represent a significant majority of the grain produced in Western Canada, clearly prefer a voluntary organization.
4. Other mandatory organizations in Canada that have moved to a voluntary status have actually become stronger marketing organizations as a result.
5. Investment in value adding of wheat and barley-based industries in Western Canada lags the US, and Ontario. It lags the equivalent industries in the US northern prairies, while investment has been very strong in the western Canadian oilseed and oat processing industries. There are early signs of rising investment in the Australian industry as their grain marketing system deregulated.

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[1]Dr. Larry Martin and Holly Mayer are with the George Morris Centre. Jerry Bouma is with Toma and Bouma.

6. The CWB's cost of administration doubled over ten years, while the amount exported remained essentially constant and total grain production fell. During this time, most private sector organizations were under pressure to reduce their cost of administration.

7. In addition to the cost of administration, it would appear that prices are established for domestic end users at prices which are at or near the "import ceiling" relative to the US market. This method of pricing could be adding as much as $30/tonne to the price end users pay for wheat. Therefore, Canadian end users lose the advantage of Western Canada's export position for raw grains. By itself, this has a huge dampening effect on investment in value adding activities in Western Canada.

8. The estimated system costs of the CWB are extremely high, ranging from $15.22 to $22.96 for wheat and $10.81 to $24.07 for barley, before net interest earnings.

9. By 2010, the grains based value added industry in Western Canada could be worth between $1 bil and $2.2 bil and employ 7,800 to over 26,000 people, if changes are made to the grain marketing system that provide incentives for value added investments.

Based on previous studies, the economic arguments in favour of a mandatory board are that it can exert market power in the export market and it provides price pooling, which reduces producers' price risk. We do not believe that these arguments hold up in the real world of grain marketing.

The first of these arguments is not consistent with the current structure of the world market where there are many sellers, responding to many buyers of grain, many of whom tender on a specification basis. To argue that one Canadian seller can exert some sort of monopoly power when it is competing with a range of private companies and cooperatives from other countries seems curious, and suggests that international buyers are not overly smart or well informed. As Veeman (1998) has argued, any premiums that may be garnered in the international market are likely to be quality premiums, i.e. not necessarily the result of the CWB's monopoly or its sales and marketing efforts. Moreover, it would appear that any premiums are more than offset by costs in the system, especially between the producer and the buyer of their grain. With regard to the second argument, price pooling is of no value to producers who want to differentiate their products, take responsibility for their own marketing (as many now do with non-Board grains), and Veeman argues that pooling can likely be done, for those who want it, on a voluntary basis with appropriate contract provisions.

Ironically, the CWB **does** exert market power in the domestic market, where it is the only seller of Western Canadian wheat and barley for human consumption. This market power allows the CWB to extract a price premium from domestic processors of wheat and barley, which is a disincentive to investment in the value added industry in Western Canada. Reducing or eliminating this price premium charged to the value

added industry would benefit producers in several ways. Increased sales to the domestic market could replace the lowest priced export sales, increasing the pool price. Growth in the domestic value added industry could also result in greater demand for specific quality characteristics and IP products, which would mean more premiums for producers. Finally, more value added activity would create jobs in rural areas.

It seems logical, therefore, that a voluntary CWB would benefit both producers and the Western Canadian grains based value added industry. Producers would realize lower costs and higher returns, while the value added industry would realize greater investment that in turn would create a significant number of new jobs. Not only does it seem logical on economic grounds, but also on political grounds since there is growing evidence that a majority of prairie producers want a voluntary Board.

While it is impossible to assign cause and effect to the level of value adding in grain based industries, it is very clear that value adding in Western Canada, which grew at a rate of $21 mil/yr during the 1990's, has lagged. Ontario, for example, grew at a rate of $62 mil/yr. On a percentage basis, the industry in Canada grew at a rate of just under 4.0%/yr and the US industry grew at a rate of almost 7.0%. Contrast this to a growth rate over the same period for oilseed value adding of 16%/yr for Canada and 4% for the US. Had Western Canada's value added in grain based products grown at the same rate as Ontario's during the 1990's, or at the same percentage rate as Canada did in oilseed value adding, it would have made a difference of $300 mil to $1 bil/ yr, or 40% to 150% more.

The results of the producer surveys and literature review should be sufficient evidence to move to a voluntary system. The analysis of value added further backs this up, as we demonstrate that the grains based value added industry could, in the future, be worth between $1.4 bil and $2.87 bil, depending on the rate of growth. Additionally, employment in the industry would grow from 7,600 people to between 12,800 and 25,000, depending on total value added and labour productivity levels. Overall, the costs to producers and to the grains based value added industry outweigh any benefits of the CWB's monopoly.

1.0 INTRODUCTION

There is concern that Western Canada is missing opportunities to add value to wheat and barley. The term value adding has become short form for anything that enhances the raw commodity so that end users pay more for it. In the case of wheat and barley, this may mean traditional primary processing such as flour milling, malting or ethanol generation. It may mean traditional secondary processing such as bakery products, breakfast cereal or pasta, or it may also mean newer ideas in secondary processing such as frozen dough and prepared foods such as pizza, calzone and the like. Or it may mean totally new and different concepts such as nutriceuticals, industrial products, and other chemical extractions.

However one defines value adding, there is a strong perception in Alberta, and among others in the prairies, that there is far too little of it in Western Canada and that the CWB is at least a part of the cause. That part of the problem is attributed to the CWB results from its actual or attempted domination of nearly everything associated with the grain trade. This includes (most obviously) grain marketing and grain pricing, but the Board also influences the transportation system and transportation policy, grain variety licencing, and the regulations administered by the Canadian Grain Commission.[2]

The context of all this is a market place that is changing rapidly from a commodity orientation to one of differentiated products (Martin, 2000). In the grain industry (and the livestock industry) this is developing through systems of identity preservation (IP). But changes are occurring in other ways, from the size, complexity and sophistication of modern farms to the ease with which individuals can obtain current and accurate information on markets all over the world. These developments fundamentally alter the market needs of many farmers. Movement toward creation of differentiated products means farmers are less reliant on commodity prices - i.e. an IP product is produced under a contract that specifies a previously negotiated price or, at least, a premium over the commodity price. More to the point, those who are involved in differentiation realize less value from price pooling. Greatly improved access to information, through the use of computers and the internet, puts many individuals in a very different bargaining position than that of their forbears. In addition, the size and complexity of their operations often means that they have different cash flow needs. Hence, a one size fits all model of pricing no longer fits all.

Other commodity marketing organizations are undergoing similar structural changes. Interestingly, with these structural changes has come a move toward a more voluntary set of marketing boards. The wheat boards in Australia and Ontario have moved toward partial voluntary status in recent years, and all the hog boards in Western Canada have become voluntary. There is a strong feeling among many people in

[2]The Board apparently also believes that it can (and should) be a lobbyist for producers with respect to overall agricultural policy, as it recently tried to become a member of the Canadian Federation of Agriculture.

Western Canada that it is time to do the same with the Canadian Wheat Board. This apparently includes more than a few of the producers it serves, judging by the results of a number of recent polls and plebiscites.

This study is intended to investigate the implications of moving to a voluntary CWB structure in Western Canada, or at least in Alberta. It has two overall objectives. They are:

- To examine the costs and benefits of the mandatory board that has existed in the past.
- To develop a picture of what the grains based value added industry in Western Canada could look like in the future.

In achieving the first of these objectives, we reviewed a substantial amount of literature on the subject, conducted a series of interviews with people in the industry, and conducted an analysis of secondary data. These are brought together in Sections 2.0, 4.0 and 5.0 of the report. Section 2.0 provides an overview of the evolution of the system, a description of the feedback we received from those we interviewed, a summary of the polls and plebiscites regarding the CWB and a discussion of marketing boards in other jurisdictions. Section 4.0 provides a framework for analysing the costs and benefits of the current structure. In Section 5.0, we apply that framework by providing estimates of the costs and benefits of each component. Section 3.0 addresses the second objective by first examining the current value adding situation in Canada and Western Canada, and then by estimating the potential for growth in value adding in Alberta and Western Canada, and the resulting economic and employment implications.

Finally, Section 6.0 contains a summary and conclusions.

2.0 THE WESTERN CANADIAN WHEAT MARKETING SYSTEM AND ITS EVOLUTION

The Canadian Wheat Board was first introduced in the 1930's. While its operations have changed since then, the nature of agricultural production and marketing has changed dramatically. Sections 2.1 and 2.2 below address some of those changes, both for producers and the CWB. Section 2.3 describes examples of change with regard to commodity marketing organizations in other jurisdictions. In section 2.4 the outcomes of a number of plebiscites and polls regarding Western Canadian farmers' attitudes toward a mandatory Canadian Wheat Board are examined. . Section 2.5 contains a discussion of the responses to the current system that arose from our interviews with people involved in grain based value adding.

2.1 Evolution of the Market Environment

It is obvious that the market environment in which grain is produced and marketed has changed significantly since the CWB was established. But it has changed most significantly over the past ten years. The number of farmers decreased and the average size of a grain farm increased for several decades; this trend did not change in the 1990's. In the 1990/91 crop year there were 136,949 permit book holders; in 1999/2000 this number decreased by one-quarter to 101,299 (CWB Statistical Tables). Over the same period the average seeded area per permit holder grew from 807 acres to 967 acres (Canada Grains Council, 1999 and 2000). Additionally, grain is produced using ever larger and more sophisticated machinery, a wider range of seed varieties and pesticides, and new agronomic techniques such as, zero-till and conservation till.

As the distance from farm to elevator has gradually increased (and dramatically increased in some cases), semi-trailers now haul 1600 bushels at a time and farmers often contract out for this service, instead of doing their own hauling. The combination of larger farms, input prices that consistently rise, and what seems like consistently falling or low grain prices often means that the last few bushels of yield are the potential profit on each acre - hence it is very important to maximize yields.

In the grain handling and transportation system, major changes have also taken place with regard to the physical infrastructure. The past decade, especially, has seen the closure of hundreds of primary elevators (there are 50% fewer in Alberta alone) (Canada Grains Council, 2000) and the abandonment of railway branch lines throughout the prairies. Millions of dollars have been invested by grain companies, both established players and new entrants, in the construction of high-throughput terminals in the country. Most of this construction took place on the main lines, and new terminals are built with the ability to load multi-car block trains - from 25 to 112 cars at a time. The railways also significantly increased capital spending in the 1990's to modernize their infrastructure. These investments by the grain companies and the railways have been made with the intent of making the system more efficient and cost effective, and must also provide an acceptable return on investment for the companies

to remain in the grain business.

Of course, a key part of the market environment in the grains industry is the legislative and regulatory framework. In 1995 the Crow Benefit rail freight subsidy was eliminated when the Western Grain Transportation Act (WGTA) was repealed. Since then, producers have paid the full cost of transporting their grain to export position. The end of the WGTA also meant the end of direct government involvement in the rail car allocation process and an industry-led allocation system was implemented.

The CWB itself operates in a much different market environment than it has in the past. There are fewer and fewer state trading enterprises (STEs) in the world - the most notable changes took place when the Soviet Union disintegrated and the Communist governments in Eastern Europe fell. As STEs disappeared, private traders, cooperatives, and grain companies took their place in the world grain trade both as sellers and as customers of the Canadian Wheat Board. In the early 1980's, the CWB had a few major buyers, such as the Soviet Union and China, who each routinely bought millions of tonnes each year. Sales of this size are now in the minority; the majority of sales are much smaller in size and are made to a much larger number of customers and countries (CWB Annual Report, various years). In addition, sales made under long-term agreements and memoranda of agreement or understanding, which are usually negotiated with foreign government agencies, have declined significantly (Schmitz and Furtan, 2000)

This trend toward smaller, more fragmented markets also means that accredited exporters (AEs) have become more important in the Canadian grain marketing system. AEs are Canadian grain companies, Canadian subsidiaries of international grain companies, or strictly international grain companies. An AE purchases grain from the CWB and then resells the grain to intermediate merchandisers or to end users. These companies may either solicit or respond to CWB offers of grain at port positions, for specific countries of destination. Many companies that are AEs have their own extensive marketing and sales departments and therefore are able to sell Canadian wheat and barley into markets/countries that have not been part of the CWB's marketing efforts. In 1998 the CWB estimated that 30% of its sales were made by AE's (CWB, 1998a), and a 1998 report by Groenewegen estimated 30% of wheat exports and 50% of barley exports are made by accredited exporters. Exact historical levels of export sales made by AEs are not available, however it is widely believed in the grain industry that these values have grown over the past ten years.

On the marketing front, producers have unprecedented access to information through the use of the internet, fax and telephone. Satellite or internet information systems are a common sight on farmers' desks, providing them with instant and real time information from the commodity markets around the world, the wire services and of course, on the weather. This ability to access information means producers know what their grain is worth on world markets or at the flour mill down the road before it leaves the bin. There is a greater range of risk management tools available for non-board and

off-board grains as well, such as futures, options, basis, minimum price and forward contracts. These may conflict with price pooling. At the limit, pooling hinders the use of some of the emerging risk management techniques.

In addition, each year grain markets have less and less of a commodity orientation, and are more oriented toward specific end-use products. This is being introduced largely through identity preservation (IP) systems that segregate, and receive price premiums, for products that have specific characteristics. Some of these characteristics include qualities that make the grain preferable for particular end uses. One pertinent example is products that are organically grown. As well, varieties are being developed that have, for instance, specific amino acid contents. This makes them particularly advantageous in feeding a livestock species that requires that particular amino acid, thereby replacing a more costly input in the livestock ration. Or, it is possible to develop a variety with resistance to a particular disease that enhances its value for a particular end use. The range of possibilities in the area of plant breeding and varietal development is unlimited and is likely to explode over the next several years. As well, some traits are produced using traditional breeding systems, while others are produced by “genetic engineering” (GE). Given current market concerns, identity preservation of GE and non-GE products is also important.

In this area, as in more traditional areas of grain processing, individual or groups of farmers have aspirations to move away from reliance on the vagaries of the commodity markets. These people attempt to enhance and stabilize their incomes by some combination of producing differentiated raw products and/or moving into either downstream or upstream businesses. This move to specific products and IP has a number of implications for those in the supply chain. First, while the processes add value for end users of the grain, they also add costs for developing the characteristics and for the IP system. Second, it means that prices for these products are different than the commodity price - or there would be no economic incentive to produce and handle them. Prices for IP products tend to be either based on a premium over the price of the underlying commodity, or are completely divorced, based on contract conditions.

A third implication is that many of the markets for these products are relatively small and can best be tapped by marketing techniques that are different from those required in mass, bulk markets. In some cases, this includes direct relationships between producers and end users. Finally, by their very nature, identity preservation systems require direct relationships between members of a supply chain, i.e. between seed suppliers, farmers, grain handlers and, in some cases, processors.

As time passes, the ability to effect end use value adding activities within the Prairies will depend on the ability of the system to preserve identity and to manage the supply chain.

The discussion above implies that the grain market of the future will have two major

components. One will be the bulk market aimed at high volume, low margin end uses - the component that existed in the past. The second component is the identity preserved, value added aspect. Each has its own critical success factors in regard to what its marketing system needs to deliver. And both components need to be able to exist side by side.

For the bulk component, profitability rests mainly on the ability of the system to maximize volume, including the ability to move large quantities quickly and efficiently. This also means minimizing cycle time - i.e. the time required to move product from the country to port and back. In addition, the marketing system needs to have as much market access as possible and to discover commodity prices efficiently.

For the IP/value added component, efficiency is also important, but so is a series of other factors:

- Development of appropriate protocols to ensure delivery of IP products with the desired characteristics
- Flexibility of the system in order to produce and preserve the desired characteristics
- Pricing mechanisms that reflect value to end users, as well as the value added by those in the supply chain
- Excellent vertical coordination and cooperation among firms and farms, so that members of the supply chain can interact to produce and preserve the characteristics desired by customers
- The ability to determine characteristics required by specific market segments

2.2 Origin and History of CWB

With the foregoing discussion of critical success factors in mind, the origin and history of the CWB and the recent changes that have been made need to be examined. The CWB was first established under the authority of the War Measures Act in 1919 as a one-year temporary organization (Carter and Loyns, 1996). The Board was re-established in 1935 in the midst of the depression, which, along with war, had created “abnormal conditions under which the futures market could not operate satisfactorily” (Wilson, 1979). The Board operated as a voluntary pool until 1943, when it became mandatory in order to help control inflation, i.e. to keep prices from rising too high. In 1949, the Board’s mandate was extended to the domestic and export marketing of oats and barley. In the 1970's changes were made to the federal government’s Feed Grain Policy that created a dual market for domestically consumed feed wheat, barley and oats, and allowed for inter-provincial shipments of the same grains. In the early 1970's the CWB began selling by protein specification, although farmers were not paid by protein levels until 1979. Separate pool accounts for durum wheat and malt barley were established in 1977/78 and 1975/76, respectively, as it was recognized that these grains were sold into different markets and producers should see a distinct price signal for them (Carter and Loyns, 1996). Other changes of note include the establishment of

the Pool Return Outlooks (PROs) in 1993, the removal of oats from the Board's jurisdiction in 1989, and the short-lived continental barley market in 1993.

Changes Made to the CWB

In June 1998, Bill C-4, an Act to amend the Canadian Wheat Board Act, received Royal Assent. This piece of legislation made several significant changes to the CWB in the areas of corporate governance and operational flexibility. The previous governance structure of appointed commissioners and a producer-elected advisory committee were replaced by a Board of Directors and a President. Ten directors are elected by CWB permit book holders and the remaining five directors are appointed by the federal government. The first director elections were held in November 1998 and the new Board of Directors took office in December 1998.

On the operational side, the legislation enabled the CWB to offer new pricing and payment options other than the initial, adjusted and final payments from the pool. The CWB now has the ability to purchase grain on a cash basis, outside the pool. Although this has not been put into use, some new programs have come into effect. A fixed price contract was introduced for the 2000/2001 crop year which allowed producers to lock in a price (based on the PRO) or a basis level (based on the Minneapolis Grain Exchange futures price) and then receive a full and final payment shortly after delivering their grain, instead of waiting for interim and/or final payments. An early payment program for feed barley was also introduced for the 2000/2001 crop year. These new programs are intended to give producers more flexibility in pricing their grain and managing their cash flow (CWB, 2000).

In May 2000 the federal government announced that the CWB would be required to tender the movement of 25% of its business to the four major ports for both the 2000/2001 and 2001/2002 crop years. In the 2002/2003 crop year the proportion of tendered business will increase to 50%. The intent of this change is to create a more commercial and cost effective grain transportation and handling system. The first tenders were put out in September 2000, however there was significant disagreement between the CWB, grain companies and the railways regarding the terms of the tenders. In August 2001 a three-year agreement was finally reached between the parties.

Changes Made by the CWB

Over the past few years, changes introduced by the CWB in the area of pricing and payments include payments based on 0.1% increments in protein level for a wider range of protein levels for red spring and durum wheat. Previously, payments were based on 0.5% increments. This change took effect for the 1999/2000 crop year and is meant to provide producers with a more accurate price for their grain (CWB, 1999). Starting with the 1998/99 crop year, the CWB introduced a malting barley payment

incentive program in collaboration with grain companies so that producers would receive their initial payment at the time of delivery instead of when their selected barley reached the port or processor (CWB, 1998).

One of the most recent program announcements concerns producers of organic wheat and barley, who have requested they be exempted from the requirement that all grain intended for human consumption be purchased from the CWB. The new program will enable producers to deal directly with the CWB to complete a buy-back or Producer Direct Sale (PDS), instead of having to go though a primary elevator. As well, the CWB has offered organic producers financing for the portion of the buy-back price that exceeds the initial payment. The CWB feels that this program will simplify the PDS process and eliminate concerns about financing a buy back, however it has been met with mixed reactions from organic growers who feel that it does not go far enough in reducing the costs associated with marketing their grain.

These changes, both those made by the CWB and to CWB legislation, are small but positive steps towards a more responsive and efficient grain marketing system. The producer-elected members of the Board of Directors give producers greater direct influence with the entity they must sell their grain to. Finer protein level payments mean better market signals reach producers. However it should also be noted that many of these changes were slow to be made - much slower than they should have been. For example, the changes made for organic producers came after a year of consultations, which themselves were started long after these producers requested changes be made. Similarly, changes to the grain transportation and handling system were made after not one but three major reports were completed: those of the Western Grain Marketing Panel, Justice Estey and Arthur Kroeger.

The survival of the CWB and the success and profitability of the supply chain in the market environment of the 21st century require flexibility, the ability to respond quickly to customer needs and a proactive attitude. To date, the CWB has not only demonstrated that it is not capable of any of these requirements, but in many ways has shown it is not interested in changing its ways or attitude.

2.3 Examples of Change In Other Areas

Although the CWB has not demonstrated a willingness to change, several similar marketing organizations have undergone significant change that has benefited all involved. The Australian Wheat Board (AWB) is one such example. The AWB and the CWB share many characteristics, including price pooling, cost pooling, single desk exporter status, and ongoing debates concerning single-desk selling (Carter and Loyns, 1996)[3].

[3]Government underwriting of initial producer prices also used to be a common feature of the AWB and the CWB, however this is no longer the case in Australia.

In 1989 the Australian *Wheat Marketing Act* deregulated the domestic market and changed the AWB's explicit objective from maximizing fob values to maximizing farmgate returns. The same piece of legislation provided for the establishment of the Wheat Industry Fund (WIF), funded by a two percent levy on farmgate prices. The WIF was created in order to develop a capital base to fund trading activities and finance AWB purchases of wheat, as a sunset was then placed on government underwriting.

At the time, the AWB also offered a greater range of pricing and marketing options to producers. Carter & Loyns (1996) described these changes as follows:

> *Pricing options include a range of pools for wheat and other grains. More pools have been created for export sales. Where pools do not have sufficient grain to cover expected sales, the AWB can purchase grain for cash. However, the main pricing method is still pooling of receipts over time and over markets for given grades of wheat. Pools may be readily opened and closed in response to movements on the world market to protect the interests of earlier contributors to the pool. The AWB now offers forward contracts for a fixed price or minimum price, requiring active involvement in overseas futures markets.*

The legislation governing the federal grain monopoly, the Australian Wheat Board (AWB), and the legislation governing the state grain monopolies, the Australian Barley Board (ABB, for South Australia and Victoria), the Grain Pool of Western Australia (GPWA), the New South Wales Grain Board (NSWGB) and the Queensland Barley Board (QBB) were each reviewed under the Australian government's National Competition Policy (NCP) in the late 1990's. Under NCP all legislation was subjected to a 'public interest test'. The test dictates that legislation should not restrict competition unless it can be demonstrated that:

- The benefits to the whole community outweigh the costs, and;
- The objectives of the legislation can only be achieved by restricting competition.

An important aspect of the Australian NCP legislation dictates that the burden of proof is on the 'beneficiary' of the legislation. Previously, when there was no forum for examination of the legislation, any burden of proof had always been on detractors of single-desk selling to prove that the monopoly is harmful. This is currently the de facto situation regarding the CWB.

The NCP review of barley marketing legislation in Victoria and South Australia, a process that began in 1997, recommended immediate reform. As a result, domestic feed and malting barley were deregulated in 1998 and 1999, respectively. The ABB was privatized in 1999 and export barley was deregulated in Victoria in July 2001. South Australia has retained export controls, however.

In New South Wales, a joint government/industry review of grain marketing legislation in 1999 also recommended deregulation of domestic and export markets over time in barley and canola. In spite of this, the government announced in August 2000 that the NSWGB would retain its monopoly for five years. Shortly after this announcement, the NSWGB went into receivership, and the monopoly rights to export barley, sorghum and canola, and domestic malting barley were 'sold' to Grainco for five years.

The review in Queensland was completed in 1997 and recommended partial reform. Specifically, the recommendations were that domestic barley be deregulated in 1999 and the export monopoly continue unless Victoria and South Australia pursue deregulation of export markets. The review was accepted by government and then re-examined in 1999. However, following deregulation in Victoria, the Queensland government has declared that barley will be completely deregulated by June 30, 2002.

The Western Australia Department of Agriculture conducted a review of the GPWA in 1999 and found no case to support the GPWA's monopoly powers, but recommended that its monopoly should still continue either until the AWB's monopoly over wheat ends, or until 2005, whichever comes first.

In the case of wheat, the Australian Wheat Board was privatized in 1999 as a grower-owned company, but will retain its export monopoly at least until 2004. The NCP review in 2000 found 'no clear, credible and unambiguous evidence' that the monopoly was in the public interest and the following recommendations were made:

- 3 year trial of the Wheat Export Authority (WEA) issuing export licenses
- 3 year liberalization of non-bulk exports
- 3 year trial of open bulk durum wheat exports

In spite of these recommendations the monopoly was retained, following pressure by the minority National (country and farmer based) Party within the governing Liberal/National Party coalition.

The export monopoly is managed by the WEA, and is supposed to separate the monopoly/regulatory function from commercial interests. This intended separation of functions has not been successful, however, as the AWB has exercised its ultimate veto power on the authorization of bulk sales by its competitors. The AWB has also vetoed licenses for durum exports where a buyer had been found and was willing to pay more than the price the AWB was getting. This resulted in an unsuccessful court action in which the AWB legislation prevailed. However, it has led to a greater emphasis by the AWB on durum sales.

Recently, there have been persistent price differentials between the regulated and unregulated states. Feed barley prices have been approximately $25 a tonne higher in Victoria (deregulated from the ABB) than in South Australia (still under the ABB's monopoly) in late 2001 and early 2002. There have been several reports of producers trucking barley from New South Wales and South Australia to Victoria to take

advantage of the higher prices. As well, the first private shipment of malting barley since deregulation left from Victoria for China in late January 2002.

There have also been a number of strategic alliances developed in Victoria between major players in the grain industry, such as marketing agencies and bulk handling facilities. Some international grain companies are also establishing (or re-establishing) a presence, including James Richardson International and Bunge Global Markets.

Although it is still in the early days, deregulation appears to be a positive experience for Victorian barley producers. The move to privatization and other changes made to the AWB (and other Australian marketing agencies) since 1989 are significantly more substantial than those made to the CWB's operations over the same time period. Although there are differences between the two organizations, they are still similar enough that comparisons can and should be drawn.

Closer to home, the Ontario Wheat Producers' Marketing Board (OWPMB) recently allowed a portion of producer sales to be made outside its marketing monopoly. Starting with the 2000 crop year and since extended to the 2003 crop year, Ontario producers can apply for an exemption to sell their grain outside of the OWPMB's single desk. The exemption started at 150,000 tonnes or approximately 15 percent of the Board's total sales, and has grown to 300,000 tonnes for 2003. The Chair of the OWPMB admitted to being "lukewarm" about the idea initially. However, he made the following comment after delegates decided to keep the exemption for 2001; "Having a choice out here for producers is not a bad thing, and if it makes the Ontario Wheat Board have a sharper pencil and do a better job, it's good for everybody." (Western Producer, 2000)

Although the CWB and the OWPMB cannot be directly compared - the OWPMB markets a much smaller amount of grain and a greater proportion is sold to domestic processors - certain characteristics of the OWPMB should be noted. The OWPMB maintains six price pools (the CWB has two) by class of wheat, and like the CWB also allows for grade segregation within a pool account. The larger number of pool accounts means that the costs of marketing each wheat class are reported separately, i.e. there is greater transparency of costs. The OWPMB introduced a forward contract cash payment pricing option in 1997, and also provides a carrying cost allowance on post-harvest deliveries. In a comparison of the OWPMB and the CWB, Groenewegen (1998) stated that:

> *The OWPMB appears to focus on developing and maintaining a viable wheat industry in Ontario. The CWB appears to focus on ordering grain into the grain handling and transportation system, and not necessarily on driving costs out of the system that separates growers from wheat customers.*

Although this comment was made before the legislative changes contained in Bill C-34 were enacted, the basic premise remains true.

Finally, changes have also been made to the hog marketing boards in Western Canada. Until 1996, all hogs in all provinces were marketed by marketing boards. At that time, the western provinces began to dismantle the mandatory nature of the hog boards. Producer boards such as Manitoba Pork became voluntary producer controlled entities, and producers were free to market through what was formerly the mandatory marketing board or market directly to packers. Interestingly, in all three cases, the Boards have developed marketing programs that have been successful enough to maintain marketings for over 50% of the hogs produced in each of the three provinces. In other words, moving to a non-mandatory status resulted in changes in their operations such that each has more than a 50% share of marketings.

2.4 Producer Attitudes Toward the Canadian Wheat Board

Individual farmers and farm organizations have strong, and often quite emotional, opinions about the Canadian Wheat Board. Any given country meeting can appear to be strongly one way or another depending upon who organized it and who attended. To get at the majority, one needs polls, plebiscites or referenda. Over the past few years, producers' opinions on the CWB's monopoly have been solicited through various surveys and plebiscites. The nature and results of these surveys and plebiscites are summarized below.

- In 1995 the Alberta government conducted a plebiscite of Alberta farmers that asked the question, "Are you in favour of having the freedom to sell your barley [wheat] to any buyer, including the CWB, into domestic and export markets?" 16,000 producers registered to vote, and among decided voters, 66% voted "yes" for barley and 62% voted "yes" for wheat.

- A 1995 survey commissioned by Saskatchewan Agriculture and Food of Saskatchewan farmers (it is not known how many) asked whether participation in the CWB should be made voluntary. 58% of those surveyed agreed with this statement, 36% opposed it and 6% were undecided.

- In January and February of 1997, KPMG conducted a plebiscite on behalf of the federal government with regard to barley marketing. Producers were asked to indicate their preference for one of two marketing options:

  a) Open market option - remove all barley (both feed and malting/food) from the CWB and place it entirely on the open market for all domestic and export sales.

  b) Single-seller option - maintain the CWB as the single-seller for all barley (both feed and malting/food), with the continuing exception of feed barley sold domestically.

  Of 77,437 eligible producers, 58,042 (75%) voted. Of valid ballots, 37.1% (21,347) supported the open market option, and 62.9% (36,170) supported the single-seller option.

- In November 2000, the Alberta Barley Commission conducted an electronic telephone survey of 10,866 grain farmers in CWB Director districts 2, 4, 6, 8 and 10. The question asked was: "Are you in favour of having the ability to sell your grain to any buyer, including the CWB, in domestic and export markets? Or, do you support the current CWB and its traditional monopoly?" Support for voluntary marketing on a prairie-wide basis was 75%. The provincial breakdown (with the number of respondents in brackets) was: Alberta (1,945) 81.2%; Saskatchewan (5,927) 75.8%; and Manitoba (2,994) 69.25%.

- In the 1998 CWB director elections, based on first-round voting preferences, pro-monopoly candidates received 58.4% (38,458) of the votes and pro-voluntary candidates received 39.3% (25,869). In the 2000 CWB director elections in 5 districts, based on first-round voting preferences, pro-monopoly candidates received 48.2% (14,315) of the votes and pro-voluntary candidates received 51.8% (15,415) of the votes.

In addition, the CWB itself conducted a producer survey in the fall of 1999. The results of this survey have never been released, however there is anecdotal evidence that more than 50% of those surveyed support either a voluntary CWB or the outright abolition of the CWB.

The above surveys and plebiscites have all been subject to criticism of one kind of another - low voter turnout, questions designed to give a specific answer, questions that do not address all options, etc. However, when examined as a group they all indicate strong support across the prairies for a change to the monopoly structure of the CWB. Those producers who would like to see a voluntary CWB are not a small minority, but are, if not the majority, then a large minority.

2.5 Feedback From Market Participants

In undertaking this project, we spoke to about forty people who are in the grain based products business. Many are operating in the Western Canadian market, however several aren't and so we wanted to ask why they are not located there. The interviews were conducted in person or by phone. The interview guide was quite straight forward and was built around the following questions:

- What is the nature of your value adding business? How do you transform the product from its normal raw state to one that has additional value?
- What is your contact with the CWB - i.e. what relationship do you have with them in the business, and what is it supposed to be?
- How does the CWB affect your ability to operate effectively, and what impact does it have on your ability to compete?
- Do you have an estimate of the cost or benefit to your business of the CWB regulation or activity? Can you express it per tonne or per bushel?
- What should change?

The feedback we received had substantial variation in it. Below is a summary of the points made.

- For those who are farmers and are attempting to add value with non-traditional products, or those who are working with them, the feedback was consistent that the CWB is a hindrance. The most common complaint is the buy back program. This program requires a producer who wants to export her/his own grain on their own to "buy it back" from the CWB. Similarly, producers who want to use their own grain in a value adding activity must also buy it back from the CWB if they use more than a (relatively small) specific amount of grain annually. This means, in essence, that the paper work has to be done and costs paid as if the farmer delivers to the CWB, and then takes delivery of it back, even though the grain most often stays on the farm. The farmer pays the costs by buying back at a price the CWB asserts is the market price charged other buyers of the same product in Canada. Farmers argue that this process imposes unnecessary costs (especially having to pay the difference between the initial price they receive and the price they are charged to buy back the same grain) that in turn reduce the potential profitability of their value adding activities. Other than organic farmers, almost no one apparently buys grain back because it is too expensive an option.

  In addition to the issue of administrative costs, all domestic end users of wheat, durum, and malting barley are charged a price based on Minneapolis plus freight and handling to Canadian points. This is opposite to what one would expect in a market characterised as surplus of product. In an efficient export market, prices are usually less than at the destination by the cost of freight and handling. Hence, the pricing policy removes the advantage for Canadian end users of Western Canada's ability to be a low cost producer of grain.

- A second issue brought forward by farmers and small operations is the bureaucratic costs of the buy back process. They speak of the number of forms that need to be executed, records that must be kept, delays in making decisions, and working capital tied up while delivery is being executed. All of these increase costs either directly or indirectly and are far higher than dealing with the private sector.

- Similarly, some domestic end users feel that the system is costing too much to obtain grain with specific quality characteristics. A number of companies contract with growers for assured quantities and qualities of grain. They, as everyone else, pay the CWB price. However, since there is no incentive in the CWB's pricing mechanism to deliver a product with

the specific characteristics they need (beyond protein level), the end users pay a premium for delivery of a specific quality of grain. They have no problem with paying a premium for the product, but object to paying it **and** for marketing services that are not used with direct delivery (i.e. services that are essentially included in the CWB price).

- As has been mentioned above and will be discussed in more detail below, a major issue for many people is the CWB's resistance to multiple car freight rate discounts and other delays in making the transportation system more efficient.

- In general, some flour millers, some maltsters, and some of those in further processing are satisfied with the system as it is. One reason given is that it is relatively easy to access and price large quantities of grain through one supplier. A second point provided by a few processors is that they use the benchmark of the cost of wheat or flour in Western Canada vs the US upper midwest. If the cost is similar, then they are satisfied. A related, but alternative reaction from some is that they pay more for their grain, but because the domestic product market is closed, they can pass the higher cost on. Therefore, it's not a problem. However, there are some caveats on this:

  - While maltsters can pass on prices in the domestic market, a number would prefer to be able to work directly with their farmer suppliers to better ensure their specific quality requirements. While there is nothing stopping them from doing this, and some currently do contract directly with producers, then the problem discussed above becomes relevant - i.e. that they need to pay the cost of delivery through the elevator system as well as a premium for quality.

  - The rationale that Canadian prices for wheat and flour are the same as in the upper midwest is questioned by some, on the grounds that since Canada is an exporter to the US, then prices should be lower by at least the cost of freight. By maintaining prices rigidly in relationship to Minneapolis, this is regarded as a disincentive for value adding in Western Canada. In fact, one major company investigated the feasibility of shipping a wheat based product to a large market in the US from Alberta. The result, despite lower operating costs, was that the cost of making and moving the product from Canada was too high and the investment was precluded. When raw product cost for a commodity of which Canada is a major net exporter is a limiting factor in a value added investment decision, something seems amiss.

- The above point leads to a widespread perception that since the CWB is a monopoly seller of western Canadian grain for human consumption in the Canadian domestic market, its pricing policies are, and have long been, a deterrent to investment in value adding in the West. At least two manifestations of this arose in our conversations.
    - One aspect is the rigid adherence to transportation costs as the basis for price differences within the designated area. Basis in unregulated markets is variable, depending on local supply and demand conditions. The comment that has been made on this is that the rigid pricing structure gives no opportunity for advantage to a local area that may have enough supply to give an advantage on basis.
    - Perhaps more important is the charge that grain pricing has long given the advantage to raw product exports at the expense of developing a processing industry in Western Canada. The argument goes that since the CWB has always seen itself as an entity focussed on the export of raw product, it has conducted pricing in such a way that it ensures this is the case - i.e. domestic grain prices are just low enough to ensure that the domestic market is served, mainly from mills and processors in Eastern Canada, but high enough to ensure that there is little incentive to export value added products.

Of course, it is not possible to determine whether the contentions listed above are true or not, since the CWB's pricing is not transparent. However, when one takes into account the structure of the industry, the assertions above are not surprising. Despite the popular vernacular in Western Canada, the CWB is not a monopoly seller, but it is the only seller of Canadian wheat and barley for human consumption in the Canadian market. In the export market, it competes with large international companies, cooperatives and a few other STEs's for sales. As indicated in the previous section, many buyers tender as a regular practice. Tendering processes will surely result in quality or service premiums, where the buyer finds value. But it is hard to understand how they allow a seller to extract "monopoly rents".

It is, however a essentially a monopoly in the domestic market for human consumption. Therefore, it is in a position to exert market power in the domestic market.

If the assertion is true that the domestic industry pays a higher price than the rest of the world for Canadian wheat and barley, the question will invariably be raised, "If the CWB lowers prices to domestic end users, this would reduce the pool price. How can this be good for western Canadian farmers?". There are at least three responses to this question:

1. If, by lowering the price in the domestic market, this encourages more sales to domestic end users that replace the lowest priced sales in the export market, it can have a positive impact on the pool. As a simple

example, assume the pool price is $240, the price (net of transportation and handling charges) to domestic end users is $250 per tonne and the lowest price export market is $220 per tonne. Then if the price in the domestic market is lowered to $240 and it causes growth in the domestic market that replaces the same amount of tonnes that were being sold at $220 in the export market, then this would clearly raise the pool price.

2. If by lowering the price to domestic end users, this encourages growth in value adding activities that require specific quality characteristics and/or identity preservation, then the value of the product increases and it becomes eligible for premiums above the pool price.

3. If, by doing this, more value adding is encouraged in western Canada, then this will create new employment. One of the major problems in much of western Canadian agriculture over the past several years has been that as farms get larger, some farmers leave primary production. There is no alternative employment in many parts of the prairie provinces. Encouraging more value adding would develop more employment opportunities which could be available to improve the economic well being of producers, their families and rural communities.

Whatever the truth of the assertions made by some of the people we talked to, the next section paints a very clear picture about the evolution of value adding in the grain based products industry in Canada.

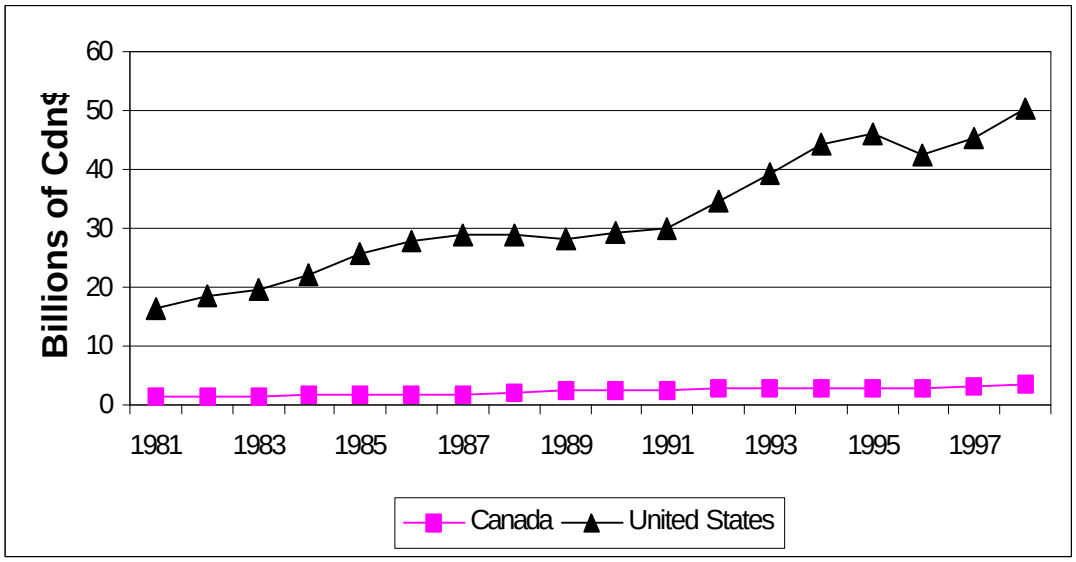
3.0 VALUE ADDED PERFORMANCE IN CANADA AND THE U.S.

3.1 Value Adding in the Grains Based and Vegetable Oil Industries of Canada and the U.S.

The George Morris Centre was finishing a project for another client as this one was being conducted that caused us to be examining value added data for various industries in Canada relative to the US (Martin and Stiefelmeyer, 2001a and 2001b). Those data are reproduced in this section for grain based products[4] and vegetable oils. The data are from the US Commerce Department and Statistics Canada's annual surveys of manufacturers.

Figure 3.1 contains the trends in value added by the grain based product industries in Canada and the US. The figure shows quite clearly that total value added in the US grew very substantially over the two decades, from about $17 bil to $45 bil, with a major growth spurt during the first half of the 1990's. While the scale of the graph is difficult to make comparisons, the growth in Canada has been far less, from $1.3 to $3.1 bil.

Figure 3.1 Grain Based Total Value Added, Canada and U.S.



[4]This includes Canadian SIC codes 1051 (Cereal Grain Flour Industry), 1052 (Prepared flour mixes and prepared cereal foods industry), 1071 (Biscuit industry) and 1072 (Bread and other Bakery Products Industry), for years up to and including 1997. For the same period, the US SIC codes are 2041 (Flour and other grain mill products), 2043 (Cereal Breakfast Foods), 2045 (Prepared flour mixes and doughs), 2051 (Bread and other bakery products), 2052 (Cookies and crackers), and 2053 (Frozen bakery products). For 1998, the NAICS codes used are 311211 (Flour milling), 31123 (Breakfast Cereal Manufacturing), 311821 (Cookie and cracker mfg), 311822 (Flour mixes and dough mfg from purchased flour), 311812 (Commercial bakeries; U.S. only), 311813 (Frozen cakes, pies & other pastries mfg; U.S. only), and 311814 (Commercial bakeries and frozen bakery product mfg; Canada only). Note that oat milling/processing for human consumption is included in these numbers.

Value added per employee is a measure of labour productivity. However, it says more indirectly about capital than it does directly about labour. As investment occurs, value added per employee normally rises because the new investment usually is either in plant and equipment that provide economies of size, and/or in technology that increases labour productivity.

Figure 3.2 Grain Based Value Added per Employee, Canada and U.S.

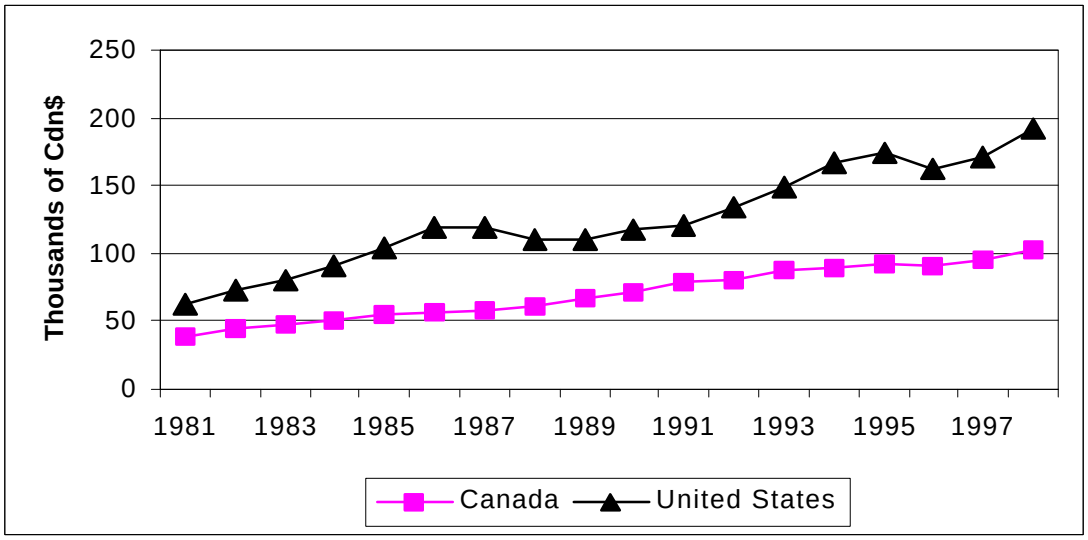
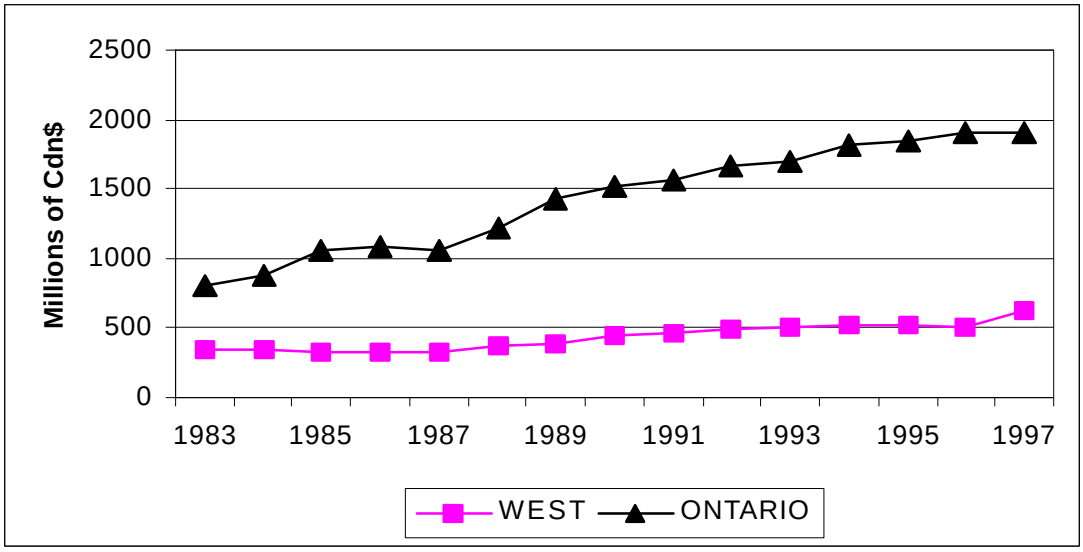


Figure 3.2 indicates that Canada's labour productivity in this industry lags the US, and the lag increased during the 1990's. In 1981, US value added was $60,000 per worker and Canada's was $40,000. By the end of the time period, the $20,000 gap had widened to almost $90,000, as US productivity had increased to $191,000 per worker while Canada was at only $103,000. This is a sign of very little investment in the industry.

What is even more interesting is to observe the situation for the West vs Ontario. We asked Statistics Canada to break the data out for the Western provinces to compare them with Canada. They could not do so because of the possibility of "residual disclosure". This means that there are so few observations in some categories that it may be possible to figure out what an individual's data is. So, then we asked if they could break out the data for Ontario and Quebec. This they were able to do! So, on the grounds that by elimination, what is left of the Canadian data is likely to be mainly in the West, we can compare the West and Ontario, which is the largest processing region in the country[5]. Figure 3.3 shows the results. As can be seen, the West has had considerably less growth than Ontario, in both absolute and percentage terms.

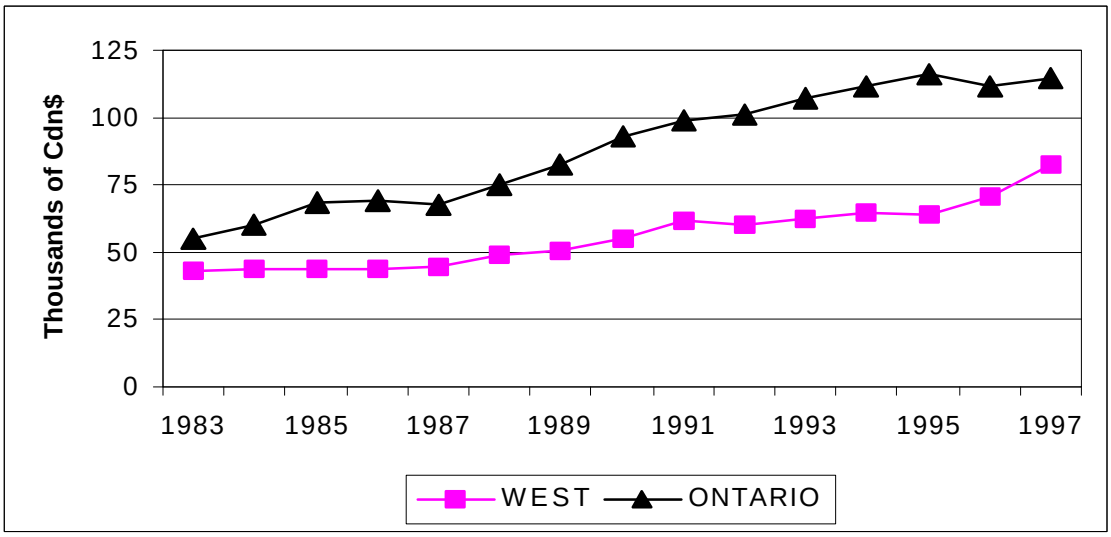
[5]Note that the data overstate the prairie provinces - the so-called "West" includes any processing in the Atlantic Provinces and British Columbia.

Figure 3.3 Grain Based Total Value Added West and Ontario, 1983-1997



Labour productivity also lags in the West (Figure 3.4) indicating that it is well behind Ontario. This is again consistent with an industry that lacks new investment.

Figure 3.4 Grain Based Value Added per Employee, West and Ontario



To demonstrate that the results for the grain based industries are not consistent across all industries, we also examined the oilseed crushing industry. It is one that results largely from a product grown in Western Canada that is not regulated. Results of the Canada/US comparison are in Figures 3.5 and 3.6. In this case it is clear that there has been considerable growth in value added in the Canadian industry and that it is at or above the percentage growth rate of the US industry. Moreover, growth in labour productivity has been faster in Canada than in the US during the past decade.

Figure 3.5 Vegetable Oils Total Value Added, Canada and U.S., 1981-1998

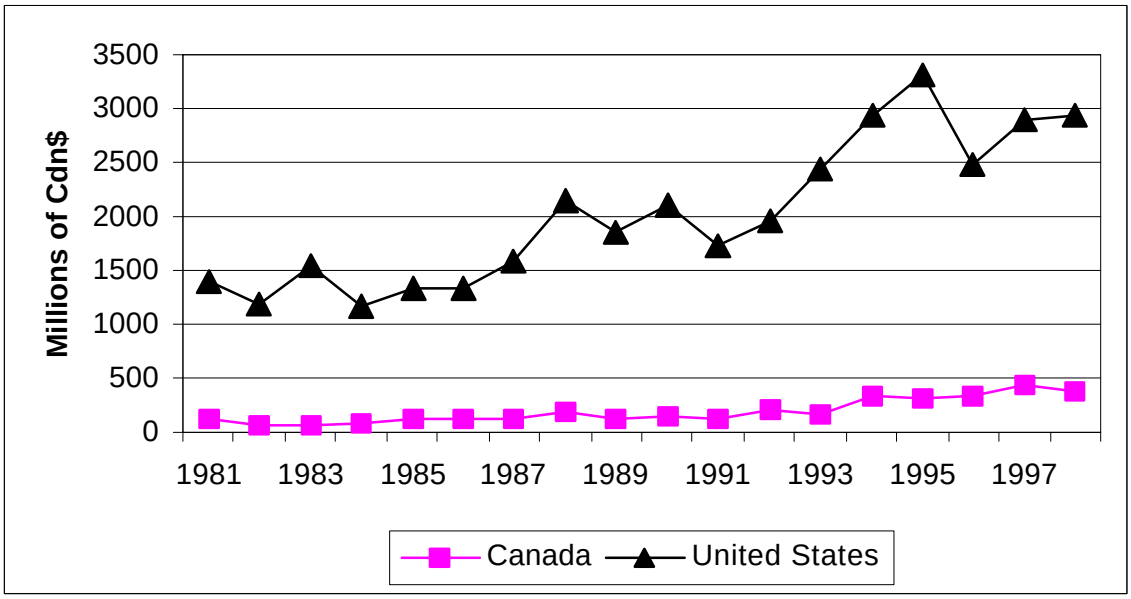
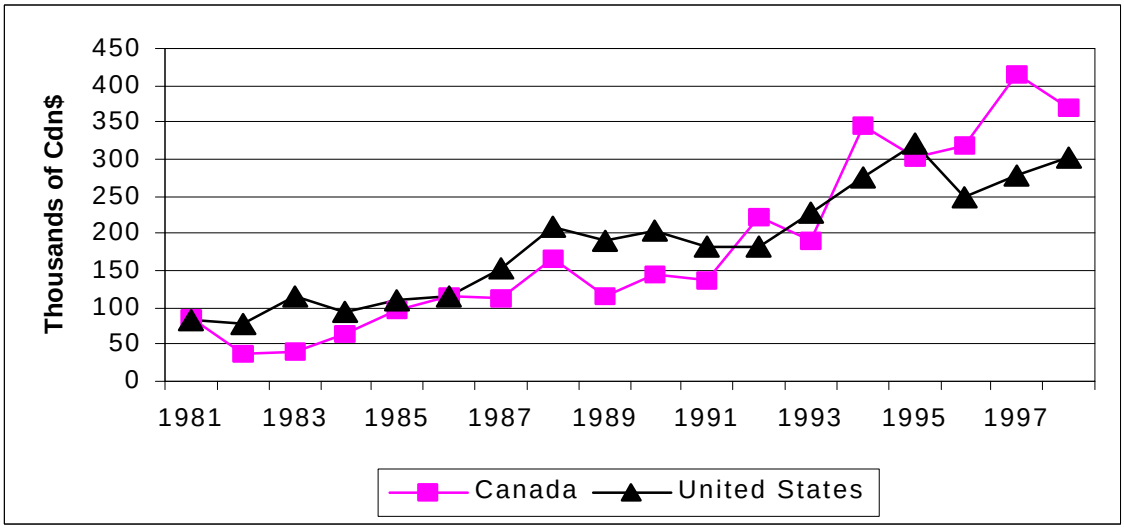


Figure 3.6 Vegetable Oils Value Added per Employee, Canada and U.S.



As with grain based products, we attempted to obtain data on a provincial basis to determine whether there are major differences. For this category, residual disclosure was definitely a problem. So, it is not possible. However, it is well known that there has been large amounts of capital investment in this industry, especially in Western Canada over the past decade. Therefore, our expectation is that, if anything, Western Canada is likely the leader if the detailed breakout was available.

3.2 Value Added in Other Crops and Jurisdictions

In this section, we discuss developments in other commodities and show data that provides an idea of the relative level of processing in the prairies and adjoining states in the US.

Oats

Oats offer a unique reference for value added in western Canada, as they were removed from the jurisdiction of the CWB in 1989. Table 3.1 shows production of oats in the prairie provinces and oats processed. Product exports and consumption of oats for human food is used as a proxy for oat processing, as data on oats ground is no longer released by Statistics Canada for confidentiality reasons.

Table 3.1 Oats Production and Processing, Canada, 1980/81 - 2000/01

Crop Year	Production	Product Exports	Human Food	Share of Production
	000 mt			
1980/81	2159	0.3	95	4.41%
1981/82	2529	0.5	74.7	2.97%
1982/83	2837	0.8	81.9	2.92%
1983/84	2098	0.5	73.3	3.52%
1984/85	1912	0	79	4.13%
1985/86	1974	1	72	3.70%
1986/87	2669	1	82	3.11%
1987/88	2374	6	76	3.45%
1988/89	2352	19	93	4.76%
1989/90	2613	10	90	3.83%
1990/91	2144	12	82	4.38%
1991/92	1394	27	65	6.60%
1992/93	2255	53	114	7.41%
1993/94	3038	92	113	6.75%
1994/95	3239	121	133	7.84%
1995/96	2506	164	93	10.26%
1996/97	4017	150	207	8.89%
1997/98	3118	172	187	11.51%
1998/99	3559	267	201	13.15%
1999/00	3253	240	191	13.25%
2000/01	3051	298	115	13.54%

Source: Statistics Canada

Prior to 1989 the share of oat production that was processed was relatively stagnant. Since 1989 oat processing has steadily increased as a percentage of oat production, as six major processing facilities have been built. All but one of these facilities were built in western Canada and several have undergone expansions since their

construction. The capacity of oat processing facilities in Canada is now approximately 500,000 tonnes per year of raw product. In 1987 oat processing capacity was estimated at 122,000 tonnes per year. Over 85% of the current capacity is in Western Canada, with 110,000 tonnes or 22% of total capacity, in Alberta.

It should be noted that oat processing is included in the earlier Statistics Canada data on value adding for grain based products. Therefore, value adding for wheat and barley is likely to have grown less rapidly than the earlier data suggest.

Regional Comparison of Value Adding in Cereals

Another interesting comparison is the relative value adding done to non-durum wheat in Western Canada vs the northern tier states in the US. Table 3.2 contains average wheat production (all non-durum wheat) in Western Canada and in the northern US for 1997 to 2001. It also contains an estimate of the proportion of the wheat processed in each region relative to the region's wheat production. This estimate is in turn based on estimates of the amount of milling capacity in each region as reported by the CWB (for Canada) and Grain and Milling Annual 2002 (for the US). Milling capacity for the US is reported on a daily basis, and the assumption is made that mills run at full capacity 5 days a week, 52 weeks a year. This assumption is not likely to fully reflect reality. The US has operated recently at a lower level of capacity utilization, however, there is no *a priori* reason to expect capacity utilization to differ markedly. Since the proportions processed differ substantially, we believe the inferences are able to be drawn.

The clear inference is that a higher proportion of the wheat produced in the Northern tier states is milled than is the case for the Canadian prairie provinces. It would appear that the proportion milled in the US states is twice to three times as high as in the Prairies. What is also clear is that Ontario appears to have a substantial advantage in milling given that it processes so much more than it produces.

Table 3.2: Wheat Production and Milling Capacity, 2001

	Avg Production	Milling Capacity	Raw Product	% Milled
	000 t/yr	t flour/day	000 t/yr	
Idaho	2,798.12	748.44	259.46	9.27%
Minnesota	2,243.62	5,438.63	1,885.39	84.03%
Montana	3,711.98	770.20	267.00	7.19%
North Dakota	5,811.52	1,451.51	503.19	8.66%
South Dakota	2,865.90	181.44	62.90	2.19%
Washington	4,048.15	1,249.21	433.06	10.70%
4 Tier	14,633.03	7,841.78	2,718.48	18.58%
6 Tier	21,479.30	9,839.43	3,411.00	15.88%
All U.S.	59,787.20	68,747.53	23,832.48	39.86%
Manitoba	3,401.10	295.80	102.54	3.02%
Saskatchewan	8,866.00	877.54	304.21	3.43%
Alberta	6,236.10	1,804.38	625.52	10.03%
Prairies	18,503.30	2,977.72	1,032.28	5.58%
Ontario	1,269.90	4,289.10	1,486.89	117.09%
Canada	19,989.50	9,860.00	3,418.13	17.10%

Source: Canadian Wheat Board, Grain and Milling Annual 2002, Statistics Canada, USDA.

Per capita flour consumption in 2000 was approximately 71.4 kg in Canada and 64 kg in the United States (Statistics Canada, US Department of Commerce).

Another interesting comparison is the proportion of durum that is processed in the northern tier US states and the prairie provinces. This is shown in Table 3.3 and is calculated in the same way as above. Again, the proportion is higher for the US states.

Table 3.3 Durum Production and Processing, 2001

	Production	Milling Capacity	Durum Milled	% Milled
	000 t	t semolina/day	000t grain/yr	
Idaho	0.00	0.00	0.00	NA
Minnesota	3.84	453.59	181.44	4724.90%
Montana	294.14	157.85	63.14	21.47%
North Dakota	1,942.95	1,838.20	735.28	37.84%
South Dakota	20.09	0.00	0.00	0.00%
Washington	0.00	0.00	0.00	NA
4 Tier	2,261.02	2,449.64	979.86	43.34%
All U.S.	2,821.10	6,263.86	2,505.54	88.81%
Manitoba	101.40	0.00	0.00	0.00%
Saskatchewan	3,780.20	340.20	136.08	3.60%
Alberta	797.40	172.37	68.95	8.65%
Prairies	4,679.10	512.57	205.03	4.38%
Canada	4,679.10	843.69	337.48	7.21%

Source: Grain and Milling Annual 2002, Statistics Canada, USDA.

Table 3.4 shows the comparison of malt barley processing between the northern tier states and Western Canada. Barley production is for all barley, i.e. no distinction is made in the statistics between malt barley and feed barley. Once again, the numbers for the US are significantly higher than in Western Canada.

Table 3.4 Barley Production and Malt Barley Processing

	Production	Capacity(raw product)	% Processed
	000 t/year	**000 t/year**	
Idaho	1212.43	232.53	19.18%
Minnesota	340.43	914.67	268.68%
Montana	1061.97	0.00	0.00%
North Dakota	1935.93	376.00	19.42%
South Dakota	98.11	0.00	0.00%
Washington	669.39	193.33	28.88%
4 Tier	3436.44	1290.67	37.56%
6 Tier	5318.26	1716.53	32.28%
All U.S.	6800.51	3034.67	44.62%
Manitoba	1,487.50	126.67	8.52%
Saskatchewan	4,571.80	326.67	7.15%
Alberta	5,706.60	514.67	9.02%
Prairies	11,765.90	968.01	8.23%
Canada	12,851.00	1270.68	9.89%

Source: Statistics Canada, USDA, Private communication with industry personnel.

3.3 The Cost of Foregone Value Added Investment

In Section 3.1, actual trends in value adding for grain based products and vegetable oil processing were shown. These data can be used to speculate about the cost of foregone investment in value adding in Western Canada. What the data show is that value adding and labour productivity were much lower in Western Canada than in Ontario or the US for grain based products. However, Canada's growth in vegetable oil processing was quite substantial and we know that much of the growth was in western Canada because of the new investment there in canola processing.

This begs two questions, how much of Western Canada's lag in grain based products is due to the CWB and other impediments of the grain handling system? How different would the experience have been without the impediments?

There is no way to answer these questions unequivocally. However, we can speculate about the possibilities. We do so in two ways. First, we project what the level of value adding would have been in the West if it had grown at the same average absolute rate as it did in Ontario over the same time period. Second, we project what the level would have been if it had grown at the same percentage rate as Canada's did for vegetable oils over the period.

Table 3.5 contains average annual absolute and percentage value added growth rates for grain based products and oilseed processing. They are calculated from the data in the graphs presented earlier, by taking the average of annual growth rates. We started with 1989 because it was the first year of the Canada - US Trade Agreement.

Table 3.5 Growth in Value Added VegOils and Grain Based Products, 1989-97*

	West		Ontario		Canada	US
	Change/Yr ($Mil)	% Growth	Change/Yr ($Mil)	% Growth	% Growth	% Growth
Grain Based	29.22	6.47	74.72	5.08	5.34	5.92
Veg Oils	not avail.	not avail.	not avail.	not avail.	12.36	4.6

*To 1998 for Canada and US numbers.

As can be seen, value added in grain based products in the West grew at a rate of $29.22 mil/yr, while in Ontario the rate was $74.72 mil/yr. On a percentage basis, the West actually grew faster, but this is because the base was so low. Note that the Canadian rate was about the same as the Ontario rate. For oilseed processing, the Canadian rate was 12.36%/yr, while the US rate was 4.6%.

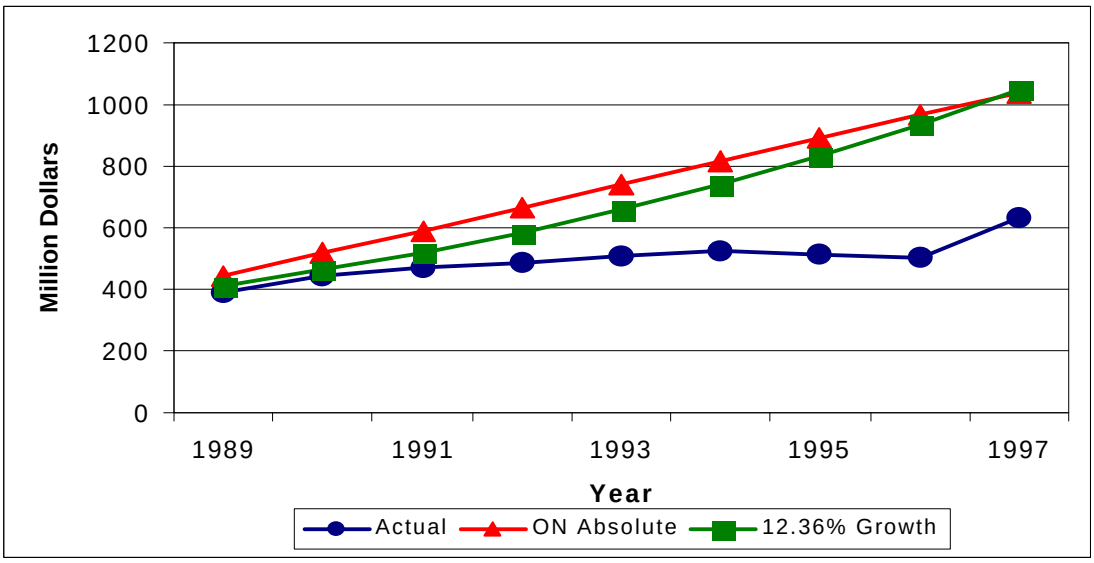
Figure 3.7 contains actual and potential value added for the grain based industry in Western Canada under two assumptions - that the West had grown at the same

absolute annual rate as Ontario ($74.72 million/yr), and at the same percentage growth rate as value added in oilseed processing grew (12.36%/yr).

Not surprisingly, the two assumptions indicate that the level of value adding in grain based products would have been far higher had those growth rates occurred. At the end of the period, actual value added in the West was $630 mil. With the two projections, we have almost the same value, at $1.04 billion - i.e. about $400 million dollars a year more under the second scenario. For the sake of comparison, Ontario's value added was $1.897 bil in the last year of the series.

Another way to look at this is to think about foregone jobs. Western Canada employed 7,630 people in grain based processing in 1997 who produced $630 mil of value added. Had they produced $1.04 billion in value added at the same rate of labour productivity, the number of jobs generated would have been approximately 12,600. Of course, as all of the data on investment shows, this calculation overstates the number of jobs because new investment in plants and equipment would have increased labour productivity.

Figure 3.7 Grain Based Actual and Projected Value Added, West



Whether these are reasonable expectations or not cannot be verified. The markets for grain based products are very different than oils, and many of the processes for existing products are weight gaining rather than weight losing, as is the case for oilseeds. Therefore, there are different implications for transportation over long distances. On the other hand, products from the bakery industry are increasingly shipped around North America and, indeed, around the world. So, there is nothing to say that it could not have been possible to ship more grain-based products from Western Canada, especially Alberta which is in close proximity to the US West Coast. Moreover, the base level of value adding in the West is so low that any major

breakthrough in plant location could increase it by a substantial percentage. On balance, given the amount of grain produced in Western Canada, we believe the projections based on the foregoing are easily possible.

3.4 The Potential for Growth in Value Added

As noted in previous sections, growth in grain based value added products has been greater in the US than in Canada. Milton Sosland, editor of Milling and Baking News, cites two major reasons for the growth in the US:

1. Desire to have a "lock on grain origination" has been a powerful incentive for grain companies to become active in milling and milling companies to acquire grain businesses. In other words, people see the synergies and economic value of being involved in the entire supply chain. As a result, a major share of US flour milling capacity is with companies that have considerable grain origination capacity.
2. Deregulation of US rail transportation created a situation where rate-making is largely done in private negotiation between railroads and shippers, and where the shippers offering the largest guaranteed volumes obtain the most favourable rates. Different rate tiers have evolved as the result of this situation, which seems to be one of the principal factors favouring consolidation in industries like grain and flour milling. Sosland says, "I need not stress how important competitive transportation costs are in industries like grain processing where margins are already thin."

If Sosland is correct, then the contrast with the Canadian situation is stark. In Canada, grain companies do not have control over origination because of the role of the CWB. Also, the very freight advantage that Sosland believes is important is one of the factors that cannot be attained in Canada because of the lack of progress in transportation reform. Add to this the issue of domestic pricing that was discussed previously in this report, and it is not surprising that the development of the bakery industry in Canada has not parallelled the that of the US.

Sosland forecasts a rise of 26% in flour consumption for Canada from 1996 to 2010, about the same as his forecast for the US in percentage terms. Putting the two together, it would seem that there is almost an unlimited potential for growth in Canada because of its proximity to the US, as long as the proper conditions are put into place to allow Canadian facilities to be competitive.

This is consistent with estimates of market and production potential for grain based products that were made by Alberta Agriculture in 1998. They are shown below in Table 3.6. The forecasts represent an increase of 67% in total sales for flour and an almost four-fold increase for bread and bakery. Investment in plants and equipment could grow at a rate of over 8%/yr.

Table 3.6 Alberta Agriculture's Assessment of Potential Production of Flour and Bakery Products

	1998	Short Term (2003)	Medium (2006)	Long Term (2010)
Flour & Cereal	$135 million	$190 million	$210 million	$225 million
Bread& Bakery	$175 million	$285 million	$315 million	$ 650 million
Total Shipments	$320 million	$475 million	$525 million	$ 875 million
Investment	Annual growth 10% milling, 3.5% bakery	8- 12% annual growth -continued aggressive bakery investment	8-12% annual growth -2 new $50 million facilities fractionation, cracker, cereals or bars	8-12% annual growth -4 new facilities

Alberta Agriculture also forecast substantial growth opportunities for malt, as shown in Table 3.7. Their sales forecast represents an increase of 172% by 2010.

Table 3.7 Alberta Agriculture's Assessment of Growth Potential for Malt Products

	Short Term (2003)	Medium Term (2006)	Long Term (2010)
Value of Shipments	• increase value of shipments to $190 million (from current level of $120 million)	• increase value of shipments to $235 million	• increase value of shipments to $327 million
Investments	• maximize current capacity • add one new malting tower, $60 million investment	• add one new malting tower, $60 million investment	• add two new malting towers, $120 million investment Total investment over 10 years: $240 million
Capacity	• 520,000 tonnes	• 645,000 tonnes	• 895,000 tonnes

Of course, neither Sosland's nor Alberta Agriculture's projections include other traditional products, nor non-traditional products. Interestingly, Alberta Agriculture placed the potential growth for industrial products at a geometric rate, rather than a linear rate (from $65 million in 1998 to $1.35 billion in 2010). Most of this was expected to come from grains and their by-products.

3.5 Projections of Value Added

Taking into account the foregoing discussion and the analysis of growth in value added in Western Canada in this section, it is possible to paint alternative scenarios that could describe the future of value adding on the prairies in the future.[6] We do so in Figure 3.8, which contains three projections of value added in Western Canada to 2010. All three start from the last point that was available from the Statistics Canada data series (1997).

The first projection is simply a linear projection based on the trend in the data. In other words, it projects what the level of value added for grain based products would be in Western Canada in 2010 if it continued to grow at the same rate per year as in the past decade. This would take total value added from just over $600 million to $1.4 billion, an increase of about $800 million.

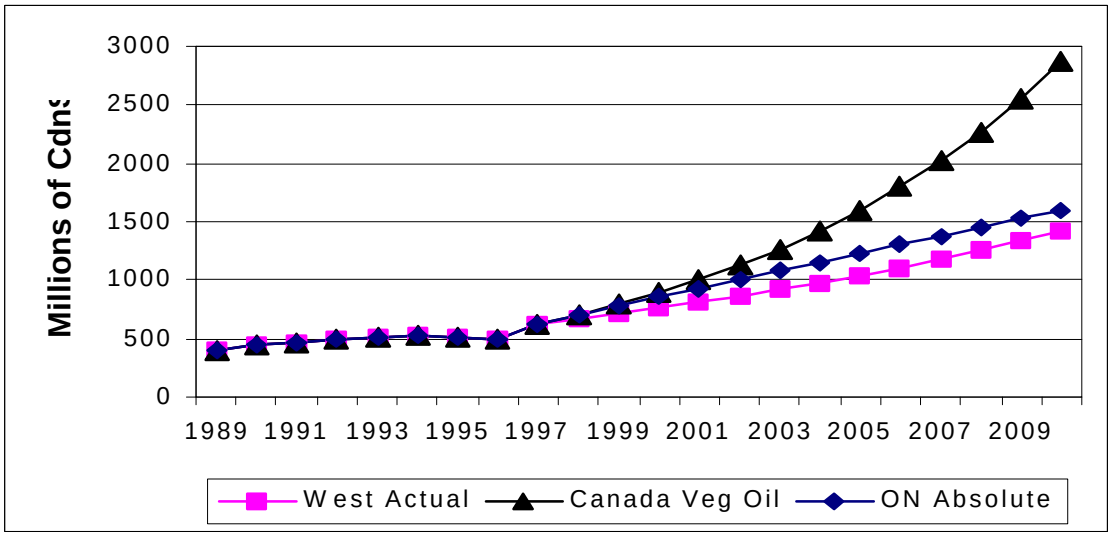
The second projection is based on the historical annual growth rate displayed by Ontario's industry. This one is used on the grounds that there is, as indicated above, huge potential growth in the opportunity for adding value to grains, and there is no obvious reason why Western Canada should not or could not participate at the same growth rate as Ontario. With this basis, total value added would rise to just over $1.6 billion by 2010, an increase of about 150%.

The third projection assumes that value added for grains grows at the same percentage rate until 2010 as it grew during the past decade in oilseed processing. This rate is used because it has clearly been achieved with that sector, and because it would not be a stretch, in our view, to achieve the same rate for grain based products if the system were changed to encourage value adding. On this basis, value adding would increase to $2.87 billion, an increase of about 350%.

Are the higher rates achievable? We believe, for the reasons discussed above, that they are not a stretch. But the market system needs to change to encourage value adding if they are actually to be achieved.

[6]The reference here is to the prairies or western Canada, not Alberta. As discussed in an earlier section, this is because the data we use is from Statistics Canada's Census of Manufacturers, and the data are not available by province because of confidentiality. Therefore, we use "Western Canada" as a proxy.

Figure 3.8 Alternative Forecasted Growth Rates for Total Value Added, West



3.6 Employment Implications

It is interesting to think about the number of jobs that would be directly generated if these levels of value adding actually occur. Broad estimates can be made based on assumptions about labour productivity. Table 3.8 contains estimates based on each of the growth scenarios and with two assumptions.

The first assumption is that labour productivity (i.e. annual value added generated per employee) remains the same as it was in base period - $82,488 per employee/yr - for grains based value added in western Canada. This assumption most assuredly will not hold because, what the analysis reported by Martin and Stiefelmeyer shows very clearly is that productivity increases when there is new investment in an industry. This is because new investment includes larger plants that provide economies of size and new technology that frees people from menial, trivial and often dangerous, work. As the size of an industry grows, normally its labour productivity grows with it.

Therefore, the second set of employment numbers is based on the assumption that labour productivity reaches the same level as in Ontario ($114,270 per employee per year). This likely underestimates the level of productivity that would be achieved at the highest level of value added.

Table 3.8 Estimated Employment at Projected Levels of Value Added (Employees Annually)

Labour Productivity	Value Added Projection for 2010		
	$1.42 bil	**$1.6 bil**	**$2.87 bil**
Base - $82,488	17,215	19,396	34,792
Ontario Level - $114,270	12,427	14,002	25,116

The base level of employment at the beginning of 1998 in the grain processing industry in Western Canada was about 7,600 people. The first row of the table shows what the employment would be at each of the projected levels of value added assuming labour productivity remains at the base level of $82,488 per year. At $1.6 billion of value added, employment would increase by 12.5%. At $2.87 billion, it would more than double. Using the somewhat more realistic productivity level of $114,270/year, $2.87 billion of value added would still generate more than 17,000 new direct jobs. This, of course, does not account for the secondary jobs that would be generated because of the growth in the grain processing industry.

4.0 FRAMEWORK FOR DETERMINING NET BENEFITS

When one examines the economic literature on the Canadian Wheat Board, it quickly becomes obvious that there are two camps of authors. One is largely focussed on estimating the economic benefits of the CWB's monopoly structure, while the other is largely focussed on estimating the economic costs of the CWB's monopoly structure. The question of whether a Continental Barley Market (CBM) would benefit western Canadian barley producers (1993) sparked the first round of opposing studies and viewpoints regarding the CWB. Many rounds have followed since.

4.1 Benefits of the CWB

The benefits camp argues that the CWB provides economic benefits because its 'monopoly power' gives it the ability to price discriminate, and because the cost of risk management is low through the use of price pooling. The first study to examine the benefits of the CWB's monopoly was authored by the CWB itself in 1992. It concluded that single desk selling improved producer incomes, and a continental feed barley market would reduce the pooled price due to a misallocation of barley sales. Schmitz, Gray and Ulrich (SGU 1993) also concluded that the removal of single desk selling of barley would result in lower prices, primarily for malting barley. The authors show this by comparing returns received by Canadian and US producers for malting barley. They do this in two ways; firstly, by comparing Minneapolis prices for malting barley to relative prices paid by the CWB, and secondly by comparing weighted average prices for malting and feed barley received by US producers to CWB pool prices. They argue that the weighted average prices are more representative of the price received by US producers than Minneapolis cash prices would be, and therefore give a truer picture of prices in a competitive market versus the price pooling by the CWB. In both scenarios, western Canadian malt barley producers received a higher premium (over feed barley prices) than US producers did. SGU state that the premiums result from higher quality Canadian malt barley, the preference of maltsters to deal with a single desk seller who can allocate large quantities of grain, and the CWB's status as the sole source of malt barley in the US market. They, therefore, argue that in a CBM, malting barley premiums would be reduced due to competition between producers looking to sell their malting barley into the US, and higher amounts of malting barley being sold into the US. The loss of single desk selling of barley in the North American market was calculated to result in a $12 million annual loss to western Canadian malt barley producers.[7] The same study concluded that an open border in the feed barley trade would result in a small negative effect on Canadian feed barley prices.

Clark (1995), as well as Amanor-Boadu and Martin (1994), examined the data from the short-lived Continental Barley Market, and came to the opposite conclusion of Schmitz,

[7]See *A Comment on the Continental Barley Market Debate*, by Michele Veeman, Canadian Journal of Agricultural Economics 41 (1993) 283-287 for an in-depth examination of these studies.

Gray and Ulrich. Moreover, as Veeman (1998) has argued, the basic premise of SGU is faulty. Quality premiums are a function of inherent quality of the product, not a marketing system. Quality is mainly a function of climate. So, the quality premiums of Western barley result from the cold, dry climate in Western Canada, and there is no obvious reason to argue that they would not accrue in a non-board system, especially one with identity preservation. In addition, there is ample public evidence from maltsters that they now prefer to deal directly with farmers in order to obtain and preserve the characteristics they want in their finished product.

A 1997 study by Schmitz, Gray, Schmitz and Storey (SGSS) examined the CWB's marketing performance with regard to barley (feed and malt). First, actual CWB feed barley contract data were used to compare the prices received by the CWB in Japan, the US and the rest of the world (ROW). The results indicated statistically significant differences among the fob contract prices in these three markets, thus considered proof of the CWB's ability to price discriminate. Second, a comparison was drawn between the prices producers would receive under the CWB and a multiple-seller environment. The authors calculated that the returns from single-desk selling of barley are higher than they would be in a multiple-seller market, and over the period 1985/86 to 1994/95 this was worth an average of $72 million annually to producers. The study also addressed some of the costs of single-desk selling identified in studies by Carter (1993) and KenAgra (1996), and found them to be overstated. With respect to the costs identified by Carter and Loyns (1996) (see below), the authors state:

> *Our general conclusion is that while some of the costs addressed by Carter and Loyns are present in the Canadian system, they are not unique to CWB grain marketing and would be incurred by producers and government in the absence of the CWB as a single-desk seller. ...From a methodological standpoint, when the CWB is placed in the context of the entire Canadian grain regulatory framework, many of the costs that Carter and Loyns attribute to the CWB would disappear. It is possible that costs could be higher in the absence of the present regulatory framework and the CWB.*

There are several problems with the logic behind this study. Most importantly, the presence of premiums in some export markets relative to other export markets should not be viewed as proof that the CWB has significant market power (Veeman, 1998; Heikkila, 1997). The data presented by SGSS demonstrate the influence of the US Export Enhancement Program (EEP); price premiums are significantly higher in EEP than non-EEP years. In EEP years price discrimination would have to occur, regardless of whether the seller is a monopoly or not, in order to sell into subsidized markets, i.e. sales would be discounted. In fact, in the period where EEP was not in use, SGSS' analysis indicates that the price differential in two of the three regional comparisons is not statistically significant. Veeman also argues that the ability of foreign buyers to substitute other grains and other countries' barley for Canadian barley is not compatible with the own-price inelastic demand in these markets that would be a necessary condition for the CWB to exert appreciable market power.

Furthermore, Heikkila points out that other factors, such as transportation logistics to alternate markets, can explain part of the differences in Vancouver fob prices.

Finally, it seems somewhat naive to argue that differences in performance are due to parts of the Canadian system outside the CWB. When there is one entity that controls the marketing of all wheat and barley for human consumption, there is more than a small chance that that entity has had an effect on the other parts of the system.

The CWB's performance in the wheat market was examined by Kraft, Furtan and Tyrchniewicz in 1996. The study's main objectives were to analyze CWB sales of CWRS with respect to prices received by other exporters of similar wheat; to estimate the added sales revenue attributed to CWB sales of CWRS; and to compare the marketing costs of wheat and oilseed crops. The authors found that the CWB receives a premium above the prices of comparable wheat, and that this premium is associated with quality, availability of supplies, customers and timing of sales. Over the period 1980/81 to 1993/94 the benefit of single-desk selling of wheat was estimated to be $265 million annually. US export subsidies (specifically, EEP) were found to increase the premiums that accrue from single-desk selling, and between 1985 and 1994 the estimated revenue benefit of single-desk selling was between $577 and $690 million annually. The analysis of risk management costs indicated that they are higher for canola and flax than for wheat. The previous argument regarding the source of quality premiums holds again here, and there is no reason why availability of grain would change in a competitive market where large multinationals such as Cargill and ADM are involved. The discussion regarding the effects of EEP is also relevant here, and consequently it is most likely the reason for the higher premiums, rather than the CWB's supposed market power.

Fulton and Vercammen (1996) took a slightly different tactic in evaluating the benefits of a single-desk seller. They state that a dual marketing structure, i.e. one where a voluntary CWB co-exists with a private trading system, would not work. Producers would participate in the pool when prices are low, and opt out when prices are high, thereby leaving the pool with depressed prices and a volatile supply situation. Even if producer delivery contracts are utilized, they argue that enforcing these contracts would be difficult and ineffective in the long run. The conclusion is that the CWB as a single desk seller provides more certainty in accessing and securing supplies, and can therefore also provide higher returns to producers. The second argument implies that contracts are not enforceable, which should not be true. The first seems to be self-defeating: how can one argue that pooling has value and then add that the value can only be attained if the pool is mandatory? If pooling has value to its participants, then the value should be self-evident and participants should not be forced to join. Said differently, if farmers see value in pooling, then they would not be expected to display opportunistic behaviour and, if they do, it is a sign that they really do not attach much value to pooling.

The foregoing discussion means there is no proof that the Canadian Wheat Board's monopoly benefits producers by exercising market power to generate higher prices. The higher prices that have been shown to exist are the result of quality premiums and EEP. Moreover, pooling has not been shown to of a significant benefit to producers, except those who prefer such a system.

4.2 Costs of the CWB

The framework used here to determine the costs of the Canadian Wheat Board can be divided into two major areas: those that arise from the past and those associated with the present situation. We make this distinction because events of the past can be cumulative - i.e. investments made or not made 10 years ago clearly affect the capital stock today. Costs that fall in this category include foregone investment in research and development and value-added activities (see Section 3.0). Current costs in the system are centered around the grain handling and transportation system and draw largely from Carter and Loyns (1996).

Most fundamentally, comparisons of contract prices totally miss the point that demand for wheat has moved away from the high quality, low yielding types toward higher yielding types with less concern about quality because of the ability to blend. Even if there is a premium for the wheat western Canada chooses to grow and export, it is not obvious that this makes farmers better off. This is especially so if system costs are high and the premiums do not get back to farmers.

4.2.1 Past Costs

The majority of grain produced in Western Canada is exported. This has always been the case and will continue to be, as the amount of grain produced in this area far exceeds domestic demand. In turn, this means that the focus of the CWB has been on developing and maintaining export markets. However, over the years this focus has essentially become a bias towards exports at the expense of the domestic market. A reader of the CWB's annual report for 1980/81 would have to look very closely to find out that any food-grade wheat, barley or oats was purchased domestically. Although the destinations of food aid shipments, credit sales and sales to the largest export markets are discussed, domestic customers and purchases are not mentioned at all in the sales review for the year. This is despite the fact that the commercial use of wheat in Canada was the third largest market for prairie producers. The 1980/81 report is not an anomaly either; the same treatment was afforded the domestic industry in previous years and continued until the mid-1990's, when other markets shrunk to the point that Canada became one of the CWB's largest buyers in terms of quantity.

The CWB now lists as one of its corporate goals to "operate in a manner that encourages value-added initiatives on the Prairies." and includes a discussion of the domestic value-added industry in its annual report. However, as indicated in the previous section, discussions with industry leaders involved in value added processing of grains make it apparent that the historical focus of the CWB on export markets has

had an effect on past investment in value-added in western Canada. It was stated by some we interviewed that the level of capital investment in certain types of processing facilities has historically lagged behind investment in the US. This has translated into the use of old equipment and old technology, in turn making the facilities and companies involved less competitive in the North American and world markets than their competitors. We saw at the end of the previous section that the characteristics mentioned above appear to be borne out in the Survey of Manufacturers.

The CWB's focus on export markets is one contributing factor to the lack of investment in value added activities in Western Canada. Government agriculture policy of the past may be a major contributor as well. The most notable example of this is the Crow Rate, which was established in 1897 and subsidized the cost of moving grain from the prairies to export position. The original intent of this legislation was to encourage the settlement of western Canada by subsidizing the movement of settlers and settlers' effects. Early in the 1900's the subsidy was extended to products moving off the prairies and it remained in effect until 1995[8]. Since then, producers have had to pay the full cost of moving their grain to port. For many years prior to the end of the Crow there was great debate as to whether the subsidy resulted in a net benefit or a net cost to producers and the industry as a whole. Several studies concluded that the subsidy encouraged exports of raw grain and discouraged value added processing of the same grain in western Canada. In the five years since the Crow Benefit subsidy was eliminated there has been significant investment in value added on the prairies in the form of hog production, hog processing, canola processing, and malting. We saw in the previous section that oilseed processing especially has made tremendous contributions to value adding in recent years.

Varietal Development

The presence and activities of the CWB in the past may have also had a negative effect on other parts of the western Canadian grain industry and on returns to producers. One example is the issue of varietal development for both wheat and barley. A 1982 Canada Grains Council report stated the CWB's focus on selling high quality (high protein) wheat when there was a faster growing market for medium quality wheat was costing producers money. This is also because many areas are better suited to growing the higher yielding but lower quality wheats than they are to growing high quality wheat. Hard red spring wheat is still the dominant wheat class on the prairies, however other classes such as Canada Prairie Spring (CPS) have grown significantly in acreage in recent years because of its higher yield potential. Other studies by Ulrich, Furtan and Schmitz (1987) and Henning (1986) also concluded that producers would see increased returns if more emphasis was placed on marketing medium quality wheats.

[8]The Crow Rate became the Crow Benefit in 1983 when the Western Grain Transportation Act was enacted. The Crow Benefit came to an end in 1995 when the WGTA was repealed.

With regard to barley, in the past there has been more emphasis placed on development of malting barley varieties than feed barley varieties. This is partly a result of influence arising from investment by the private sector in malt barley research and partly a result of the private sector's influence on the regulatory decisions regarding variety registration (Ulrich, Furtan and Schmitz, 1986). The premium for malt barley is high enough that historically approximately two-thirds of barley acres are planted to malt varieties, even though on average only 15% of this production is actually selected for malt (Carter, 1993). Those producers whose malt production is not selected for malt receive the feed barley price, and consequently see a lower total return per acre than those who grew the higher-yielding but lower-priced feed barley varieties.

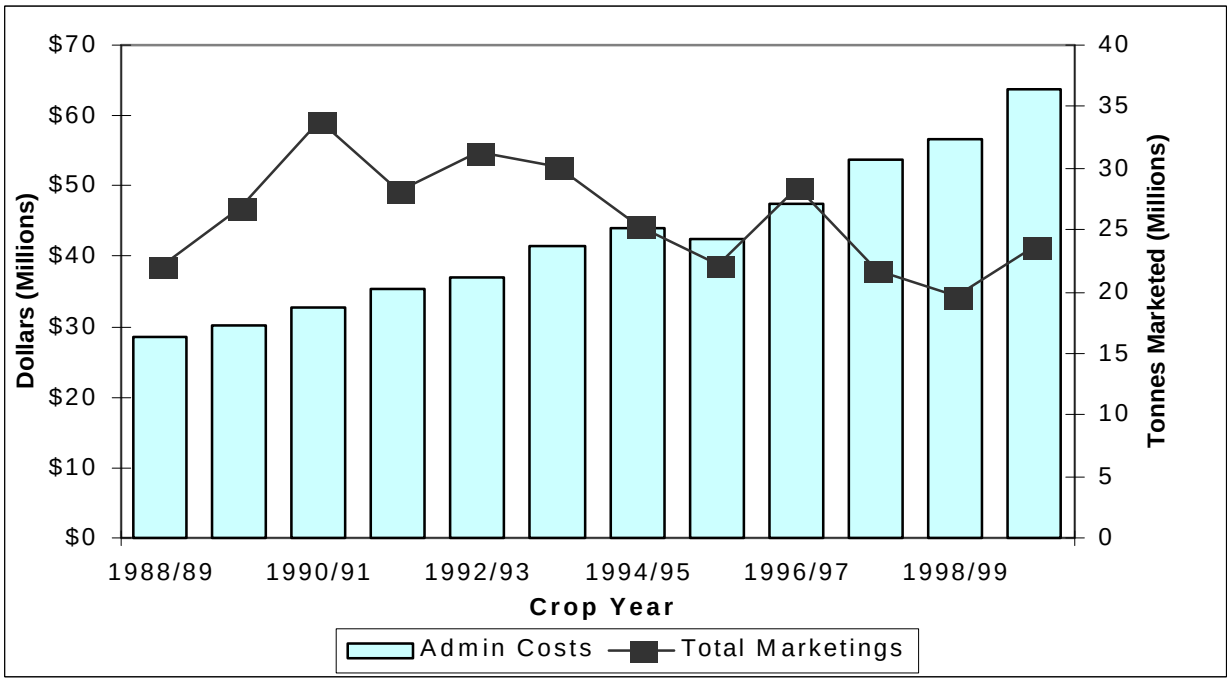
The CWB does not have direct and absolute control over varietal development and licensing, but it does have a significant influence nonetheless. The CWB is a member of the recommending committees that decide whether or not specific varieties should be licensed, and given that it is responsible for marketing these varieties, its opinion carries a great deal of weight in these committees and the industry as a whole.

4.2.2 Current Costs

CWB Administration Costs

There have been questions about the level of CWB administration costs for many years, and whether these costs are justified. In the 1990's administration costs rose significantly, from $28.5 million in 1988/89 to $63.8 million in 1999/2000, for the marketing of approximately the same amount of wheat and barley. Figure 4.1 graphically illustrates this point. Administration costs per tonne exported rose from $1.30 in 1988/89 to $2.68 in 1999/2000. Since an increasing portion of Canada's wheat exports is sold through third parties, the cost per tonne exported by the CWB rose much more. So more and more resources are being used to sell declining amounts of grain.

Figure 4.1 CWB Administration Costs and Total Grain Marketings, 1988/89 to 1999/2000



The largest increases in administration costs came from human resources, communications, computer equipment costs and depreciation. Staffing levels have grown primarily because of the changes in the Board's customers - i.e. an increase in the number of customers resulting from the demise of a number of STES's around the world. Given the changes discussed earlier regarding customers of the CWB, there is a need for more people in order to develop and make sales to new markets. The question raised here is whether the CWB is duplicating the efforts of the grain marketing companies, who have their own market development and sales staff and relationships with buyers around the world. If there is duplication, there is potential for a reduction in staffing costs at the CWB.

Protein/Grade Giveaway

Another issue of costs associated with the CWB is that of protein and/or grade "give away". At the farm level, producers are now compensated for protein levels in 0.1% increments; this is important in ensuring that producers receive accurate price signals and that cross-subsidization is kept to a minimum. However, it has been alleged (Carter and Loyns, 1996) that the CWB delivers higher grade and/or protein levels to customers than what they paid for. In instances where this has occurred, it means that the CWB has essentially given away grain; i.e. sold it for less than it was actually worth. The issue of protein give away applies primarily to wheat sales and was examined in more detail by Carter and Loyns (1996). The same report also discusses the issue of grade give away in wheat. Anecdotal evidence from the grain trade points

to the CWB forwarding No.1 or No.2 wheat to customers who ordered lower grades. The upside to this practice is that if it is done consistently, the customer will be happy and more than likely make repeat purchases. The downside is that the pooled return for No. 1 wheat is lower than it should be.

Farm Level Costs

Producers receive an initial payment when they deliver their grain to the primary elevator system, sometimes an interim payment, and then a final payment. Interim payments may occur at any time in the crop year, but before the pool account closes. The final payment is usually not received until several months after the end of the crop year. Although the initial payment represents the bulk of the final price for producers' grain, the remaining payments for their grain are not received until more than a year after it has been harvested. This means that there is an opportunity cost to producers in the form of interest on the final payment. Additionally, the lengthy payment schedule has a negative effect on cash flow. Recent changes made to the CWB Act now allow for more flexible payment options, so that producers can receive the full price for their grain at the time of delivery. However, relatively few producers have made use of this option and so the vast majority of producers will still be waiting many, many months for their final payments and losing money in the form of interest on these final payments.

Further costs at the farm level may arise from poor price signals, realized in the form of poor economic and technical efficiency on farms in western Canada. It has been argued that production decisions are distorted by the regulatory nature of CWB pricing and payments; the price uncertainty of the initial, interim and final payment system adds uncertainty to farm management decisions (Carter and Loyns, 1996). The introduction of the Pool Return Outlooks (PRO's) was a significant step towards alleviating this problem.

Grain Handling and Transportation System

The grain handling and transportation system (GHTS) in western Canada has been the subject of intense debate for decades. Since the end of the Crow Benefit in 1995, the debate has centred around the role of the CWB in the transportation of grain from the country to port position and the state of the system as a whole. In the winter of 1996/97 severe cold and large amounts of snowfall led to significant problems in the GHTS and brought to a head concerns about its capabilities. The CWB estimated the transportation problems cost producers $65 million in lost sales and demurrage. The problems also generated a complaint by the CWB about railway performance to the Canadian Transportation Agency.

As a result of the problems in the winter of 1996/97, a consensus developed among the industry, producer groups and some governments that the review of the system mandated by the Canada Transportation Act for 1999 should be undertaken as soon as possible. The federal government agreed with this idea and appointed Justice Estey to

head up the review. Justice Estey's mandate was to consult with industry stakeholders to determine the nature of the problems facing the GHTS. His report, submitted in December 1998, contained fifteen recommendations aimed at making the system a less-regulated and more accountable and competitive system. In May 1999 the federal Minister of Transport announced that the Federal Government agreed with Justice Estey's "vision that the western grain handling and transportation system can be made more efficient, accountable and beneficial to farmers by moving to a more commercially-oriented environment with appropriate safeguards to protect the public interest" (Transport Canada, 1999).

In order to move toward this vision, Mr. Arthur Kroeger was appointed by the Federal Government to develop the operational details and legislative changes that would be required to bring a more commercial system into being. The process for this involved consultation with all major industry participants: the CWB, producer organizations, railways, grain companies and provincial governments. Mr. Kroeger's report was submitted to the Minister of Transport at the end of September 1999. It contained recommendations on four specific issues: the railway revenue cap, railway competition, final offer arbitration and the role of the CWB in the transportation system. The most contentious recommendation concerns the role of the CWB. In his letter to the Minister, Mr. Kroeger stated:

> *While the revenue cap, improved Final Offer Arbitration, and increased competition between the railways would be useful in themselves, they would fall far short of achieving a more accountable and commercial system unless they were accompanied by a major shift away from the present centrally administered system to one in which the responsibility for getting grain to port was transferred from the Board to the grain companies and railways, with normal commercial contracts being used to define the results that each party was to achieve.*

Mr. Kroeger also recommended that the following elements should be implemented in order to make the system as commercial as possible:

- A three-year transition period for the awarding of tendered contracts; 25% in the first year, 50% in the second, 75% in the third and the balance allocated each year on the basis of performance. If experience warranted, there should be a provision for a 100% contractual system.
- This transition should be mandatory to keep uncertainty in the system to a minimum.
- The Board should assume custody of the grain *only* when it is loaded on board a ship, commonly referred to as 'at spout', in keeping with the Board's role as an export agency.
- The system be structured so that grain companies have maximum flexibility in competing for producers' grain by varying the basis. Interest and storage charges should be paid by the grain companies and form part of the basis since the companies would be responsible for getting the grain on board the right ship at the right time.

The CWB has indicated that it is in favour of establishing a low-cost transportation system and ensuring that producers receive proper market signals through an improved competitive environment or appropriate regulation of market behaviour. However the recommendation that the Board's role in the GHTS be reduced to assuming ownership at spout has produced much consternation from the CWB and its supporters. The CWB has stated that it is strongly opposed to such a role, and that this would negatively impact the CWB's ability to fulfill its mandate. The following is a quote from one of the CWB's submissions to Justice Estey's review:

> *Stripping the CWB of its ability to coordinate the origination of grain and its movement to export position would be devastating for farmers' income levels. The CWB's contract and acreage-based delivery systems and its involvement in rail car allocation are critical to its mandate of maximizing returns to farmers. Removing these functions would hit farmers on both sides of the income statement: Lower revenue from the negative impact on the CWB's marketing ability; increased transportation and handling costs to farmers.* (CWB, 1998c)

More specifically, the Board believes that by not having a primary role in the GHTS, it would:

- have less flexibility to react to market conditions;
- no longer be able to sell as far forward or do so only at much higher costs to cover risks faced by grain companies;
- lose the advantage of forward selling, which the CWB believes to be important in competing with other exporters.

In addition, the Board states that marketing revenue would decline because:

- the CWB's ability to source grain from across Canada ensures customers receive the protein level, consistency and uniformity they require. Grain companies would not be able to provide this level of service because they would be limited by the volume and protein levels in the areas from which they source grain. Over time this would negatively impact Canada's quality reputation and translate into lower returns for farmers.
- the additional value the CWB creates by blending protein at terminals would accrue to grain companies instead of the pool accounts.

Finally, transportation and handling costs would increase due to:

- an increase in tendering costs as the crop year progresses;
- the possibility that producers could see a different return for the same quality of grain dependent on location and timing of delivery, as the price will reflect more the demand for transportation services and competition between grain companies than the return from the CWB sales program;
- increased competition between grain companies will be in the form of maximizing basis, which will reduce farmer returns;
- less efficiency in the system, as the the CWB's coordination role results in considerable efficiencies in the current system.

In sum, the CWB obviously very strongly believes that its role should not be confined to custody at spout and has put considerable effort into telling not only producers and the industry, but also the Federal Government, exactly what it believes the effects of this change would be.

Mr. Kroeger's recommendation that the CWB tender for movement of its sales, starting with 25% of sales, was implemented for the 2000/2001 crop year. His recommendation that the Board take ownership at spout has not been implemented. The combination of these decisions, along with the end of the previous car allocation system, and the introduction of a flawed (in the eyes of the grain companies and railways) tendering process resulted in an ongoing unprecedented level of mistrust, tension and disagreement between the CWB and the railways and grain companies. The parties were at loggerheads for almost a year, primarily over the terms of the CWB's tenders, but also over what the new car allocation system should look like.

Regardless, the CWB is standing in the way of meaningful change to the GHTS. Many parties, including the grain companies, the railways and some producer organizations believe that there are costs in the system that would be reduced or eliminated under the type of system recommended by Justice Estey and Mr. Kroeger. However, as long as the CWB continues to voice its opposition to this type of system and the change in its role within the GHTS, many of these costs will persist.

We want to convey that for all of the costs discussed here, it is not our intent to imply that there has been a conscious attempt on the part of the CWB to generate any of these costs. Although the Board exists to market grain in an orderly fashion, it has gradually taken a greater role in policy advocacy with producers and government. This has been especially apparent in the current debate surrounding the grain handling and transportation system. Strongly advocating policy is something that the CWB should not be doing, not only because of its powerful position in the market place, but also because it is in business strictly to carry out the legislation and regulation of the federal government, and because it currently has a significant influence on the federal government. The past actions and historical attitude towards the domestic market of the CWB, combined with its current involvement in policy advocacy and influence with the federal government means that it is, however, responsible in large part for maintaining the status quo, and the costs and inefficiencies associated with the status quo.

4.3 Methods For Estimating Costs and Benefits

Following from section 4.2, the following describes the methods used to estimate the costs of the CWB. The plethora of past studies that have been done on the subject are the source of these cost estimations. Hence the literature is reviewed and authors' methods are explained, along with ours. Note that the estimation of benefits of the CWB has been discussed in Section 4.1.

Varietal Development

There have been several studies conducted on the issues of varietal development, varietal registration and grains research and development over the past two decades. The results of the studies discussed below have been used here as the basis for assessing costs in this area. In 1982, the Canada Grains Council analysed world wheat markets and found that there was a growing market for medium quality wheats. This meant that the CWB's focus on selling high quality was costing producers money, because high quality wheats have relatively low yields and not all areas in western Canada are best suited to growing it. Another study that analysed the same question was done by Henning (1986). He evaluated the changes that would result from less emphasis on Canadian hard red spring wheat varieties in export sales and more emphasis on medium quality varieties. He found that such a shift would increase export earnings significantly. Ulrich, Furtan and Schmitz (1987) also examined this and concluded that because higher yielding wheats had not been adopted, prairie producers were losing out on millions of dollars in income each year. Their argument as to why these wheat varieties had not been adopted was the same as the previous two studies - the CWB's concentration of marketing efforts on high quality wheats rather than the expanding markets for medium quality wheat. The authors indicated that the CWB could sell medium quality wheat into the same markets and at the same prices as the equivalent American or Australian wheats.

Carter, Loyns and Ahmadi-Esfahani (1986) investigated the costs of the varietal licensing system with regard to Canadian wheat exports. Their calculations indicated that the regulation associated with varietal licensing results in a significant cost to producers. Studies conducted with regard to barley varietal regulation include Gibney and Furtan (1983) and Ulrich, Furtan and Schmitz (1986). The latter study found that the introduction of new barley varieties was skewed towards malting varieties and away from higher yielding feed varieties, resulting in costs to not just prairie producers, but society in general.

Carter and Loyns used the midpoint of the Ulrich, Furtan and Schmitz (1987) estimate of annual losses over a 12 year period to identify a nominal cost. Since the CWB is not entirely responsible for this cost, the authors allocated a portion of the total cost to the CWB.

CWB Administrative Costs

It has been argued that the full value of CWB administration costs represent an unnecessary cost to producers (Carter and Loyns, 1996). However, this is only true if the CWB ceases to exist entirely. Since this is not likely to happen, there will still be some CWB administration costs applied to the wheat and barley revenue pools. It was discussed previously that CWB administration costs more than doubled over the period 1998/99 to 1999/2000, while the amount of grain sold has remained relatively

unchanged[9]. This leads us to believe that the CWB's administration costs are higher than they should be. This belief is further strengthened by the fact that the Australian Wheat Board reduced its administration costs over the same period, and by the fact that similar costs at the grain companies have not increased at the same rate. We estimate that CWB administration costs should, at a minimum, be 25% lower than current levels. A reduction of this level still puts costs above the value of 1988/89 administration costs adjusted for inflation to 1999/2000.

Protein/Grade Giveaway

Carter and Loyns (1996) verified the practice of protein giveaway by comparing data from the Japanese Wheat Flour Institute, which measures the protein content of all vessel unloads in Japan, with data from the Canadian Grain Commission, which maintains the same data for all exports from Canada. The results of this comparison indicate that CWB shipments to Japan between 1984 and 1994 over-delivered protein levels by 6/10ths of 1% on average. The same study also estimated over-delivery of protein to all markets for No. 1 and No. 2 13.5% protein wheat to be 0.25%, using the quarterly CGC publication "Quality of Canadian Grain Exports" and protein premiums determined on the Minneapolis Grain Exchange.

The same study also estimated the costs of grade giveaway. The authors estimated that 15 to 20% of No.1 and No.2 wheat could be sold as No.3, given that the volume of wheat exported at these grades exceeded the volume sold to customers willing to pay for them. The average price spread between the grades for the period 1984/85 to 1994/95 was multiplied by the estimated volume of downgraded No. 1 and No. 2 wheat to determine the potential aggregate cost. In turn, this cost was averaged across all exports for the same period to determine a cost/tonne.

Farm Level Costs

The foregone interest cost associated with the almost eighteen month period over which CWB pool return payments are made has been calculated by Carter and Loyns (1996). Their methodology was to compare the payments producers received over the period 1984/85 to 1994/95 with receiving the same payment on January 1 of each crop year, net of CWB interest paid. This study also attempted to estimate the impact on cash flow that arises from the CWB's control of delivery patterns. The difference in effective price for accelerated and delayed delivery patterns over the crop year was calculated. This number is positive for producers who deliver early and negative for those who experience delayed deliveries. Effectively, this is a cross-subsidy within the pool. To some degree, the cash advance program partially offsets of these costs. With

[9]As discussed earlier, it is believed by some in the industry that sales by accredited exporters as a percentage of the CWB's total grain sales have grown over the past decade. If this is true, the amount of grain the CWB sells directly has actually declined.

regard to the cost of farm level inefficiencies arising from poor price signals, Carter and Loyns estimated, very conservatively in their view, foregone profits at 1% of prairie farm cash receipts.

Another farm level cost estimated by Carter and Loyns is that of excess malting barley production. As discussed earlier, the premium on malt barley encourages the production of these varieties at the expense of higher-yielding feed varieties and results in lost revenue for producers.

GHTS

Estimations of the potential cost savings that could be realized by a commercial, rather than regulated, GHTS have been made by Carter and Loyns (1996), Agricore (1999) and the Prairie Farm Commodity Coalition (2000). These savings would be generated through higher efficiency and cost reductions. The sources of these efficiencies and costs have been identified as follows.

- If grain companies were competing to provide the CWB with grain under a tendering process, there would be increased competition between grain companies for producers' grain. Agricore estimated that this would reduce handling tariffs by 5%; the Prairie Farm Commodity Coalition estimated these costs could be reduced by 15%.

- A good tendering process (with the CWB taking control at spout) would get grain to port at a minimum cost as quickly as possible. Ideally, this would be a 'just in time' system, where grain would be sourced from farmers' bins as needed, moved out from the elevator quickly and spend little time, if any, in port terminals. This would result in reduced country carrying charges and terminal storage costs. Agricore estimated that these costs could be cut in half from their current value.

- A more efficient system would allow grain companies to generate additional premiums from more blending opportunities that emerge through a less congested elevator system, which could be passed back to producers.

- A well-structured tendering system would result in clear delineation of accountability and liability, and a system of penalties and rewards. This would ensure the right grain gets to the right place at the right time and therefore should reduce demurrage costs significantly through greater levels of accountability and competition.

- Increased use of multi-car blocks to move grain from the country to port would result in a more efficient use of the system for both the railways and the grain companies. Since freight rates for multi-car blocks are lower than rates for single cars , this would also mean lower overall freight rates for producers. The implementation of a revenue cap on the railways for the 2000/2001 crop year

partially addresses the potential for reduced freight rates. However, further rate reductions would likely occur under a fully commercial system where the CWB is no longer the shipper and takes custody of grain at spout.

Net Interest Benefit

A net interest benefit accrues to the pool accounts due to the fact that the interest rate the federal government charges the CWB is lower than the rate the CWB charges its customers on credit grain sales. These credit sales are guaranteed by the Federal Government, therefore the CWB does not need to make allowances for credit losses and benefits from the difference in interest rates each year. Although credit losses are not reflected in the pool returns, any such losses are borne by all Canadian taxpayers. This benefit may seem to be trivial, however it is worth tens of millions of dollars annually and is often greater than the value of CWB administration costs.

5.0 CALCULATION OF COSTS

This section contains the outcome of the framework and methods presented above in section 4.0.

The dollar value of the costs estimated as described in Section 4.3 are detailed in Table 5.1.

Table 5.1: Estimated Costs of Inefficiencies

Producer Cost Item	**Wheat** ($/mt)	**Barley** ($/mt)
Varietal Development	$3 to $5	$3 to $5
CWB Admin Costs	$0.70	$0.70
Protein Giveaway	$1.60	n.a.
Grade Giveaway	$1.25	n.a.
Opportunity Interest Cost	$.60 to $1.60	$.10 to $.60
Delivery patterns	($2.60) to $2.60	($1.80) to $1.80
Production Inefficiency	$4	$4
Excess Malting Barley	n.a.	$1 to $3
GHTS (Cost Reductions)		
Handling Charges	$1.25 to $5	$1.25 to $5
Country carrying charges and terminal storage	$2.35 $2.39 (durum)	$3.63 (feed) $0.29 (malt)
Demurrage	$0 to $0.95	$0 to $1.67
Freight Rates	$0.47	$0.47
TOTAL	**$15.22 to $22.96**	**$10.81 to $24.07**

The value of the net interest benefit in 1998/99 was $2.05/t for durum, $4.15/t for wheat, $22.34/t for feed barley and $2.24/t for designated barley. This interest benefit was a result of accounts receivable for credit sales of all grains totalling $6.875 bil, which as discussed earlier is a sovereign debt, rather than debt the CWB is responsible for.

As a result of the foregoing, with the exception of feed barley, these results indicate a net cost to producers.

6.0 SUMMARY AND CONCLUSIONS

This report has four major components. Section 2.0 describes the changing nature of the grain markets for Western Canadian grains, the changes that have been made by and to the Canadian Wheat Board, and the feedback we received from participants in the Canadian grains based value added industry. In Section 3.0, the grains based value added industry in Canada is compared to the industry in the US, and comparisons are also drawn between Ontario and Western Canada. As well, comparisons are drawn between the processing capacity of the northern tier states and Western Canada for wheat and barley. This section also examines what the grains based value added industry in Western Canada could look like, if certain changes are made to the grain marketing system. Section 4.0 contains a discussion of the literature regarding the economic benefits of the CWB, and the framework for determining the net benefit of the CWB - the nature of past and current costs in the grain marketing system in Western Canada. Section 5.0 calculates the value of these costs to producers. The following briefly summarizes the findings in these sections.

- The grain market is changing and increasingly requires good vertical coordination, not horizontal control.
- Resistance by the CWB to change continuously saps energy from entrepreneurs and ties up the industry in studies, committees, and arguments.
- A majority of producers, who quite likely represent a significant majority of the grain produced in Western Canada, clearly prefer a voluntary organization.
- Other mandatory organizations in Canada that have moved to a voluntary status have actually become stronger marketing organizations as a result. Early evidence from Australia suggests the same there.
- Investment in value adding of wheat and barley based industries in Western Canada lags the US and Ontario. It also lags the equivalent industries in the US northern prairies, while investment has been very strong in the western Canadian oilseed and oat processing industries. There are early signs of rising investment in the Australian industry as their grain marketing system is deregulated.
- The CWB's cost of administration doubled over ten years, while the amount exported remained essentially constant and total grain production fell. During this time, most private sector organizations were under pressure to reduce their cost of administration.
- In addition to the cost of administration, it would appear that prices are established for domestic end users at prices which are at or near the "import ceiling" relative to the US market. This method of pricing could be adding as much as $30/tonne to the price end users pay for wheat. Therefore, Canadian end users lose the advantage of Western Canada's export position for raw grains. By itself, this has a huge dampening effect on investment in value adding activities in Western Canada.

- The estimated system costs of the CWB are extremely high, ranging from $15.22 to $22.96 for wheat and $10.81 to $24.07 for barley, before net interest earnings.
- By 2010, the grains based value added industry in Western Canada could be worth between $1.4 billion and $2.87 bil and employ 12,500 to over 25,000 people, if changes are made to the grain marketing system that provide incentives for value added investments.

Based on previous studies, the economic arguments in favour of a mandatory board are that it can exert market power in the export market and it provides price pooling, which reduces producers' price risk. We do not believe that these arguments hold up in the real world of grain marketing.

The first of these arguments is not logical based on the structure of the world market where there are many sellers of grain and many buyers of grain, many of whom tender on a specification basis. To argue that one Canadian seller can exert some sort of monopoly power when it is competing with a range of private companies and cooperatives from other countries seems curious, and suggests that international buyers are not overly smart or well informed. As Veeman (1998) has argued, any premiums that may be garnered in the international market are likely to be quality premiums, i.e. not necessarily the result of the CWB's monopoly or its sales and marketing efforts. Moreover, it would appear that any premiums are more than offset by costs in the system, especially between the producer and the buyer of their grain. With regard to the second argument, price pooling is of no value to producers who want to differentiate their products, take responsibility for their own marketing (as many now do with non-Board grains), and Veeman argues that pooling can likely be done, for those who want it, on a voluntary basis with appropriate contract provisions.

Ironically, the CWB **does** exert market power in the domestic market, where it is the only seller of Western Canadian wheat and barley for human consumption. This market power allows the CWB to extract a price premium from domestic processors of wheat and barley, which is a disincentive to investment in the value added industry in Western Canada. Reducing or eliminating this price premium charged to the value added industry would benefit producers in several ways. Increased sales to the domestic market could replace the lowest priced export sales, increasing the pool price. Growth in the domestic value added industry could also result in greater demand for specific quality characteristics and IP products, which would mean more premiums for producers. Finally, more value added activity would create jobs in rural areas.

It seems logical, therefore that a voluntary CWB would benefit both producers and the Western Canadian grain based value added industry. Producers would realize lower costs and higher returns, while the value added industry would realize greater investment that in turn would create a significant number of new jobs. Not only does it seem logical on economic grounds, but also on political grounds since there is growing evidence that a majority of prairie producers want a voluntary Board. Given this

growing support and concerns about “Western alienation”[10], one would think that the writing is on the wall and that it is written very clearly.

[10]See Don Barron’s new book, Jailhouse Justice, Oracle House, Calgary, 2001 for a clear attempt to link the CWB as an instrument of Eastern Canadian domination of the West.

APPENDIX
Data for Figures 3.1 to 5.1

Data for Figure 3.1
Total Value Added in the Grains Based Manufacturing Sector, Canada and the United States

Billions of Canadian Dollars		
YEAR	**Canada**	**United States**
1981	1.32	16.48
1982	1.48	18.48
1983	1.58	19.61
1984	1.67	22.24
1985	1.88	25.74
1986	1.95	28.04
1987	1.94	28.94
1988	2.11	28.99
1989	2.34	28.13
1990	2.52	29.22
1991	2.63	29.92
1992	2.77	34.68
1993	2.91	39.12
1994	3.02	44.32
1995	2.98	45.95
1996	2.98	42.40
1997	3.13	45.34
1998*	3.52	50.35

*Values calculated using SIC data to 1997 for Canada and the U.S. NAICS data used for 1998.
Source: Canadian Annual Survey of Manufacturers, United States Annual Survey of Manufacturers.

Figure 3.2
Grains Based Value Added per Employee, Canada and the United States

Thousands of Canadian Dollars		
YEAR	Canada	United States
1981	38.57	63.00
1982	44.16	72.80
1983	47.48	79.80
1984	50.42	90.29
1985	55.51	104.75
1986	56.82	118.94
1987	57.80	118.32
1988	61.00	110.62
1989	66.55	110.51
1990	71.53	117.68
1991	78.45	120.13
1992	80.72	133.37
1993	87.10	148.12
1994	89.59	167.31
1995	92.17	173.53
1996	90.78	161.89
1997	95.33	170.98
1998	102.91	191.25

Source: Canadian Annual Survey of Manufacturers, United States Annual Survey of Manufacturers

Data for Figure 3.3
Grains Based Value Added, Western Canada and Ontario

Millions of Canadian Dollars		
YEAR	WEST	ONTARIO
1983	336.784	802.311
1984	340.619	880.075
1985	329.127	1,057.329
1986	330.725	1,093.074
1987	328.388	1,057.718
1988	367.11	1,225.393
1989	390.964	1,428.386
1990	442.534	1,518.580
1991	468.095	1,560.447
1992	487.061	1,665.769
1993	506.028	1,700.858
1994	523.925	1,808.233
1995	515.079	1,850.024
1996	502.427	1,898.390
1997	630.129	1,897.854

Source: Canadian Annual Survey of Manufacturers

Data for Figure 3.4
Grains Based Value Added per Employee, Western Canada and Ontario

Thousands of Canadian Dollars		
YEAR	WEST	ONTARIO
1983	43.02	55.08
1984	44.27	60.36
1985	43.65	68.60
1986	44.19	69.26
1987	44.97	67.79
1988	48.95	75.37
1989	50.85	82.35
1990	54.90	93.24
1991	61.71	98.60
1992	60.40	100.88
1993	62.53	107.48
1994	64.46	111.90
1995	64.08	116.07
1996	70.65	111.37
1997	82.49	114.27

Source: Canadian Annual Survey of Manufacturers

Data for Figure 3.5
Vegetable Oils Total Value Added, Canada and the United States

Millions of Canadian Dollars		
YEAR	Canada	United States
1981	129.24	1,394.44
1982	56.53	1,185.74
1983	52.99	1,542.98
1984	84.08	1,168.02
1985	117.71	1,330.14
1986	121.25	1,340.14
1987	122.75	1,592.64
1988	186.40	2,142.16
1989	126.94	1,859.19
1990	139.45	2,103.23
1991	131.69	1,724.20
1992	201.59	1,956.92
1993	172.26	2,440.33
1994	329.87	2,930.33
1995	306.33	3,315.42
1996	324.82	2,483.11
1997	438.09	2,888.72
1998	383.1	2,929.34

Source: Canadian Annual Survey of Manufacturers, United States Annual Survey of Manufacturers

Data for Figure 3.6
Vegetable Oils Value Added per Employee, Canada and the United States

Thousands of Canadian Dollars		
YEAR	**Canada**	**United States**
1981	84.74	82.51
1982	37.58	77.00
1983	39.48	114.29
1984	65.23	93.44
1985	97.36	110.85
1986	115.26	114.54
1987	113.66	151.68
1988	166.73	207.98
1989	114.15	189.71
1990	143.91	202.23
1991	137.75	181.50
1992	221.04	182.89
1993	189.51	228.07
1994	345.77	276.45
1995	301.51	321.42
1996	318.45	248.31
1997	414.86	279.83
1998	369.08	302.12

Source: Canadian Annual Survey of Manufacturers, United States Annual Survey of Manufacturers

Figure 3.7
Potential Total Value Added, West

Millions of Canadian Dollars			
YEAR	Actual	ON Absolute	12.36% Growth
1989	390.96	441.83	412.48
1990	442.53	516.55	463.47
1991	468.10	591.27	520.75
1992	487.06	665.99	585.12
1993	506.03	740.71	657.44
1994	523.93	815.43	738.70
1995	515.08	890.15	830.00
1996	502.43	964.87	932.59
1997	630.13	1039.59	1047.86

Source: Statistics Canada, authors' calculations

Figure 3.8
Alternative Forecasted Growth Rates for Total Value Added, West

Millions of Canadian Dollars			
YEAR	**TVA West**	**Canada Veg Oil Growth**	**Ontario Absolute Growth Rate**
	6.47%	**12.36%**	**$74.72**
1989	390.96	390.96	390.96
1990	442.53	442.53	442.53
1991	468.10	468.10	468.10
1992	487.06	487.06	487.06
1993	506.03	506.03	506.03
1994	523.93	523.93	523.93
1995	515.08	515.08	515.08
1996	502.43	502.43	502.43
1997	630.13	630.13	630.13
1998	670.90	708.01	704.85
1999	714.31	795.52	779.57
2000	760.52	893.85	854.29
2001	809.73	1004.33	929.01
2002	862.12	1128.47	1003.73
2003	917.89	1267.94	1078.45
2004	977.28	1424.66	1153.17
2005	1040.51	1600.75	1227.89
2006	1107.83	1798.60	1302.61
2007	1179.51	2020.91	1377.33
2008	1255.83	2270.69	1452.05
2009	1337.08	2551.35	1526.77
2010	1423.59	2866.70	1601.49

Source: Statistics Canada, authors' calculations

Data for Figure 4.1
CWB Administration Costs and Total Grain Marketings 1988/89 to 1999/2000

		Tonnes Marketed				
Crop Year	**Admin Costs**	**Wheat**	**Durum**	**Barley**	**Malt**	**TOTAL**
1988/89	$28,483,006	14,353,863	2,472,519	4,104,490	1,074,488	22,005,360
1989/90	$30,126,784	18,401,822	3,951,019	3,552,714	843,496	26,749,051
1990/91	$32,842,896	24,186,953	3,975,860	4,208,121	1,455,000	33,825,934
1991/92	$35,341,355	21,057,691	3,175,487	2,203,361	1,684,140	28,120,679
1992/93	$36,999,946	23,476,607	3,376,312	3,537,728	918,890	31,309,537
1993/94	$41,310,233	21,302,809	4,031,411	3,044,757	1,727,924	30,106,901
1994/95	$44,022,447	16,820,555	4,970,749	1,337,005	2,260,241	25,388,550
1995/96	$42,473,178	14,352,453	3,973,384	1,267,781	2,549,505	22,143,123
1996/97	$47,424,383	19,756,578	3,882,848	2,440,097	2,402,091	28,481,614
1997/98	$53,712,402	15,201,105	3,937,885	261,960	2,267,423	21,668,373
1998/99	$56,589,000	12,512,726	4,904,639	277,100	1,921,667	19,616,132
1999/2000	$63,713,128	16,427,000	3,976,000	672,000	2,554,000	23,629,000

Source: Canadian Wheat Board Annual Reports

Data for Figure 3.7
Grains Based Actual and Projected Value Added

Millions of Canadian Dollars			
YEAR	Actual Growth	ON Absolute Growth	16% Growth
1989	390.96	429.43	425.85
1990	442.53	491.74	493.98
1991	468.10	554.06	573.02
1992	487.06	616.37	664.70
1993	506.03	678.69	771.06
1994	523.93	741.00	894.43
1995	515.08	803.32	1037.53
1996	502.43	865.63	1203.54
1997	630.13	927.95	1396.11

Source: Statistics Canada, authors' calculations

Data for Figure 3.8
Alternative Forecasted Growth Rates for Total Value Added in Western Grains

Millions of Canadian Dollars			
YEAR	**TVA West**	**Canada Veg Oil Growth**	**Ontario Absolute Growth Rate**
	6.47%	**12.36%**	**$74.72**
1989	390.96	390.96	390.96
1990	442.53	442.53	442.53
1991	468.10	468.10	468.10
1992	487.06	487.06	487.06
1993	506.03	506.03	506.03
1994	523.93	523.93	523.93
1995	515.08	515.08	515.08
1996	502.43	502.43	502.43
1997	630.13	630.13	630.13
1998	670.90	708.01	704.85
1999	714.31	795.52	779.57
2000	760.52	893.85	854.29
2001	809.73	1004.33	929.01
2002	862.12	1128.47	1003.73
2003	917.89	1267.94	1078.45
2004	977.28	1424.66	1153.17
2005	1040.51	1600.75	1227.89
2006	1107.83	1798.60	1302.61
2007	1179.51	2020.91	1377.33
2008	1255.83	2270.69	1452.05
2009	1337.08	2551.35	1526.77
2010	1423.59	2866.70	1601.49

Source: Statistics Canada, authors' calculations.

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