

Container Measures Study: *Issues and Discussion for Proposed Measures for the Grain Monitoring Program*



Introduction

On May 10, 2000 the Government of Canada introduced Bill C-34, which prescribed a number of changes to the handling and transportation of prairie grain. In conjunction with its enactment on August 1, 2000 the government also announced that they would appoint an independent third party to monitor the overall efficiency of the prairie grain handling and transportation system, including the impact of changes on producers, the Canadian Wheat Board, railways, grain companies, and ports.

On June 19, 2001 the Federal Government announced that Quorum Corporation had been selected as the monitor for the prairie grain handling and transportation system. Under its mandate, Quorum Corporation provides the government with a series of quarterly and annual reports that track and analyze the impact of overall changes in the structure of the grain handling and transportation system, the effectiveness of the Canadian Wheat Board's tendering process, commercial relations, the efficiency and reliability of the system, short-term operational performance and producer impacts.

As part of the Federal Government's Grain Monitoring Program (GMP), the need for ongoing supplemental studies was identified in order to enhance and elaborate on the original design. This report constitutes the seventh such supplemental study performed under the GMP.

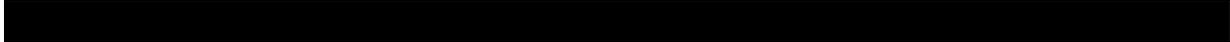
This study's objective is to investigate and provide an assessment of the issues and challenges surrounding the movement of specialty crops to export points and specifically grain from Western Canada in containers in order to develop preliminary options for a measures methodology for the tracking and measurement of the movement of regulated grain in containers. Further, this study also examines the costs and benefits of modifying the Grain Monitoring Program (GMP) to include reporting on container movements of regulated grain and expanding measures on the movement of specialty commodities.



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Executive Summary

The past 15 years have seen significant growth in the international container markets both in Canada and around the globe. Throughout that period of time, and in conjunction with the growth of the international markets, North American railways have expended considerable effort on growing the Canadian container markets by offering shipping lines various incentives such as enhanced rate structures, free storage and low and no cost repositioning of containers (in order to readily access freight for a return export move). These actions have had considerable success and the container trade into Canada has grown substantially in the past 10 years – 183% increase through the Port of Vancouver and 56% increase through the Port of Montreal as an example.

Shipping lines realize the most significant portion of their revenue from Canadian trade on the inbound movement of manufactured goods and consumerables (predominantly from the Asia Pacific markets). They have, in turn, sought opportunities to fill the emptied equipment with return freight movements at a price sufficient to recover their variable costs. These “backhaul” rate structures have provided an opportunity for the producers of Canadian resource based products (such as specialty crops) to utilize international shipping containers in order to reach markets that would otherwise be economically impractical. Ten to fifteen years ago, empty containers in North America were in surplus supply and Canadian shippers, many who are located in the west, gained access to empty containers with relative ease. This resulted in western Canadian producers gaining access to markets not previously enjoyed and with the benefit of generous margins and strong potential for growth.

During this growth period, the supply of empty containers became more and more constrained and the industry developed the growth of container stuffing businesses in both Vancouver and Montreal, as containers are more readily available there. The movement of both bagged and bulk product in railway equipment (in trailers, box cars and hopper cars) and the subsequent transloading to international containers at port became a popular option for prairie shippers. It has, in fact, become a preferred method for some shippers due to the increased availability of containers.

Recently, and in the past two years in particular, the container sector of the transportation industry has grown and matured. The approach taken by the service providers, railways in particular, has changed. Containers are now commonly in short supply in many centres in western Canada. Railways are taking actions to control capacity in the management of train capacity and their storage yards through rate action as well as the setting of limits on the numbers of containers a shipping line can store at specific inland container terminals. The prevalence of free or preferential rates for the repositioning of empty containers is far less than in the past and a move to scheduling and pre-booking of containers on trains is becoming the norm.

While the challenge of shipping from source locations continues to mount, the issues faced by the companies who elect to load at port are no less demanding. The railways standard operational approach to grain movement is through large block or unit train, bulk type movement, while movements of product intended for transloading at port will typically move in small, 2-10 car blocks. Delays in transit are often experienced, as small block movements do not fit well with current railway methods and practices. Often times the railways are reluctant to supply cars to shippers who intend to ship to transload operations in Vancouver or Montreal if they believe there could be a risk the cars will be delayed in unloading at destination.

The consequences of these changes are an overall increase in the logistics cost. This has the effect of changing the economics of export movements in containers from Canadian source loading origins, the prairies in particular. The attendant narrowing of profit margins and constraints that come from a general lack of transportation capacity have dampened the hopes of what was a popular growth sector in the Canadian grain industry, and in the opinion of many, threatened Canada's ability to continue holding a dominant growth position in export markets.

Although the causes to this situation may seem simple, constraints to a quick solution are many and this paper discusses several of them. They range from those of a regulatory nature to operational and process related, to the issues surrounding the capacity of the transportation network itself. Many look to government to effect swift action through a form of regulatory change (e.g. changes to the cabotage regime). However, those changes cannot, on their own, impact the actions taken by railways and shipping lines in their operational approaches to this sector of the market. This study also discusses the several process related challenges that exist, some due to the lack of harmonization or actual absence of formal processes (within and amongst the industry stakeholders).

The objective of this supplemental item is to develop preliminary options for a measures methodology for the tracking and measurement of the movement of regulated grain in containers, expanding the measures for specialty crops within the Western Grain Handling and Transportation System. The basis of these options will come from investigating and providing an assessment of the issues and challenges surrounding the movement of specialty crops to export points and specifically grain from Western Canada in containers. The measures envisioned by the study team fall into three categories - container movement, availability and velocity – each representing a function directly relevant to the challenges faced by the industry and offering an objective base of knowledge to foster improvement in the sector's performance.

The challenge of these measures recommendations comes in acquiring the data needed to produce them. That challenge is seen in three areas:

- 1.) There exists little commodity specific data relative to operational measures in the industry today. This partially stems from the absence of any standard approach to data management in the container industry (save that which forms normal customs declaration requirements) and partly from the approach taken by the service providers to the containers themselves.
- 2.) In North America, railcars and domestic trailers and containers have strict protocols, standards and defined control processes in place for the tracking, interchange, and management of movement. International containers however do not have these same standards applied and as such, have a lower value placed on them in the logistical chain. The impact of this approach can be seen in both the operational tracking and management of the containers and therefore manifests itself in many aspects of the data management as well.
- 3.) Defining how the industry is changing and how we monitor those changes.

Further, some of the data integral to the measures suggested is best sourced from the railways, which have shown a great deal of reluctance in the past to supplying the Grain Monitoring Program with data.

The feedback from the stakeholder community indicates that there is a demand for expanded measures in the GMP to include both containers and specialty crops. The recommendation of the study team is to proceed with the next step of developing the measures methodology, and detailing data sources with the objective of providing the Government with adequate detail on the effort required to develop an expanded measures program and the prospective value that program would bring the industry.





Section 1: Overview

1.1 Background

The past fifteen years have seen a significant increase in the proportion of specialty crops produced by western Canadian farmers. In 1990 this total amounted to approximately 12% (see figure 1). By 2001 it had increased to 22% before falling back to 14% in 2004. The drivers for these changes are many, but there can be no doubt that they have had an impact on Grain Handling and Transportation System (GHTS) logistics chains.

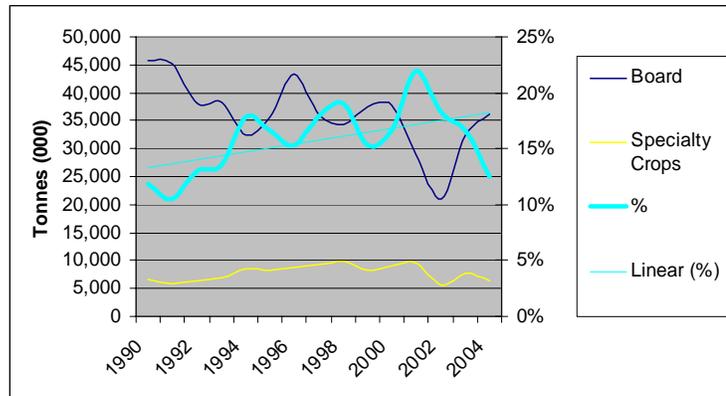


Figure 1: Total Western Canadian Production – 1990 to 2005

Similarly, in 1990 the export of western Canadian agricultural commodities in containers represented less than 5% of the total movement. This proportion has been increasing over the past decade to the extent where as much as 14% of all the grain moved through the Port of Vancouver¹ in 2004 was shipped in export containers (See figure 2). While the total volume of movement declined from 13.3 million MT in 1995 to 8.5 million MT in 2003, the volume moved in containers has almost doubled from 0.68 million MT in 1995 to 1.2 million MT in 2003. When only specialty grains are considered, the percentage increases significantly to more than 51% moving in containers in 2003 as compared to 38% in 1995. The St. Lawrence ports have also experienced a similar increase in volume of containerized grain, which climbed to over 700,000 MT in 2003 and totaled almost 10% of all grains moved down the St. Lawrence - more than 34% if wheat is excluded from the calculation².

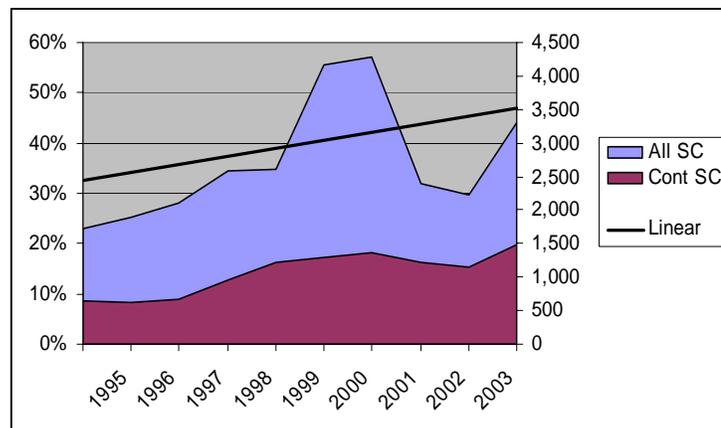


Figure 2: Total Specialty Crop movements through the Port of Vancouver (All vs. containerized)

During this period the container lines and railways have actively pursued the grain markets with the objective of converting specific grains from the bulk to container mode for movement in backhaul service, particularly when it is moving to Asian and Pacific Rim destinations. Containers are quickly becoming the shipping method of choice for much of the special crops industry where identity preservation, small volumes, bagged products, inability to handle bulk product at destination, etc., better

¹ Source is the Port of Vancouver. The figures used represent calendar year and will therefore not directly match volumes shown in the GMP, which are stated in terms of the crop year.

² Statistical source is Statistics Canada "Shipping in Canada - 2003". The figures used represent calendar year and will therefore not directly match volumes shown in the GMP, which are stated in terms of the crop year.

lend themselves to such a shipping method. In fact, the CWB shipped a substantial portion of its malting barley exports in containers due to favorable pricing when ocean freight rates for bulk shipments spiked recently.

The independent trucker's strike in the Port of Vancouver in the summer of 2005 spotlighted the plight of shippers for grains and special products in containers. Many of the shippers' frustrations pointed to longer standing problems however. Issues such as access to containers for loading on the prairies, railway service to shippers and ancillary charges have been plaguing the special crops industry for a number of years.

Approximately 40% of Canada's special crops exports moves in containers (including those to the US), most of which is shipped first in bulk hopper cars to port facilities for transloading (stuffing). However, processors and shippers would prefer to obtain more containers for stuffing at the commodity's true point of origin on the prairie.

A recent change in course has seen the railways (CN in particular) begin to extract themselves from the business of "inland container storage", by placing limitations on the number of containers a shipping line can store at a terminal and by increasing the storage rates. As a result of the added complexity and costs, steamship lines have shown even greater preference to bypass source loading opportunities in the prairies, particularly when the repositioning of empty containers is required.

In large measure this has compounded the pressures that had already focused loading activities at port positions. However, some shippers will prefer to load at source in order to reduce the amount of handling and thereby retain a level of product quality. Often the pricing of source loaded movement also signals an economic advantage to loading at source. Yet the gradual decrease of available empty containers for source loading has resulted in shortages, and hence repositioning costs. It has also precipitated actions such as the "hoarding" of equipment by shippers. While the port loading alternative comes with the additional handling and added cost of trans-shipping (stuffing), the availability of empty containers is far greater. Conversely, it requires the movement of the product to port, which is usually performed in bulk service and in small blocks (4-12 cars). As the railways view the grain market sector as one that now lends itself to bulk, large block movements, the smaller block movements tend to receive less priority. This results in delays to traffic and inconsistent delivery patterns.

In discussions undertaken for this study, industry representatives revealed that the single greatest challenge facing them is gaining access to the transportation capacity necessary to maintain and grow their business. The lack of adequate and meaningful statistical measures on the movement of containers is also a common source of frustration, particularly amongst the special crops interest groups.

The special crops industry has indicated that a primary concern is the reliability of the transportation and handling system. As with other bulk commodity shippers, their customers demand prompt service. Breaches of contractual agreements have resulted in significant costs to shippers. They recognize that no system is fail proof and that periodic problems or disruptions will be encountered. Such situations are inevitable but better communications between all parties is vitally important if the commercial damages are to be contained.

Many others in the industry, including representatives from the provinces, producer groups and some grain company representatives, have echoed these concerns. Most are looking for

a measurement system that could support a process of continuous improvement (as is the case with many other sections of the GMP).

The issues raised by the special crops groups and the grain trade representatives relate specifically to the challenges, costs and market risks associated with movement in containers. It is broadly acknowledged that the global competitive market often demands that the product be moved by container. Therefore, in order to compete, it is essential that the industry find ways to solve the issues related to container movement so as to remain relevant in this marketplace. Areas of specific concern include: the difficulty in sourcing empty containers; the speed with which they are moved to port position; the speed with which bulk shipments are moved to port for stuffing; the cost impact of the regulatory environment in which they work; the additional costs associated in terminal hours and the freight rates and ancillary charges that are unique to container movement.

It should be noted that the GMP presently limits itself to movements within the confines of western Canada. In Canada, however, there are two primary points of export for these commodities by container – Vancouver and Montreal. It is important to note that movements through Montreal pose as much of a challenge for the shippers of special crops as do movements through Vancouver.

1.2 Study Approach

The primary mandate of the Grain Monitoring Program (GMP) is to measure and assess the performance of the GHTS. This study's objective is to ultimately identify processes by which the movement of grain in containers can be measured. In order to better understand the potential application of such measures, an assessment of the issues faced by the industry was conducted. It is generally understood that the insight obtained from this study would drive any measures program, and that these issues be documented accordingly.

This preliminary step was accomplished through a series of meetings with over thirty stakeholder organizations. As has been the case in past supplemental studies, this approach has proven invaluable. Included in this stakeholder review were producers, special crops processors, grain companies, brokers, shipping lines and the railways. Also included were the ports, port terminal operators and container stuffing operations.

Based on these stakeholder sessions, a set of preliminary measures was developed along with an outline of potential data sources and the challenges that could be faced in the development of the container measures program.

Once the client has reviewed and considered the final report, Quorum suggests that the next steps to be taken to complete a measures program for the movement of grain in containers include the following:

Detailed Data Source Identification and Discussions

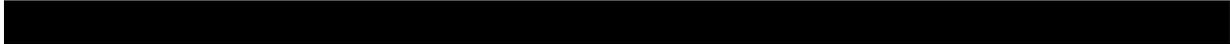
With the data sources identified a draft data protocol would be developed and the data providers approached. From this would come the detailed data formats and transfer protocols.

Detailed Measures Development

This phase would involve the primary system programming and process development, including the detailed methodology development, data integrity testing and measures preparation.

Implementation

This phase would be the final implementation of the program, including testing and report format finalization for inclusion in the GMP base program



Section 2: Industry Structure

The loading of grain in containers is driven primarily by the demand of the buyer to receive the product in smaller lots and in a manner that reduces handling and maintains product integrity. Many buyers of grain, specialty crops in particular, do not purchase in bulk lots (10,000 tonnes or more), instead preferring to purchase 1,000-5,000 tonnes at a time. In addition, their facilities are not physically configured to handle bulk shipments as the commodity generally lends itself to either small lot or bagged movement. Containers are frequently better suited to accommodate such shipments.

There are two approaches to loading and moving western Canadian grain in containers: loading at source or at a port located “stuffing” facility. The driving factor between these two alternatives is the availability of empty containers. While containers were once easily accessible to shippers at inland origins, this is not always the case today and shortages and lineups are now the norm. Conversely, the availability of empty containers at port has provided a significant opportunity to individuals in the container stuffing business.

2.1 Production

Special crops producers and processors are the primary users of containers for export shipments of their products. The producers’ desire to diversify their production into higher value crops, coupled with the end of the Crow Benefit transportation subsidy has spurred the rapid growth in the production of special crops in western Canada in the past 15 years. In 1990, the total production of special crops (peas, beans, mustard seed, sunflower seed, canary seed, lentils and buckwheat) was 1,489,000 tonnes. By 2005, the production of those products, plus new additions to the field (chick peas, soybeans and coriander seed) had increased over 249% to 5,196,800 tonnes.

	1990	2005	% VAR
Dry Peas	264.0	3,009.8	1,074.2
Beans	16.3	121.6	646.0
Mustard Seed	252.3	201.4	-20.2
Sunflower Seed	79.5	89.3	12.3
Canary Seed	193.8	227.2	17.2
Lentils	409	1277.9	212.4
Buckwheat	10.1	4.6	-54.5
Chick Peas		103.9	n/a
Soybeans		61.	n/a
Coriander Seed		8.9	n/a
TOTAL	1,489.0	5,196.8	249.0

Source: Stats Canada

Table 1 – Comparison of Special Crops Production - 1990 vs. 2005 (000 tonnes)

2.2 Marketing - Processing

Producers market their special crops through specialized processors or the primary elevator system, depending on the crop, price offered and producer preference. Production contracts, deferred delivery contracts or forward pricing contracts are some of the options used to secure a market for at least a portion of the production for many products. In the absence of futures contracts, the remainder of the crop is likely to be sold at spot prices upon delivery.

Approximately 100 dealers compete to purchase pulse and special crops in western Canada. These range from small, family owned (Mom and Pop) operations to large integrated grain companies. With many of these dealers having more than one facility, it is estimated that there are over 300 locations available for delivery of special crops.³

³ AAFC, Bi-weekly Bulletin, January, 28, 2005

Section 44 of the Canada Grain Act requires any party conducting business as a grain dealer to be licensed by the Canadian Grain Commission (CGC), unless a specific exemption has been granted. The licensing provisions include requirements that the licensee be bonded at a level sufficient to cover their outstanding liabilities with producers. Although most special crops are marketed through licensed dealers and facilities, there are a number of unlicensed parties dealing with producers. In May 2005, the CGC announced its intention to strictly enforce the provisions of the Act and require that all dealers to be licensed by 1 August 2006.

Producers generally deliver their special crops to a processing plant or elevator by truck. Initial processing requires cleaning and quality sorting of the seed. Secondary processing involves preparing the seed for use by the consumer, whether that is in the livestock industry, birdseed industry or for human consumption. Blending of products may be undertaken for the livestock and birdseed industries. Splitting of dry peas, lentils and chickpeas may be done before dry packaging or further production for use as foodstuffs.

2.3 Bulk and Containerized Rail Shipments

From the processing plant or elevator most special crops move to customer by rail, either in bulk hopper cars, boxcars or inter-modal containers. Feed peas and some food peas, lentils, chickpeas and mustard seed move in bulk hopper cars to either domestic users or to port positions for export. Packaged or bagged products may be loaded into boxcars for transit to market. The balance is mostly shipped in containers.

Canadian National Railways (CN) and Canadian Pacific Railways (CP), as well as some short line railways on the prairie all provide service for the industry. Bulk hopper cars and boxcars are spotted for loading at elevators and processing plants with rail sidings. Empty containers are delivered to railway container terminals, usually in major centers, where shippers pick them up and transport them back to their plants to be loaded with either bulk or bagged products. The shipper then returns the container to the terminal where it is then moved by rail to the final port terminal destination. This loading of containers at prairie points is commonly referred to as “source” loading. This is in contrast with shipping bulk product by hopper car to port position for deliver to a container stuffing facility, where the cars are unloaded and the product trans-loaded into export containers.

2.4 Port Container Stuffing Facilities

The primary ports used for export of special crops from western Canada are Vancouver and Montreal, with Halifax having a smaller focus. Source loaded containers will be delivered by rail directly to container terminals in these port cities. Bulk shipments destined for stuffing into containers at port will be delivered to container stuffing facilities.

At Vancouver and the BC lower mainland, these facilities are largely located in the suburban areas where land values and rents are cheaper



Figure 3: Coastal Containers in Vancouver (a bulk grain stuffing facility)

(Westnav, Agrolink Enterprises Ltd., Big Box Terminals, Western Transloading Corporation, and Fraser Valley Transloading and Distribution). Proximity to other key transportation modes such as DeltaPort and the CN and CP intermodal terminals is an important consideration. Three stuffing facilities handling agricultural products, Coastal Containers, Columbia Containers, and Western Stevedoring are located in the port itself.

Containers have the capability to carry virtually any commodity, including consumer products, food products as well as woodchips and other products typically classified as “bulk”. When an inbound container has been de-stuffed (off-loaded), it is typically sent to a storage yard, where it can be cleaned and repaired if necessary, and stored until needed for re-stuffing. The two largest storage facilities in Vancouver are CIS on Mitchell Island and Delco Containers in Delta. The resulting container distribution triangle between port terminals, container stuffing/de-stuffing facilities and storage depots, is entirely dependent on the trucking services provided by members of the Vancouver Container Trucking Association and a few independent truckers.

There are two container-stuffing facilities at the port of Montreal – Transport Ray-mont and East-Coast Stuffing Facilities. Tealmont Transport Inc., located in Dartmouth, Nova Scotia, provides container-stuffing services for customers at the port of Halifax.

2.5 Shipping Lines

Most of the world’s leading shipping lines service the ports of Vancouver, Montreal and Halifax. They offer varying levels of service from daily to weekly to monthly calls and carry goods to all regions of the globe. There are 19 shipping lines in total that provide container service to and from the port of Vancouver. Ten of these lines belong to the Canada Westbound Transpacific Stabilization Agreement (CWTS), which in conjunction with the Westbound Transpacific Stabilization Agreement (U.S. based), consult and develop consensus for the purpose of fostering commerce, service and stability in transpacific trade.



Figure 4 - CP Container Ship "Aurora"

2.6 Terminal/ Port

2.61 The Port of Vancouver

The Port of Vancouver (VPA) is home to some 25 dockside terminal operations dedicated to the loading of export products into ocean going vessels. As the majority of the traffic loaded on to ships arrives at the port by rail, all these operations are served by at least one railway. (See Appendix 1 for a detailed map of the Greater Vancouver area)

The Port of Vancouver has seen consistent growth in the past ten years, now handling over 79 million tonnes annually (Figure 5). The predominant share of traffic moving through the port is “bulk” (coal, grain, sulfur and fertilizer), Container volume has been growing rapidly and as noted in Figure 6, the proportion moving in containers has increased from less than 4% ten years ago to over 14% in 2005.

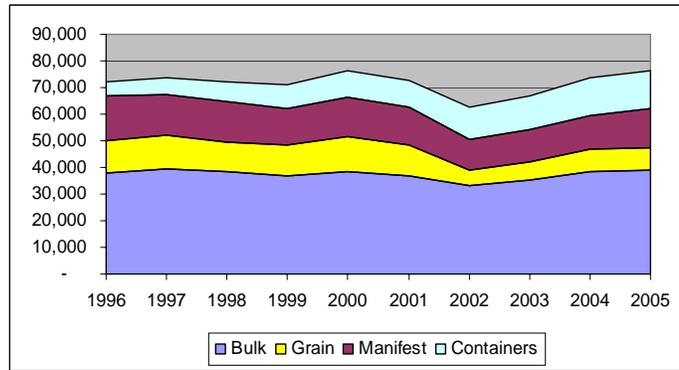


Figure 5 – Tonnes through the Port of Vancouver, by type of train service

Two authorities act as landlords for the container terminal facilities. These are the Vancouver Port Authority and the Fraser River Port Authority.

In the Vancouver inner harbour area are Centerm and Vanterm, which unload and load container vessels. The container terminal of DeltaPort is located at Robert’s Bank, off the coast at Tsawwassen. Both Vanterm and DeltaPort are operated by TSI Terminal Systems Inc., while Centerm is operated by P&O Ports Canada. The Fraser Surrey Docks, located on the Fraser River in New Westminster, BC also handles international shipping containers.

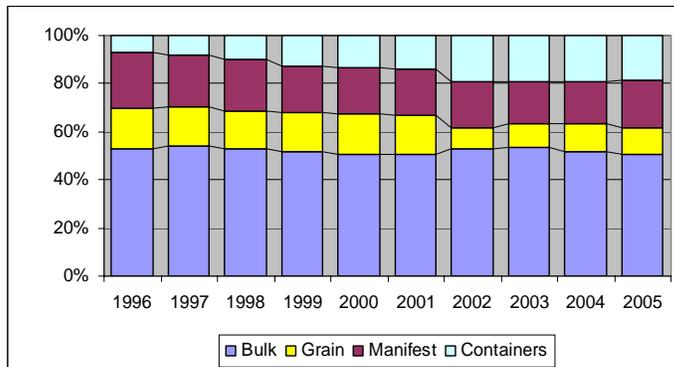


Figure 6: Distribution of rail traffic through Port of Vancouver – 1996-2005

2.62 The Port of Montreal

The Port of Montreal has enjoyed overall traffic growth of 27% in the past 10 years, the majority of which has been in containerized movements. The total number of containers moved through the Port of Montreal has more than doubled over this period. It is the second largest point of export for containerized grain in Canada.

There are four container terminals at The Port of Montreal: Bickerdike Terminal, Racine Terminal, Maisonneuve Terminal and Cast Terminal. (See Appendix 2 for a detailed map of the Port of Montreal)

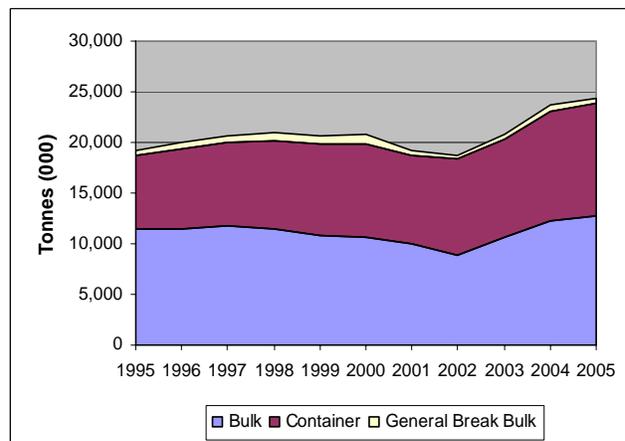


Figure 7: Total traffic through the Port of Montreal

Despite the growth in total volumes at the Port of Montreal, the volume of grain that moves through the port has decreased over the past ten years, reflective of the shifts of Canadian grain sales to Pacific Rim/ Asian markets and a reduction in European sales over the period. While overall movements of grain through the east coast have diminished, the volume of grain in containers has been climbing steadily since 2000, returning to the levels realized in the mid 1990's. This reflects a resurgence of movement in the specialty crop sector and a focus on Mediterranean and Northern African markets.

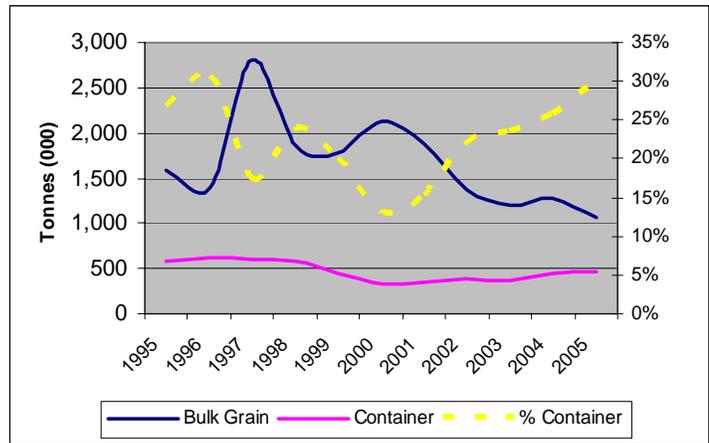


Figure 8: Trend in grain traffic through the Port of Montreal: 1995 – 2005, Containerized vs. bulk.

2.63 The Port of Halifax

The Port of Halifax has two container terminals: South End Container Terminal and Fairview Cove Container Terminal. While they have the capability of moving grain, we found only a small number of movements using this routing. As is the case with bulk grain, the length of rail haul from origin, as compared to the other competitive ports (Montreal and Vancouver), places Halifax outside an economically competitive reach.

2.7 Railway Operations Management

Railways categorize train movements into essentially three segments: bulk (large-block or unit-train movements of commodities such as grain, coal and fertilizers), manifest (small block, merchandise and consumer items) and Intermodal (containers and trailers). While railways now view the movement of grain in hopper cars as large block bulk operation, this was not the case some 25 years ago, when grain moved in smaller, 2-18 car blocks. At that time grain was essentially treated in the same fashion as other manifest traffic (forest products, chemicals, box car etc.) The consolidation of the country elevator network and advent of high throughput elevators helped to stimulate the move to large block bulk movements for the railways. The majority of the grain that moves today (75-80%) is shipped to export points in unit trains. The challenge for specialty crops is that many of these commodities are sold in 1,000 to 5,000 tonne lots –



Figure 1 – CP Intermodal train in the Canadian Rockies

shipment sizes that are not conducive to unit train or large block movements and often conflict with the railways' desired approach to managing the flow of grain traffic into and out of port terminals.

Central to this is the necessity to maintain a balance between inbound and outbound traffic levels so as to ensure congestion does not occur⁴.

This is especially critical in the case of flows to and from the ports as most port facilities are the “end of the line”, and the route in is also the route out (a closed loop). Although this is the case with all ports in western Canada, it is particularly important at Prince Rupert and Vancouver where the ports' rail infrastructure has a finite capacity, and is susceptible to the absolute volume of traffic as well as the time that traffic remains in the terminal.

This means that every aspect of the movement must be managed; the allocation of cars; the design and size of trains; the arrival and departure times of trains; the dwell time⁵ of cars in the terminal; the unloading and release of rail cars and the flow of cars into and out of the destination terminal.

The ramifications of not managing these flows properly through such important terminals as Vancouver or Montreal are significant. Using Vancouver as an example, it is estimated⁶ that the average railcar will spend 48.9 hours in the terminal (between its arrival, unloading and departure). Every action or event that extends the time cars spend in the terminal impacts the number of cars that are in the terminal. The graph shown in Figure 10 depicts the car population in the terminal will grow proportionally, in this example by over 49%, by adding an additional 24 hours.

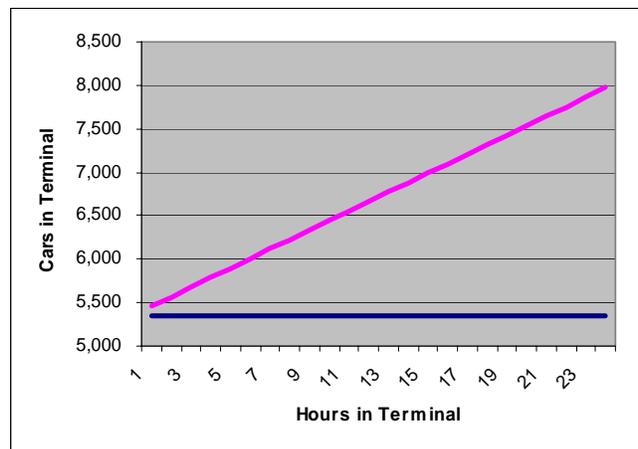


Figure 10 - Proportional increase in terminal railcar population (fix axis and move down)

In a terminal such as Vancouver, where the structure of the flow is essentially a closed loop, railways will manage in a manner that minimizes the risk of congestion as much as possible. This manifests itself through the control of car allocation to specific terminals or operations they consider at risk of extending the average terminal dwell time, congesting interchanges or using an exceptional amount of yard storage. This has been the experience of some specialty crop shippers as the railways will sometimes restrict the numbers of cars allocated if they are to be directed to specific port terminal or reloading operations that they believe are slow in unloading.

⁴ The theory supposes that flows would be fluid and equal, and hence the reference to pipeline management.

⁵ Dwell time refers to the length of time a rail car sits in a railcar awaiting the next activity (usually spotting for load or unload).

⁶ Quorum performed an analysis using a combination of GMP measures for car cycles, Association of American Railways (AAR) yard dwell reporting and Port of Vancouver traffic statistics to estimate the average car population and dwell time for cars in the Vancouver terminal. This analysis was performed solely for the purpose of portraying the impact of increased dwell time on the port and railway operations as discussed above.

Section 3: Business Models

As stated in Section 2, the loading of grain in containers is driven by demand to receive product in smaller quantities. In some cases the buyer has logistical issues such as a lack of bulk storage or other physical restriction.

Nonetheless, either of the two approaches (port or source) to loading and moving western Canadian grain in containers is largely tied to equipment availability and economic merit. These considerations in turn drive the decisions of the shipper as well as the shipping line supplying the equipment.

The decision on which approach is used is also dependent on the product's sensitivity to quality issues. Some products may run through a value added process and be bagged at the origin, while some product is moved in a less refined state and is loaded straight to a container in a bulk fashion. In either case, the choice of alternative loading locations is a determining factor in the economics of the movement.

This section of the report will review the development of these two primary business models, their economic differences and the challenges they present to the industry as a whole.

3.1 Background

The availability of empty containers at prairie locations is the primary concern of most shippers. However, when viewed from an historical perspective, a series of issues can be seen to have shaped these stakeholder concerns.

Some twenty years ago (mid 1980's), the container industry had found its footing and was beginning to grow. In order to facilitate further growth, the container shipping lines and the railways brought on additional capacity as a means of attracting shippers to the Intermodal option. Shipping lines viewed the movement of traffic from inland Canadian origins as "backhaul opportunities"⁷ and priced accordingly. In addition, railways provided low cost container storage at their terminals, and attractively priced repositioning fees if a shipping line wished to position equipment for the purposes of securing incremental traffic. In combination, these actions spurred several industries to reach international markets they may not have otherwise been able to serve⁸.

Given the expanding trade with the Pacific Rim (predominantly China), the remarkable growth seen in world container movements over the past few years have prompted the railways to change their approach to the container industry. There were definite actions taken to signal these changes: significant increases in rates, the reduction of "in terminal" storage space available to shipping lines, and the move to operational control models such as a slot reservation systems. In addition to the economic and operational impact, these actions have reduced the availability of empty equipment for inland loading, and heightened the reluctance of shipping lines to the potential repositioning of this equipment.

⁷ In most freight movements, regardless of mode, a cycle will have a dominant or head haul direction. The head haul direction is typically the direction with higher demand and that obtains a higher yield (price). The back haul will typically be priced so as to obtain (at least) the variable cost of movement and be directed so as to return the equipment to a position that allows a head haul movement at the earliest opportunity.

⁸ Most of the traffic moving from inland origins in Western Canada is relatively low value commodities by comparison to the traffic moving in the "head haul direction from the Asian Pacific rim countries (i.e. grain vs. electronics). As such, the ability of the low value commodities' price to economically support a freight rate that assumed a fully allocated cost structure may not be feasible.

3.2 Source Loading

Source loading at the inland origin is most often the preferred alternative of shippers, depending on the availability of equipment, the proximity to a container terminal, and the subsequent cost of trucking to and from the terminal.

The process by which a shipper obtains an export container for source loading is through the shipping line they plan to use. A shipper would start the process of securing an empty container by requesting a rate from the shipping line. Once a rate and the commercial terms of movement have been established, the shipping line will arrange to have empty containers



Figure 9 – Source loading of bagged grain (Simpson Seed, Moose Jaw)

positioned at the nearest container terminal for the shipper to pickup and load⁹. If the shipper has a pre-existing relationship with the shipping line, with an established rate structure between the origin and destination, the process may be as simple as requesting the empty containers to be positioned.

The process of securing the container at the inland (railway) container terminal is not as clear. As shipping lines do not allocate specific pieces of equipment to specific shippers, the allocation process is left in the hands of the clerical staff at the railway container terminal. Railway staff is only provided with a list of shippers

and their allocation. While individual shipping lines may have allocation arrangements in place with the individual railways or terminals, a formal industry process does not exist. (This is discussed in greater detail in Section 4 below.)

Once a container has been secured at the inland container terminal, the shipper is responsible for transporting it to the loading location, loading the container and delivering it back to the railway container terminal. Next the shipper must secure a bill of lading from the shipping line (the shipping line is shown in the railway documentation as the shipper and consignee of the container and the goods). The container is then transported to the shipping line's associated port terminal operator for loading to the container vessel and onto its final destination. While this will typically move through to the port terminal with few exceptions, the risks of delay still exist. The ramifications of these delays are portrayed in the Port Loading scenario that follows.

⁹ The commercial terms of an export container movement will include the total cost of freight, from the origin container terminal to the point of delivery. Each arrangement will be different, with some being inclusive of the container delivery at destination and some seeing this cost absorbed by either the shipper or consignee. It may also be necessary for the shipping line to pay the railway for repositioning, a cost that could be added to the commercial terms of the arrangement. The arrangement may also include the terms and timing of delivery, when demurrage may start to accrue and where the container is to be delivered once the lading has been discharged.

3.3 Port Loading

The advent of port loading came as a result of increased demand for, and the subsequent shortage in supply of empty containers at inland locations. With a greater supply at port locations (Vancouver and Montreal specifically), re-loaders have been readily able to access the empty containers needed. However, this means the product must be first loaded at inland origin and then transported as either a conventional bulk load (covered hoppers) or a domestic trailer/ container (bagged products).

In the case of a bulk movement in a covered hopper, the shipper must have a trackside loading operation that can accommodate the safe and efficient loading of a standard top loading covered hopper. Most licensed shippers of grain in western Canada have some form of elevation and can easily provide for the loading of these commodities to rail cars.

Establishing the logistics for the movement in this alternative is a greater challenge than with a source loaded movement. The port loading alternative places the responsibility on the shipper to plan and coordinate all activities between the railway, port loading operator and the shipping line in order to minimize potential delays.



Figure 10 – Port Transloading of Bulk grain (WestNav, Vancouver)

The shipper will place an order for a covered hopper with the railway, and then ensure adequate product is in position for the loading of the car when it is spotted. The spotting of the empty hopper is the first step in the sequence where delays can be incurred. Railways may have to wait for a grain run to be filled, which can result in weeks of delay. Similarly the railway may “short” the order, and the shipper may be forced to make weekly requests for the order until it is filled.

Once a car has been spotted, loaded and then picked up by the railway for furtherance, it gets prioritized in the queue for movement to destination. As either a single car or small block movement, it can sometimes be given a lower priority or overlooked altogether. This too renders it susceptible to delay. This is a common concern echoed by shippers who use this approach, one frequently relayed to the study team during the stakeholder sessions.

Once the car reaches its destination port, the lading is then transloaded into containers at a container stuffing facility. Again, coordinating the movement of the containers to the stuffing facility and the port terminal in a timely fashion for loading to its specific ship is essential. The commercial risks are many and carry high costs:

Event	Ramification	Potential Cost
1.) Delay of railcar to container stuffing facility	Delay to loading of container	All costs associated with 2, 3 and 4
2.) Delay of empty container equipment to container stuffing facility	Delay to railcar unloading; creates backlog with sequencing other products to be handled	Car demurrage from railway (\$60-75 per day); costs associated with 3 and 4
3.) Delay of loaded container to port terminal	Missed connection to the ship; requires re booking and storing the container, either at Port Terminal or at secondary yard	Container storage costs (up to \$175/day plus other fees); possible discount to buyer account delivery delay
4.) Delay of essential paperwork to shipping line/ port terminal operator	CBSA and Homeland Security require delivery of all shipment documentation in advance 48 hours of movement and loading of ship	Same as 3 with additional stowing charges from port terminal.

Table 2 – Comparison of risk related events and their ramifications and costs.

3.4 Pricing Strategies and Movement Economics

As noted previously, the shipping lines control the movement of export containers and as such control each container's movement from origin to destination. They also control the rate structure paid by a shipper from the point where the empty container is secured. In the case of a source loaded movement, the establishment of the logistics cost is limited to the shipping line's rate for movement and the cost of trucking to and from the origin (inland) container terminal. For the port loading alternative, it is necessary to establish rates with the railway, port loading operator¹⁰ and the shipping line.

For comparative purposes, Quorum has analyzed some of the rates used by shipping lines for the movement of western Canadian grains for export in containers. The purpose of the analysis is to provide the reader with some insight into the cost differences between these alternatives, the different perspectives of the stakeholders in their viewing of the economics and the cost associated with some of the risks as mentioned in Section 3.3 above.

Through-rate sheets of three shipping lines to a variety of Asian Pacific destinations were used in this analysis. The shipping lines have asked that their specific rates be kept confidential and, therefore, this analysis represents a blending of these rates. We also utilized current rail and truck rates, blending where applicable so as to portray a balanced perspective. For the purpose of this analysis, we have chosen to compare movements to Vancouver from both Alberta and Saskatchewan origins, assuming the use of 20-foot containers loaded with 23 tonnes of grain.

The first assessment portrayed depicts the perspective of the shipper. Although this analysis has been simplified, it fairly portrays the daily decisions they face. In Table 3 below, the rates presented are those that would be normally obtained, if no repositioning charges for source loaded equipment were assessed and if no delays were incurred. In summary, it states that in the case of a movement originating in Saskatchewan, the source-loading alternative, based on a length of haul of 120 miles (total round trip) would cost approximately 6% less than loading the same product at port. In the Alberta scenario, advantageous rail rates due to a shorter length of haul result in a cost differential of 26% in favor of the source loading alternative.

¹⁰ In most cases the port loading operator will arrange and include the cost of trucking between the loading location and the port terminal.

20' Containers with 23 tonnes loaded to Vancouver for Export ¹¹

	Source Loaded at SK Points	Port Loaded, Origin SK	Source Loaded at AB Points	Port Loaded, Origin AB
Origin Dray	\$ 432	\$ -	\$ 432	\$ -
Rail / Hopper Car		\$ 3,553		\$ 2,694
Rail / Container	\$ 1,100	\$ 888	\$ 400	\$ 673
Ocean	\$ 600	\$ 600	\$ 600	\$ 600
Destination Dray		\$ 230		\$ 230
Stuffing		\$ 545		\$ 545
Total per Container	\$ 2,132	\$ 2,263	\$ 1,432	\$ 2,048
8 Containers	\$17,056	\$18,106	\$13,056	\$16,388
Diff. between alternatives		6%		26%

Table 3 – Shipper Economics: Comparison of Source loaded and Port Loaded alternatives

As noted in the preceding discussion, the risks associated with each of the alternatives carry potential penalties. These are examined in Table 4 below. For this analysis we have estimated the total maximum exposure for which a shipper could be at risk, recognizing that the probability of all events occurring in the same movement would be remote.

	Source Loaded at SK Points	Port Loaded, Origin SK	Source Loaded at AB Points	Port Loaded, Origin AB
Origin Delay				
Rail Repositioning (Railway) ¹²	\$ 952		\$ 1,098	
Origin Storage (Railway or container storage Yard) ¹³	\$ 375		\$ 375	
Port Terminal Delay ¹⁴				
Re-stacking fee (Port Terminal)		\$ 200		\$ 200
Storage (7 days @ Port Terminal)		\$ 875		\$ 875
Demurrage (Railway)		\$ 180		\$ 180
Total Max Risk Exposure	\$ 1,327	\$ 1,255	\$ 1,473	\$ 1,255
Total Max cost / container	\$ 3,459	\$ 3,518	\$ 3,105	\$ 3,303
% Exposure of base cost	62%	55%	90%	61%
Diff. between alternatives		2%		6%

Table 4 – Costs of events of associated risk in the movements for the two alternatives

¹¹ Origin Dray is estimated based on GMP trucking model for a 120 mile haul at 23 tonnes. Source loaded rail rates based on shipping line rate sheets difference between Vancouver and the origin (Regina/ Saskatoon and Calgary/ Edmonton). Port loaded rail rates are the blended CN/ CP rate from Saskatoon/ Regina and Calgary/ Edmonton to Vancouver. Port loaded rail/ container rate based on total rate divided by four containers/ rail car (based on 90 tonne loading = 22.5 tonnes per container). Destination dray based on average of rates stated by Vancouver container loading operator's estimates. Stuffing cost at port based on average stuffing rate for 23 tonnes/ container.

¹² For Railway Repositioning charges we have used CN Tariff 7589-BB-107AB for empty equipment in Ramp to Ramp service in Steamship line Impex equipment

¹³ For costs of online storage at origin we have assumed \$125 per day for three days (estimate based on current CN storage rates).

¹⁴ The port terminal delay costs are estimated based on typical port terminal fees, such as restacking (charge for placing the container back in the storage stacks) and the cost for storage (estimated at one week as that is a typical spacing for container lines sailings). The railway demurrage is based on three days at \$60/ day.

In the case of the source-loading alternative, the major commercial risk stems from the possibility of having to reposition containers from another location. This example assumes that containers would be repositioned from Toronto to an origin location in either Saskatchewan or Alberta. It also assumes that three days of storage would be charged at the origin container terminal¹⁵.

In the case of the port loading alternative, the three areas of risk noted all come as a result of delays to the delivery of the rail car at the container stuffing facility. Typically shippers will attempt to estimate the time the hopper car will spend in transit to the destination port. Working in conjunction with the container loading facility operator, the shipper will order adequate containers from the shipping line and book the appropriate space on a vessel for their movement. If, for whatever reason, the car does not arrive at the time anticipated by the shipper, the series of coordinated events will all fall behind. The worst-case scenario will be missing the ship's departure and the subsequent postponement of the equipment bookings with all the associated costs.

As a result, seasoned shippers continually evaluate the prevailing business risks. These include: the current empty equipment situation at origin points; the reliability of transit performance for container movements; the reliability and consistency with which hopper cars are delivered.

The consistency of hopper car delivery was a point raised by the majority of shippers. An analysis of average loaded transit times presented in Table 5 found that specialty crops do in fact have comparatively longer transit times than other grains.¹⁷ As discussed in Section 3, this is indicative of the difference in the method of operational practices – specifically large block vs. small block movements. This is because Board grains and canola will typically travel in unit trains whereas specialty crops can be held for extended periods before a spot on a train is found for them.

Grain Type	Days of loaded rail transit ¹⁶	Standard Deviation	Sample Size of total movement
Board Grains	11.4	6.5	50.1%
Canola	9.9	6.4	52.2%
Specialty Crops	16.5	8.3	45.4%
Total	11.8	6.7	49.8%

Table 5 –Loaded transit times for hopper car rail movements from western origins to export location by type of grain

Still, the concern that was voiced by most shippers was not directed as much at the length of time the movement took, as it was at the inconsistency and variability of those delivery times. With an average loaded transit time for specialty crops of 16.5 days in the 2004-05 crop year, the standard deviation of 8.3 days underscores the variability of the observations.

Each alternative can be seen to have considerable risks for the shipper. In source loading, the absence of available empty equipment brings on the associated cost of shipping delays and repositioning. With port loading, delays in rail car delivery have significant financial penalties.

¹⁵ Both of the events assumed here are not unreasonable in light of shortages that continue to be experienced, particularly in Saskatchewan.

¹⁶ This sample size represents the percentage of total movements to Western Canadian ports in the 2004-05 crop year.

¹⁷ The analysis of loaded transit times used the GMP data warehouse to generate the loaded transit portion of all applicable movements in the 2004-05 crop year. The GMP cycle methodology requires that certain trips be excluded from the statistical sample for a variety of reasons. In this analysis, a total of 49.8% of the movements qualified under the methodology rules for inclusion in the analysis.

It is important to also consider the perspective of the shipping lines, particularly as it relates to their revenues and costs. Like any other transportation mode, the container shipping enterprise is a capital-intensive venture that requires close scrutiny of asset management. Shipping lines focus extensively on the velocity of their container equipment with a view to optimizing the revenue that each container produces. Delays in the movement of containers often mean foregoing revenue. Shipping lines are then left with choices that sometime result in the tradeoff of a lower-revenue movement in favor of a higher-revenue generating one. In almost every case, this will mean that the traffic offered by western Canadian grain shipper will be the loser.

As noted previously, container movements from Western Canada are most often backhaul shipments. Goods imported from Asia Pacific countries to Western Canada are most often high-value merchandise items such as electronics and clothing. The goods that are returned in these containers are most often lower-valued resource based or agricultural commodities, which are also heavier than the original inbound movement.

Most important from the shipping line's perspective, is the balance of revenue between head haul and backhaul movements. The head haul portion of the movement can generate as much as 85-90% of the container's total revenue. Especially in times of short equipment supply, shipping lines will place all of their focus on swift and efficient container cycles.

In discussion with stakeholders, shippers frequently stated that shipping lines have often foregone backhaul movements in order to protect head haul movements from Asia Pacific origins.

If we assume that a total cycle for the movement of a container back to a loading position in the Asia Pacific area is 96 days (See Table 6)¹⁸, the total potential revenue for that container is almost \$17,500 annually. To put this in perspective, one return movement from western Canada represents an equivalent value of 3% of the total annual revenue, and would have to be accomplished in a manner that did not extend the total cycle by more than 6.25 days in order not to be punitive.

	Asia Pacific to Canada	Canada to Asia Pacific	Total
Lading Value (CDN)	\$ 80,000	\$ 11,500	
Weight (tonnes)	11	23	
Ocean Revenue	\$ 4,000	\$ 600	\$ 4,600
Freight % of total Value	5.0%	5.2%	
<u>Total Container Cycle (Estimated)</u>			
Origin	15	15	
Ocean	18	18	
Rail	10	10	
Destination	10		
	53	43	96
	Trips/ Year		3.8
	Estimated Revenue/ Year/ Container		\$ 17,489.58
	Percentage value of 1 return shipment		3%
	Value of return shipment In terms of cycle days		6.25

Table 6 – Key measures of shipping lines logistics considerations

This underscores why, in times of tight equipment supply, a shipping line might choose to forego the backhaul movement in favor of the higher revenue generating head haul opportunity, especially given that the backhaul can often add over two weeks to the cycle (between repositioning, transit to loading location and return).

¹⁸ Quorum analyzed sample shipping line logistics measures, based on sample container rates and operating statistics for this study as portrayed in Table 6



Section 4: Issues and Challenges

This section of the report reviews the issues and challenges that were presented to the study team during its stakeholder meetings. While several of the issues are common to all or most stakeholders, some were confined to a fewer number of stakeholders. In the case of the former we have attempted to group the issues and categorize them in the headings that follow, while the latter issues have either been incorporated into these larger groupings or dealt with outside of this report. In all cases we have attempted to faithfully explain the issues brought forward by the stakeholders who met with us.

4.1 Process Issues

An overarching theme in the stakeholder meetings was the lack of harmonization in the processes involved in getting product to market, whether that be via source loaded containers or by shipping bulk product to port position for transloading. There are many parties involved in this supply chain, including farmers, dealers, processors, truckers, railways, stuffing facilities, shipping lines, and container terminals. At certain points, it is clear that the individual priorities of the participants result in actions, which ultimately sub-optimize the overall effectiveness of the supply chain itself.

This lack of harmonization is exhibited in the system's forecasting, allocation of resources, operational processes, consistency and communications.

4.11 Forecasting

It is often stated that the sharing of traffic and movement forecasts are key to good supply chain management processes, which benefits all stakeholders. It is the broad opinion of stakeholders that the grain industry and the special crops sector in particular are not doing an effective job of forecasting that demand, and therefore, the sector is not always in a position to fully deal with it. That said, many of the companies involved are not willing to share sales forecasts for fear of divulging commercially sensitive and/or valuable information. Individual companies are forecasting their own demand, but no mechanism for aggregating the information and disseminating it to participants currently exists.

It is the belief of many that if such forecasts were provided to a central repository and then aggregated to conceal any commercial sensitivity, but managed so as to provide key logistical data, the service providers, and the railways in particular, would be in a better position to furnish the service shippers expect of them.

4.12 Prairie Rail Terminal Processes – Repositioning of Containers

The existing process used by shipping lines and railways for shippers to obtain empty containers for loading at prairie points contributes to the level of shipper dissatisfaction. When a processor/shipper requests containers from a shipping line, whether directly or through a broker or freight forwarder, the shipping line grants an allocation for a defined number of containers. Containers are not usually assigned by specific container ID number, although containers are specific to a shipping line and must be provided to their customers on a distinct basis. Equipment is not "generic" and the container loaded must belong to the shipping line with whom the shipping arrangements are made. Consequently, the railway, at the terminal level, is left the responsibility to allocate the containers to the shippers. There are often fewer containers supplied to the prairie

terminal positions than orders placed, and allocations received by the special crops processors lead to a cumbersome and ultimately expensive series of events for the agricultural product shippers.

From the shipping line's perspective, this may be the most efficient approach, considering all containers are interchangeable and therefore they do not require railways to ensure specific containers are switched in order to reach specific country terminals and shippers. Ultimately, this results in shippers/processors having to scramble to retrieve containers from rail depots, resorting to extraordinary actions in order to ensure they secure equipment sufficient to meet their shipping demand.

Usually, containers are provided on a first-come first-served basis, resulting in competition to obtain the containers at the inland terminals. Companies wishing to obtain access will have trucks waiting prior to the terminal gates opening to ensure their place in line. This may involve hours of wait time, often into the early morning hours, with added capital (owed or leased trucks) and labour costs being incurred by the shippers.

Another downside is the incentive to hoard containers once they become available at the container terminal. With the uncertainty as to when the next set of empties may arrive and become available, a shipper/processor is often inclined to "grab" more than is necessary to meet nearby shipping needs. This action results in a cost to store these empties until needed and ultimately results in the denial of equipment to other shippers, whose needs may be just as acute.

4.13 Risk Mitigation Actions

The potential costs to a shipper/processor of not receiving containers are many (as noted in Section 3 above). Substitution costs may be incurred in order to find an alternate mode for shipping the product. If the shipment is late, the container may miss its vessel slot and incur demurrage charges as it awaits the next available vessel. Contract extension or penalty costs may be charged if the product does not reach the customer within a specified period.

When faced with the potential costs from lack of container supply, shippers have taken steps to mitigate their exposure or risk. Bookings with container lines are made on the premise that the containers will be there, but the estimated arrival of empty containers is not reliable. Stakeholders told of some instances where they felt compelled to "hedge" their supply of containers, due to the uncertainty of availability, by making multiple bookings with freight forwarders.

This scenario poses significant problems for the container shipping lines when they attempt to estimate the scope of the stakeholders' actions to protect themselves. In some instances shipping lines have been known to overbook slots on their own vessels when faced with the uncertainty of container arrivals at the port terminal, be it due to the inconsistency of railway service or a shipper's exuberance in estimating container arrivals.

Ultimately though, on the date of a ship's scheduled departure, a shipping line is less concerned with whether delays are the result of service problems within the supply chain, through congestion and delays at the container reload facility from poor communications or a lack of proper documentation. Their sole intention is to have a full compliment of containers on hand to load when the vessel presents itself for loading at port. If

overbooking results in containers being stranded at the container terminal until the next available vessel, the resultant demurrage and extension costs will likely be borne by the shipper.

4.2 Bottlenecks

Stakeholders identified a number of other “bottlenecks”. Although an economic incentive often favours source loading of containers over port stuffing, labour constraints can also have an impact on a shipper’s decision. Some shippers find labour for bagging operations to be in short supply at inland positions. Some have suggested that automated bagging operations could address this issue, but they are a capital-intensive solution that comes with a long-term commitment to a specific strategic approach. Conversely, while labour is not usually an issue at port stuffing facilities, the labour demographics of the larger cities results in higher wages.

The sequencing of train arrivals at port is also an issue for shippers. Delays in shipments may result in the queue of arrivals at either the stuffing facility or container port being out of order. This scenario may lead to further delays as the cars/containers are set aside awaiting priority traffic. A further complication is the fact that stuffing facilities have limited storage tracks.

Managing peak periods at container terminals has proven challenging for the operators. In order to accomplish this, full reservation systems have been implemented for every container delivered to, or picked up at, Vancouver terminals. The intent is to provide a benefit for both the terminal operations and transportation industry through shorter wait times in truck line-ups, reduced congestion on the local road network as well as at the terminals, and more consistent turnaround times.

4.3 Communications and Documentation Issues

Electronic Data Interchange (EDI) transmissions have become the standard for communication throughout the supply chain. However, there remain a few shippers without the capacity for EDI transmissions, which results in delays since manual systems must accommodate them.

Shippers have also complained that railways no longer have customer service representatives. Now shippers must deal with their account managers for various service issues. Their response times are often deemed unacceptable by the shippers.

The provision of a letter of credit is a commonly accepted form of financial security in shipping grain and special crop products. Some customers are more reliable than others and can efficiently arrange for this documentation. Waiting for a letter of credit can delay shipments to other customers.

Another documentation issue relates to “Freight Remaining on Board”. U.S. Customs now requires shipping lines to pre-file documentation for each container on a vessel that will be stopping at a U.S. port after loading at a Canadian port, in order to ensure that the consignee is on the U.S. “accepted” list. The full vessel manifest is required 48 hours before the vessel leaves Canadian waters. Shipping lines now require at least a day to prepare the ship’s manifest and consequently the appropriate documentation is required even earlier than ever before.

4.4 Vessel Space Allocation

If, for whatever reason, a container misses the vessel slot that it was assigned, it is rolled to the next available vessel, possibly forcing shippers to incur unforeseen costs. As stated above, shipping lines may overbook capacity to ensure that their vessel is full, thereby forcing them to bump some containers to a later sailing. Shippers have no recourse for the costs arising from this and there is no penalty to the shipping line if the delay is due to its actions. There may also be demurrage charges for the container. Depending on the shipping line, if a vessel slot is missed, regardless of the cause, it may be three to four weeks before another vessel slot becomes available. Dead freight costs may be applied if the container missed its slot and the vessel was forced to sail light of its complete load.

4.5 Regulatory Constraints

Western Canadian shippers' access to empty international container capacity for source loading product for export is constrained because the demand for empty equipment far exceeds the supply generated from inbound traffic movements. Ideally, empty containers for loading at inland position are sourced when loaded inbound containers are de-stuffed nearby. There is a relatively small population base in western Canada and the consumer products that are shipped into the region, due to their lighter density, usually arrive in 40-foot international containers. The largest demand on the prairies however, is for empty 20-foot international containers. The most common solution to address this imbalance is the repositioning of empty international 20-foot containers to the loading points – an expensive practice not favoured by the shipping lines that own the equipment.

4.51 Cabotage Regulations

One factor cited as contributing to this expense is the “cabotage” regulations administered by the Canadian Border Services Agency (CBSA). Cabotage is a term commonly used to describe regulations used to limit the activities of foreign transportation service providers or the use of their equipment within the country. Although the term does not appear in Canadian legislation or regulations, we use it here for convenience sake. These regulations have been put in place to protect domestic carriers from international competition. In the case of international shipping containers, the regulations restrict the amount of time a container may remain in the country, and also dictate the path that it must follow when leaving Canada.

Cargo containers arriving in Canada under the Customs Post Audit System may remain in the country for six months from the date of importation as long as the owner/operator maintains records acceptable to Revenue Canada. Separate cargo control documentation is not required for each container. However, containers arriving in Canada not covered by the Customs Post Audit System (which is the majority of containers arriving) may remain in the country for only 30 days and require the presentation of cargo control documentation lists with identification marks and numbers to Revenue Canada. In both cases, the container may make only one domestic move under load, en route to being repositioned for export loading or to be exported empty.

Such a domestic movement of cargo must be deemed “incidental to the international traffic of goods” meaning that it occurs immediately before or after the container is used in

international service. It must also be moving in the general direction of the delivery for exit point of any international load, which it may be acquiring.

Regulations regarding the temporary importation of international containers are contained in Tariff item 9801.10.00 of the Canada Customs Act. The Canadian Border Services Agency (CBSA) is charged with enforcing the Tariff items and establishes procedures for such enforcement in its D3 series of Memoranda. The D3-1-5 Memorandum stipulates the length of time a container may be in Canada prior to import duties being applied, and the path it may take in order to secure an export cargo. The D3-7-1 Memorandum describes the Customs Post Audit System.

Customs Tariff item 9801.10.00, in its current form, exists because of provisions within the North American Free trade Agreement (NAFTA). The Department of Finance is responsible for Customs Tariff items, and has shown a reluctance to amend same. This is especially the case where the tri-partite NAFTA is involved.¹⁹

The Carrier and Cargo Control section of the CBSA periodically reviews the D3 series of Memoranda. Amendments are made only if the Tariff items to which they apply have changed. The CBSA are currently awaiting budget approval to continue further consultations with external clients and internal field personnel regarding amendments. Which sections will be the highest priority, how the review will be conducted and who may be interviewed in the process are all to be determined.

The Canadian regulations are much more restrictive than those encountered by container shippers in the United States. Foreign-based containers may enter the U.S. without incurring duty or taxes and may engage in unrestricted point-to-point domestic service for up to 365 days. After one year, a container will be deemed to have been imported and appropriate duty and taxes will be levied. Their comparatively unrestricted ability to be used in U.S. domestic service along with a longer duty free time period provides American shippers with a competitive advantage.

Given the ever-increasing volume of container traffic, enforcement of the 30-day and directional restrictions in Canada is an extremely difficult task. Stakeholders suggested that some shippers ignore regulations while others expressed concern that the enforcement was not consistent, resulting in a non-level playing field.

The CBSA's current exercise to rewrite the D3 regulations offers an opportunity to address these issues. Increasing the time that international shipping containers are permitted to remain in Canada prior to taxes and duties being applied, and removing the restrictions on where and how many domestic loads for which they may be used, would no doubt provide easier access to capacity for western Canadian special crops shippers.

It is common opinion amongst many in the industry that the Canadian cabotage regulations constrain the logistics chain in Canada. In areas where imbalances of movement and shortages of available empty containers exist, the utilization of international containers would be a normal and natural solution. The current regulatory framework, however, acts as a disincentive to this type of logistical practice and often forces shippers and shipping lines to move international containers into positions where domestic containers are leaving empty. The added cost can significantly reduce or negate the economics of a potential sale.

¹⁹ It is our understanding that the trucking industry recently attempted to persuade the Department of Finance to amend this tariff item to allow Canadian trucks to return to Canada with foreign trailers. This initiative was unsuccessful.

One of the salient points in the use of containerized shipments is that they lend themselves to greater levels of identity preservation and traceability. Given an increased focus on food safety, bio-safety (Cartagena Protocol), and the prevalence of genetically modified organisms, containerized shipments of agricultural products could potentially be subjected to greater regulatory control in order to satisfy food safety concerns. If and when the time comes, the challenge will be to implement any such provisions in a manner that causes minimal disruption to the supply chain without adding to the cost of handling. The industry and Government's current focus on consistent and coherent security oversight in the loading and transport of international containers suggests that the time for further regulatory intervention may not be far off.

4.6 Commercial Relationships with the Railways

Extended and unreliable transit times for hopper cars, trailers and containers destined to container stuffing facilities at the ports of Montreal and Vancouver, or for direct loading to vessel often make it difficult if not impossible for many western Canadian shippers to commit to sales and container ship loading schedules.

The inability to negotiate or find remediation on issues related to pricing, service and especially ancillary charges is frustrating the export shippers of western Canadian products. Shippers must pay demurrage on railcars if they do not have those cars unloaded within the prescribed time frames set out by the railways, regardless of the circumstances. However when a railway fails to deliver the car in a reasonable timeframe, there is little or no corresponding penalty for the railway. Nor is there any practical recourse available to the shipper in such cases.

Railway non-performance has a costly impact on industry: contract extension costs, dead freight with shipping lines, and lost sales, all of which are typically absorbed by the shippers themselves. Moreover, they are often left with surplus product and a demurrage bill as well.

The flow management practices of the railways often work to the detriment of port reloading operations. With railways allocating cars on the basis of what they believe a facility's operating capacity to be, shippers are often shorted cars because of their choice of facility (i.e. shippers being told they can not have cars if they are going to use a specific stuffing facility local to the Southern Railway of British Columbia for example).

Shippers believe that there is no practical dispute-resolution mechanism, or appeal process, on issues related to railway service. A formal complaint to the CTA is no longer viewed by most in the industry as a viable alternative. As a consequence of their perceived monopolistic powers, many shippers contend that no practical system exists to ensure that the railways are held to account for their failings.

One solution often offered by stakeholders is a commitment to specific delivery and transit times by the railways, with some form of accountability (either regulated or voluntary). This would allow shippers to better plan for car loading, container stuffing facilities, port and port terminal operations and shipping schedules. Further, many shippers desire a committed and efficient (timely and inexpensive) method of mediating or arbitrating the settlement of disputes with the railways. Most believe an effective dispute-resolution process is essential if economic growth through international trade is to be achieved by western Canadian industry.

4.61 Railway Operations - Perspective

The railways have been adjusting their operating practices in recent years in order to accommodate the growth in demand. Yet many shippers claim that the steps they have taken only complicate and add expense to the process. The elimination of the staging programs for west coast shipments, which allowed shippers to accumulate sufficient movement over the course of a number of weeks, while the railway held and accumulated the cars for a fee, has decreased the shippers' options. The increased use of ancillary charges for storage on containers, demurrage, along with EDI or documentation infractions, has all further frustrated shippers. CN no longer provides any time for storage of containers at their terminal yards. CP restricts the number of empties at inland terminals.

Special crops shippers, whether they are using hopper cars or containers, often have limited ability for multi-car loading in the country or unloading at port. Railways recognize that special crops shippers using containers are more often similar to the "merchandise" model rather than the "grain" model as far as rail programs go (size of shipment, irregular timing, etc.). Their dilemma is how to develop a sustainable special crops component in tandem with their bulk movement.

For export container movements, the railway's customer is the shipping line. The bill of lading is made out to the shipping line, and the railways indicate that they don't know the actual contents of the containers. According to the carriers, there is a great deal of variability in the management practices of the shipping lines in terms of the allocation and tracking of containers. They would like to see "scheduled" steamship lines. They maintain that shipping lines do not always maintain tight procedures for allocating their containers, nor do they always match the allocations with their supply of empties.

Overloaded shipments are not uncommon, given the density of many of the agricultural commodities. Railway load limits for a 20-foot container are 21 tonnes. Containers can physically load up to 24 or 25 tonnes of many special crops. This potential for overloading has been cited as a contributing factor to the railways' reluctance to support source loading of containers.

4.7 Port Challenges and Reputation

Currently, Vancouver is the primary port of exit for western Canadian firms selling grains and special crops into the Asian Pacific market, particularly if delivery by international container is required. A number of labour disputes have interrupted the flow of products through the port of Vancouver in recent years. These include a lockout of grain terminal employees, railway job action, a Canadian Grain Commission inspectors strike, and - most recently - the withdrawal of service by the port drayage truckers. The cumulative effect of these actions has harmed the reputation of the port of Vancouver. Industry members find the situation particularly frustrating, as they usually have no ability to resolve the disruptions themselves, and often have very little influence over the outcome.

Exporters and customers expect reliability from the supply chain. When faced with uncertainty and the potential for further disruptions, Canada's customers are forced to look at their other options. We heard reports of price discounts for Canadian products in order to mitigate buyer perceptions of the risk associated with a movement through the Port of Vancouver. Additionally, some buyers are reluctant to establish ongoing commercial and trade relations

with a source that they feel could fail at any moment as a result of an unstable labour environment.

Bulk movements are generally viewed as having an advantage over container movements in as much as the grain handlers are covered under the essential services provisions of existing labour legislation. The shipment of grains and special crops via containers was particularly hard hit during the strike by drayage providers in August 2005. The issues causing that disruption have not been fully or permanently resolved, and the resulting uncertainty remains a major concern of the special crops industry.

4.71 Vancouver Container Trucking Association Labour Action

On 25 June 2005, following a month-long series of failed negotiations between the Vancouver Container Truckers' Association (VCTA) and 46 west coast trucking companies, over 1,000 members of the VCTA went on strike in a protest over low wages and rising fuel costs. The action disrupted the normal flow of traffic through the port, and its ultimate impact is estimated to have cost the Canadian economy over \$30 million dollars a week throughout its six-week duration.

Although direct container movements of special crops from the prairies were largely unaffected by the strike, the port stuffing facilities were effectively prevented from moving containers into and out of their premises. This impinged on the flow of these commodities through the port, and produced a backlog in the logistics chain.

Several measures were undertaken in the days and months following the strike and they have provided a reasonable level of stability in port drayage since last August. These are outlined in a detailed discussion of the strike that can be found in Appendix 3.

While these measures have allowed progress to occur, many stakeholders express on-going concern over the potential for the competitive nature of the trucking industry to culminate in another disruption. If such a situation arises once again, they will expect a much speedier response from various levels of government in ensuring that the reputation of the Port of Vancouver does not continue to suffer.

4.8 Challenges with Industry Knowledge and Experience

The advent of smaller (Mom and Pop) processors/shippers has highlighted their general lack of knowledge and experience with transportation and logistics processes, regulations, as well as international trade practices. While this situation occurs in a number of areas, its primary consequence is additional administrative effort and expense in managing shipper issues. Earlier market development efforts (initiated when profit margins were larger) encouraged many small business start-ups, which are now struggling to compete. Efforts to link processors with international buyers have often resulted in circumventing freight forwarders or brokers who could provide more sophisticated logistics expertise.

The frustration this causes the service providers (shipping lines and railways) results in their reduced willingness to apply a focus on establishing longer-term commercial relationships with the sector and to cooperate in placing empties at "in country" locations for the purpose of source loading. Further, some traders suggest this lack of experience and knowledge

adversely impacts the market's dynamics, the price received for Canadian products, and the ultimate reputation of Canadian products in the international marketplace.

A number of suggestions have been made in this area. These range from the establishment of training programs and the creation of eligibility standards, to the mandatory certification of firms wishing to engage in international trade.





Section 5: Additional Measures for the GMP

The federal Government's Grain Monitoring Program is largely based on a series of measures tracking all aspects of the GHTS from farm gate to export position. The Monitor's reports currently contain some measures pertaining to dry peas, but limited focus on other special crops, and no measures specific to movement of commodities in containers. It has been proposed that the GMP be enhanced with measures that provide a greater information base to the special crops and container shipping industries in order to contribute to continuous improvement processes.

It is important to recognize that the successful implementation of a measures program is dependent on obtaining accurate and complete data in a timely manner for inclusion in the quarterly and annual reporting cycles. The Monitoring Program respects the commercial sensitivity of the data handled and reported. Therefore, all measures have an industry-wide focus and no individual participant's data is revealed. To this end, the Monitor has entered into confidentiality agreements with a broad spectrum of stakeholders, and proposes to extend such agreements to any future data providers.

5.1 Movement of Grain in Containers

Various specific areas of measurement pertaining to container shipments have been proposed by and/or discussed with stakeholders. They are outlined here based on three broad categories: container movement, container availability and container velocity. All of these potential areas of measurement will require further input and study by the industry in order to determine their usefulness and practicality.

5.11 Container Movement

- Export shipments of grains, oilseeds and special crops by container from Canadian Ports
- Shipments of loaded containers from country positions in western Canada by commodity
- Loadings of containers at ports stuffing facilities in the Vancouver region and at Montreal by commodity
- Volume of empty containers from country positions in western Canada to port positions
- Volume of empty containers on vessels leaving Canadian ports

5.12 Container Availability

- Empty container inventory at the ports of Vancouver and Montreal as well as at key intermodal sites in western Canada
- Tariff rates for shipment by container from a selection of the above sites, tracked as a group of rates weighted by market share for shipping lines, corridors and commodities
- Slots available for containers carrying grains, oilseeds and special crops on vessels at container terminals in Vancouver, Montreal and Halifax

5.13 Container Velocity

- Container dwell time at ports of Vancouver and Montreal as well as at key intermodal sites in western Canada
- Rail transit times for bulk shipments to port stuffing facilities, bagged shipments in boxcars to port stuffing facilities and for source loaded containers destined to container terminals at port
- Arrivals on schedule, train delays, schedule changes, lead time in communications, accuracy and consistency of service

5.2 Special Crops

In order to enhance the GMP focus on special crops a number of additional measures have been proposed.

- Production of key special crops in western Canada (expand the “other” category in Measure 1A – 1 to include delineated special crops)
- Carry forward stock at July 31 for key special crops in western Canada
- Exports of key special crops by port, commodity and mode (bulk vs. container) – See Appendix 4

5.3 Anticipated Data Issues

Expanding the measures in the Grain Monitoring Program to include containers and to increase the focus on special crops will present a number of challenges. The participation and cooperation of stakeholders will be imperative for meaningful measures to be developed and incorporated into the reporting cycles. Key parties, such as container shipping lines, which have thus far not provided data for the GMP, will have to become regular contributors. To facilitate this, it may be possible for the Monitor to obtain data indirectly via the port authorities, which currently receive significant levels of data from the shipping lines.

In previous negotiations with railways, the Monitor has encountered reluctance to comply with requests for data containing “shipper” information. Notwithstanding assurances that confidentiality would be strictly adhered to, and the documented approval of grain companies for information specific to shipper to be provided to the Monitor, cooperation from railways was not forthcoming. The Monitor anticipates that the railways may continue to resist additional data requests.

Data providers must recognize that it is in the interests of all parties that standardized systems be established for providing quarterly data to the Grain Monitor. Experience shows that personnel changes, system upgrades and stretched resources can and do result in inconsistent data flows. Investment in the appropriate programming upfront is critical to ensuring the integrity of the base data for any additional measures.

The federal government has the ability to invoke the *Carriers and Transportation and Grain Handling Undertakings Information Regulations* pursuant to the *Canadian Transportation Act* in order to ensure that data required for the GMP is provided in a timely and accurate manner. To this point, the government has preferred a cooperative and collaborative approach to

obtaining data, without imposing the legal instrument upon grain industry stakeholders. The level of cooperation received in developing additional measures will determine the appropriate approach to ensure the consistent data flow for their production.

As well as the overarching data acquisition concerns, there will be a number of technical challenges presented in developing measures such as the above. The rail cycles will be extremely difficult to track, as the data set will be limited by a lack of complete cycles. Rail capacity will not be continuously cycling with grain containers or special crops. Therefore it will likely be possible to only report loaded transit times for rail movements of containers on flat cars and special crops destined for port stuffing facilities.

Accountability throughout the supply chain is very difficult to measure. The varying risk management strategies employed by industry members result in tradeoffs between the pricing and remuneration for the various business functions. It is therefore impossible to measure the financial performance on an individual business activity measures basis. To attempt to undertake a complete audit process for the supply chain would require an extremely intrusive program, which has not been the GMP objective.

Production and export data for special crops is available in a timely manner, but data on carry forward stock is not available in the same format as for other grains and oilseeds. Carry forward stock on farms is available for dry peas, soybeans, lentils, mustard seed, sunflower seed and canary seed from Statistics Canada, but not at the provincial level. It can be presented at a national level only, which is inconsistent with the current carry forward stock reporting. The carry forward stock in commercial storage (primary elevators) is not available.

5.4 Assessment of the Measures development costs and the benefits derived

In discussions with stakeholders, there was a prevalent opinion that an overall lack of available statistical measures on the movement of containers in Canada was a hindrance to their ability to monitor and analyse business, markets and operational issues. It was unanimously believed that additional measures would offer considerable benefit to the industry in their ability to better assess issues and change.

Quorum views the potential measures groups in three categories:

- 1.) Expanded statistical measures on traffic volumes relative to specialty crops, by grade and mode: As much of the data already exists within the GMP data warehouse, this could be accomplished with little or no challenge and with less than 20 days of systems development and implementation effort.
- 2.) Mid-level Performance Measures:
 - a. Performance related measures relative to special crop movements in hopper cars: As much of this information exists already within the GMP data warehouse, it could be accomplished with little or no challenge and with less than 5 days of systems development and implementation effort. We would also look to the railways for their input to ensure that agreement in the logical approach is acquired.
 - b. Movement measures of grain in containers moving to west and east coast points of export (i.e. Vancouver and Montreal, ultimately Prince Rupert): Through discussions with stakeholders, this study determined that to

implement and develop these measures would require the cooperation and assistance of railways and port terminals in the provision of data for these types of measures. Port terminals have indicated their preference that the local port authorities be the focal point for the gathering of data (to ensure consistency), and the port authorities have been exceptionally cooperative in providing their assistance. While railways were also exceptionally cooperative in the development of this report, the provision of data may not be as straight forward. In addition to their general reluctance to provide data of certain types, they are quick to point out the limited value of some of the data due to the lack of information on some shipments. Specifically, some shippers continue to show the commodity as "Freight All Kinds" (FAK) rather than the specific commodity that has been loaded. In such cases, the railway cannot segregate the traffic that is specifically grain. Port authority personnel also point out this problem. It is not known specifically if the volume is significant enough to skew the statistical relevance of any of the proposed measures, but by example, in 2005, the Port of Montreal statistics reveal that almost 35% of all container movement through the port was described as FAK.

The potential for challenges in statistical validity due to the percentage in the FAK or miscellaneous traffic category creates a high level of uncertainty and risk relative to data integrity. As such, Quorum cannot estimate the workload required to develop measures in this area without additional investigation into the data sources and fully understand the issues and processes by which data is collected. The effort required to perform this would be in the order of 10 -15 days.

3.) *Transit and allocation performance related measures:*

These would include the measures relative to container allocation, container cycles, container availability at source and port locations, transit and delivery times, amongst others.

As with Item 2)b above, the development of these measures would require the cooperation and assistance of railways and port terminals in the provision of data for these types of measures, in addition to the shipping lines. While absolute volumes would not be required (i.e. a large enough, statistically valid sampling is what is required) there will be reluctance from some stakeholders to provide the data required. Further, it would also be difficult to estimate the workload associated with these measures without additional investigation into the data sources and fully understand the issues and processes by which data is collected. The effort required to perform this would also be in the order of 10 -15 days and require the close cooperation of many of the data providers, the railways in particular.

Section 6: Acknowledgements

The stakeholder meetings undertaken in the preparation of this report were critical to its context and depth. Quorum would like to thank all of the people and acknowledge the organizations that gave their time and provided the valuable insight that allowed the study team to better understand the issues faced by the industry in the movement of grains, oilseeds and special crops in containers.

Shipping Lines

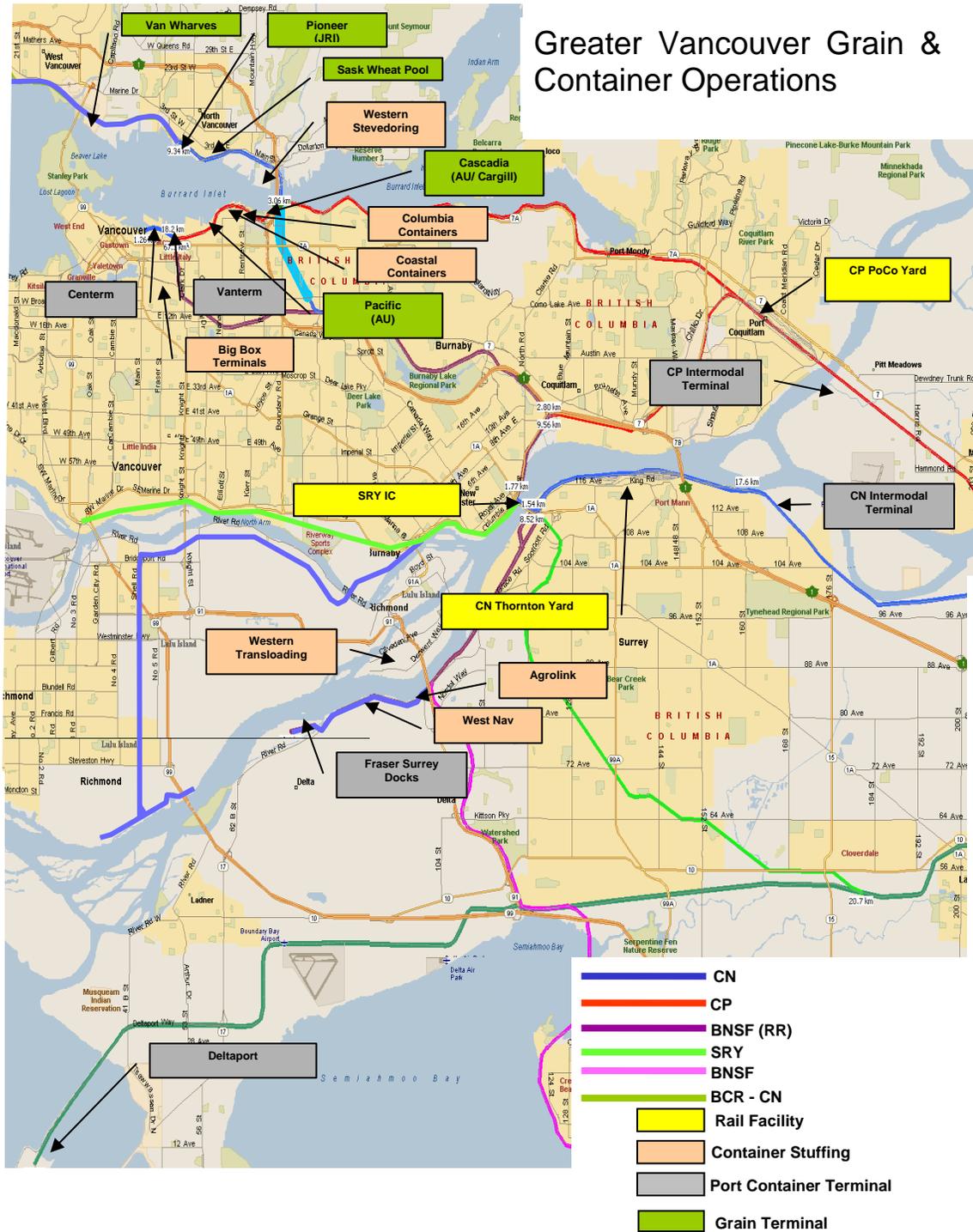
China Shipping (Canada) Agency	Vancouver
Hanjin Shipping	Vancouver
OOCL (Canada) Inc.	Vancouver
Greer Shipping	Vancouver
Evergreen America Corporation	Vancouver
Zim Integrated Shipping Services	Vancouver
Trade	
Saskcan Pulse Trading	Regina
Simpson Seeds Inc.	Moose Jaw
Agricom International	N. Vancouver
Walker Seed	Tisdale
Finora Inc.	Surrey
Saskatchewan Wheat Pool	Regina
JRI	Winnipeg
Agricore United	Winnipeg
J.K. Commodities Ltd.	Vancouver
GrainEx International Ltd.	White Rock
Railways	
Canadian Pacific	Winnipeg
Canadian National	Winnipeg
Brokers	
CTL Westrans Shipbrokers Inc.	Vancouver
Norton Lily	Vancouver
Stuffers	
WestNav Container Services Ltd.	Surrey
Transport Ray-mont Inc.	Montreal
Coastal Containers	Vancouver
Ports	
Port of Vancouver	Vancouver
Port of Montreal	Montreal
Terminal Operators	
TSI Terminal Systems Inc. (Deltaport)	Vancouver
P&O Ports Canada Inc. (Centerm)	Vancouver



Appendix

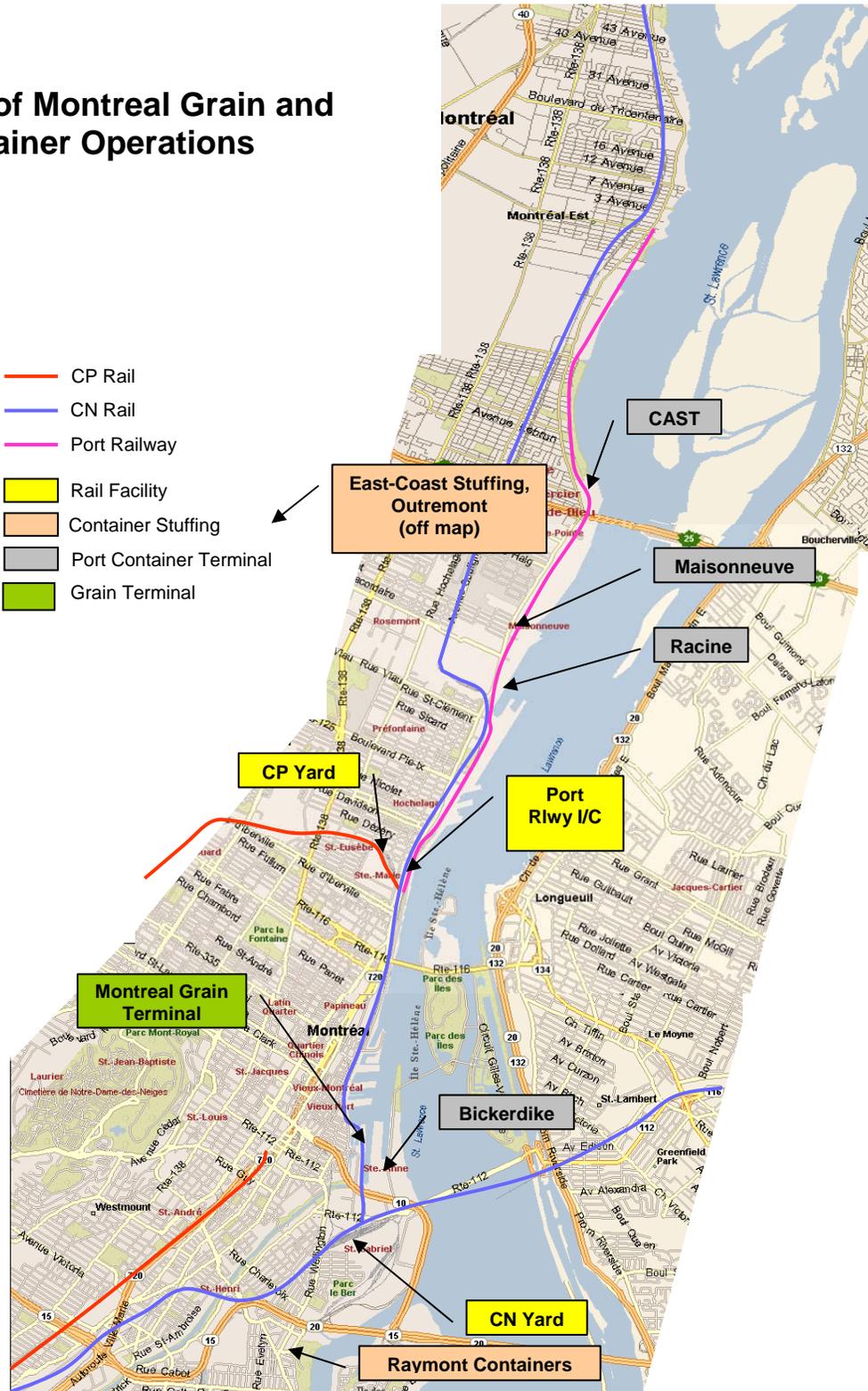
Appendix 1: Greater Vancouver Map

Greater Vancouver Grain & Container Operations



Appendix 2: Port of Montreal Map

Port of Montreal Grain and Container Operations



Appendix 3: Discussion of Vancouver Container Truckers Association Labour Action

On 25 June 2005, following a month-long series of failed negotiations between the Vancouver Container Truckers' Association (VCTA) and 46 west coast trucking companies, over 1,000 members of the VCTA went on strike in a protest over low wages and rising fuel costs. With trucks transporting more than 40% of the container volume handled by the port of Vancouver, movements into and out of the container terminals located there were brought to a virtual standstill.

The action also disrupted the normal flow of traffic through the port, and had a negative affect at other facilities in British Columbia's Lower Mainland. In addition to the severe impact this action would have on freight destined for local delivery, the port authority was concerned with the congestion problems that would inevitably arise from terminal operators having to store containers temporarily.

The financial impact of the strike was sizeable, with estimates of the cost to the provincial economy being as high as \$30 million a week. In the days immediately following, business leaders began to demand that the federal government legislate the VCTA membership back to work, but these calls were dismissed as too simplistic. Instead, the provincial and federal governments announced that they would appoint a mediator who would attempt to resolve the dispute while the strike continued.

By mid July 2005, the strike's impact was beginning to be felt over a wider geographic area. Shipping lines were reportedly holding back goods destined for Vancouver in Asia as well as Europe. With goods piling up elsewhere in Canada, many within the industry claimed that the nation's transportation system was being compromised. Some appeared concerned with Vancouver's international reputation, claiming that the port's major customers had already concluded that its labour force was unreliable and had begun to reassess their options on how to best reach the Canadian market. Many feared that this would ultimately mean the permanent diversion of cargo through other ports in order to ensure that the movement of the customers' goods was not again impeded.

Although direct container movements of special crops from the prairies were largely unaffected by the strike, the port stuffing facilities were effectively prevented from moving containers into and out of their premises. This impinged on the flow of these commodities through the port, and produced a backlog in the logistics chain.

In late July 2005 the mediator proposed a two-year deal that called for an immediate increase in the haulage rates and fuel surcharges applicable on container movements in the Vancouver area. The VCTA's negotiating body recommended that the striking truckers accept the offer, which received approval from more than 90% of its membership on 31 July 2005. However, the trucking companies that engage their services unanimously rejected the deal that same day.

In an effort to bridge the impasse while the search for a long-term solution continued, the Vancouver Port Authority (VPA) announced on 1 August 2005 that trucking companies trying to service the port's container terminals would have to obtain a license under an interim system to be put in place for a period of 90 days. In doing so, these companies would be required to pay truckers a minimum of \$200 for each container they delivered, a rate that had been set out in the mediator's recent proposal. This was supported by a federal Order in

Council issued in accordance with section 47 of the Canada Transportation Act that allowed such extraordinary steps to be taken in the interest of stabilizing the national transportation system.

Concurrent with this, a joint task force created by the provincial and federal governments would be formed to examine the various issues surrounding the movement of containers in the Lower Mainland. Its ultimate purpose would be to recommend a long-term strategy that would be aimed at improving industry relations, preventing future disruptions to the movement of containers, and maintaining the efficiency and effectiveness of the transportation system as a whole. Although these actions brought about an immediate restoration of service, clearing the backlog of traffic required more than a month of active effort on the part of all stakeholders.

In early November 2005, the task force released its final report. The report contained recommendations regarding industrial labour relations as well as operational issues recognizing that the issues affecting container shipping at Vancouver were complicated by the multitude of contractual relationships between the port, container terminals, shipping lines, shippers and carriers. Its recommendations included a provision for the adoption of a licensing scheme in order to better manage the number of drivers and vehicles involved in short-haul transportation of containers in the lower mainland; the implementation of a mandatory reservation system and extending gate operating hours at container terminals to eliminate congestion as well as monitoring the truck delays both inside and outside the gates; enhanced information sharing systems through use of advanced technology; clarifying jurisdictional issues between the federal government, the provincial government and the port authorities; amendments to the Competition Act in order to implement the licensing scheme; amendments to federal and provincial Labour Codes if necessary to prohibit picketing at the gates to the container terminals, and suspending the right to access the ports by trucking firms during lawful labour disputes; promotion of best practices throughout the port sector; establishing an organization to mobilize academic institutions in order to expand the capacity and knowledge base in the port community; and to require the port authorities to provide periodic public updates on progress in implementing the recommendations.

In late November 2005, the VPA announced a program to increase the truck gate operations at Vanterm, Centerm and DeltaPort by an average of 20 per cent per year, over the next five years. Prior to this, the port had implemented a monitoring program for truck waiting times at terminal gates. In late March 2006, The VPA announced the introduction of new and stronger requirements to its Truck Licensing System, including more rigorous safety, security and environmental standards as well as mandatory compliance with container terminal reservation systems. Truckers will also be required to utilize the extended hours of operations at terminal truck gates, which to this point had not been well utilized.

While these measures have provided a reasonable level of stability in port drayage since last August, many stakeholders express on-going concern over the potential for the competitive nature of the trucking industry to culminate in another disruption. If such a situation arises once again, they will expect a much speedier response from various levels of government in ensuring that the reputation of the port of Vancouver does not continue to suffer.

Appendix 4: Sample Measures - NOT ACTUAL DATA

Western Canadian Railway Grain Volumes Shipped to Vancouver (tonnes) - Special Crops & Other, Summarized by Commodities (1)

VANCOUVER	1999-2000	2000-2001	2001-2002	2002-2003					2003-2004					2004-2005					% VARIANCE		NOTES
HOPPER	TOTAL	TOTAL	TOTAL	Q1	Q2	Q3	Q4	TOTAL	Q1	Q2	Q3	Q4	TOTAL	Q1	Q2	Q3	Q4	TOTAL	Q4	YTD	
Peas	794,371	863,446	696,328	127,660	203,096	156,674	92,844	580,273	212,332	337,801	231,635	183,378	965,146	309,489	492,370	379,828	225,083	1,406,770	22.7%	45.8%	
Lentils	141,926	154,267	124,409	22,808	36,286	27,992	16,588	103,674	13,214	21,023	14,416	11,412	60,065	10,151	16,149	12,458	7,382	46,140	-35.3%	-23.2%	
Mustard Seed	18,365	19,962	16,098	2,951	4,695	3,622	2,146	13,415	411	653	448	355	1,867	826	1,314	1,014	601	3,754	69.3%	101.1%	
Malt	304,543	331,025	266,956	48,942	77,862	60,065	35,594	222,463	44,154	70,245	48,168	38,133	200,700	55,650	88,534	68,297	40,472	252,953	6.1%	26.0%	
Canary Seed	7,019	7,629	6,152	1,128	1,794	1,384	820	5,127	753	1,198	821	650	3,422	327	521	402	238	1,488	-63.4%	-56.5%	
Beans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n/a	n/a	
Sunflower Seed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n/a	n/a	
Buckwheat	4,140	4,500	3,629	665	1,058	816	484	3,024	590	938	643	509	2,681	369	588	453	269	1,679	-47.3%	-37.4%	
All Grains	1,270,362	1,380,828	1,113,571	204,155	324,792	250,554	148,476	927,976	271,454	431,858	296,131	234,437	1,233,881	376,812	599,474	462,452	274,045	1,712,784	16.9%	38.8%	
NON-HOPPER																					
Peas	129,706	140,985	113,698	20,845	33,162	25,582	15,160	94,748	23,023	36,628	25,116	19,884	104,650	18,795	29,901	23,066	13,669	85,430	-31.3%	-18.4%	
Lentils	83,821	91,110	73,476	13,471	21,431	16,532	9,797	61,230	17,946	28,550	19,577	15,498	81,571	12,227	19,452	15,006	8,892	55,577	-42.6%	-31.9%	
Mustard Seed	13,497	14,670	11,831	2,169	3,451	2,662	1,577	9,859	2,721	4,329	2,969	2,350	12,369	2,275	3,620	2,793	1,655	10,343	-29.6%	-16.4%	
Malt	22	24	19	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	n/a	n/a	
Canary Seed	22,339	24,281	19,582	3,590	5,711	4,406	2,611	16,318	3,872	6,159	4,224	3,344	17,598	2,303	3,663	2,826	1,675	10,466	-49.9%	-40.5%	
Beans	7,815	8,495	6,851	1,256	1,998	1,541	913	5,709	712	1,133	777	615	3,236	298	474	366	217	1,355	-64.7%	-58.1%	
Sunflower Seed	2,497	2,714	2,189	401	638	492	292	1,824	313	498	342	270	1,423	119	189	146	86	540	-68.0%	-62.1%	
Buckwheat	104	113	91	17	27	21	12	76	312	497	341	270	1,419	7	12	9	5	34	-98.0%	-97.6%	
All Grains	259,801	282,393	227,736	41,748	66,417	51,236	30,362	189,780	48,899	77,793	53,344	42,231	222,266	36,024	57,311	44,211	26,199	163,745	-38.0%	-26.3%	
ALL RAIL EQUIPMENT																					
Peas	924,077	1,004,431	810,025	148,505	236,257	182,256	108,003	675,021	235,355	374,429	256,751	203,261	1,069,796	328,284	522,270	402,894	238,752	1,492,200	17.5%	39.5%	
Lentils	225,747	245,377	197,885	36,279	57,716	44,524	26,385	164,904	31,160	49,573	33,993	26,911	141,636	22,378	35,601	27,464	16,275	101,717	-39.5%	-28.2%	
Mustard Seed	31,861	34,632	27,929	5,120	8,146	6,284	3,724	23,274	3,132	4,983	3,417	2,705	14,236	3,101	4,934	3,806	2,256	14,097	-16.6%	-1.0%	
Malt	304,565	331,049	266,975	48,945	77,868	60,069	35,597	222,479	44,154	70,245	48,168	38,133	200,700	55,650	88,534	68,297	40,472	252,953	6.1%	26.0%	
Canary Seed	29,357	31,910	25,734	4,718	7,506	5,790	3,431	21,445	4,624	7,357	5,045	3,994	21,020	2,630	4,184	3,228	1,913	11,954	-52.1%	-43.1%	
Beans	7,815	8,495	6,851	1,256	1,998	1,541	913	5,709	712	1,133	777	615	3,236	298	474	366	217	1,355	-64.7%	-58.1%	
Sunflower Seed	2,497	2,714	2,189	401	638	492	292	1,824	313	498	342	270	1,423	119	189	146	86	540	-68.0%	-62.1%	
Buckwheat	4,244	4,613	3,720	682	1,085	837	496	3,100	902	1,435	984	779	4,100	377	600	463	274	1,713	-64.8%	-58.2%	
All Grains	1,530,163	1,663,221	1,341,307	245,906	391,215	301,794	178,841	1,117,756	320,352	509,651	349,475	276,668	1,456,147	412,836	656,785	506,663	300,245	1,876,529	8.5%	28.9%	

NOTES:

SOURCE: Canadian National Railway Company, and Canadian Pacific Railway Company

(1) Comprises all railway grain traffic originating in western Canada and moving to a designated western Canadian port in accordance with the provisions of the Canada Transportation Act. The grain volumes depicted herein include movements made with covered hopper cars, boxcars, trailers, containers or other railway equipment.