



**Monitoring the Canadian
Grain Handling and
Transportation System**

Grain Logistics: Recognition of Economic Imperatives in the Canadian Grain Freight Market

**M.A. Hemmes
Presentation to
Agriculture Australia 2006
Sydney, NSW
August 8, 2006**



Topics

- Perspective
- Canadian Grain Handling & Transportation System (GHTS) - Structure and Background
- Regulatory Background
- Canadian Grain Logistics
 - Impact
 - Economic Imperatives
- Summary



Perspective: Canada vs. Australia



Grain Production: 64.7 MMT

37.1 MMT

Grain Exports: 27.4 MMT

22.2 MMT

All Stats are 5 year averages. Source: Canada Production from Quorum GMP data + Canada Grain Commission Annual Canadian Grain Exports Reports; Australia figures from ABARE (Australian Bureau of Agricultural and Resource Economics) Australian Crop Report, June 2006.

Aug 8, 2006

Agriculture Australia 2006



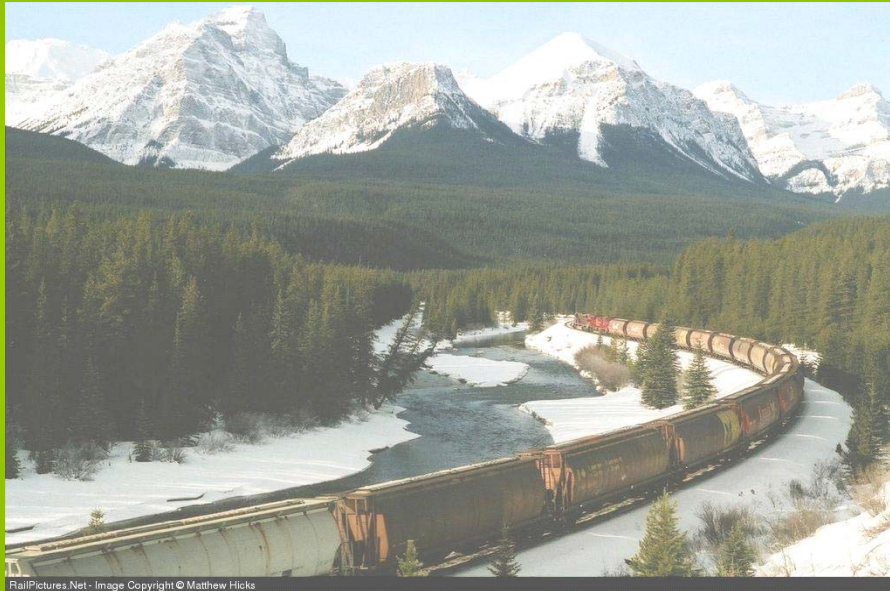
Perspective: Overview



- Canada and Australia saw comparable growth and challenges through roughly the same period of history:
 - Started in Mid 1800's
 - Immigrant population attracted to farm/ Ag industry
 - Economic challenges of early 1900's determined marketing approach for next 50 years



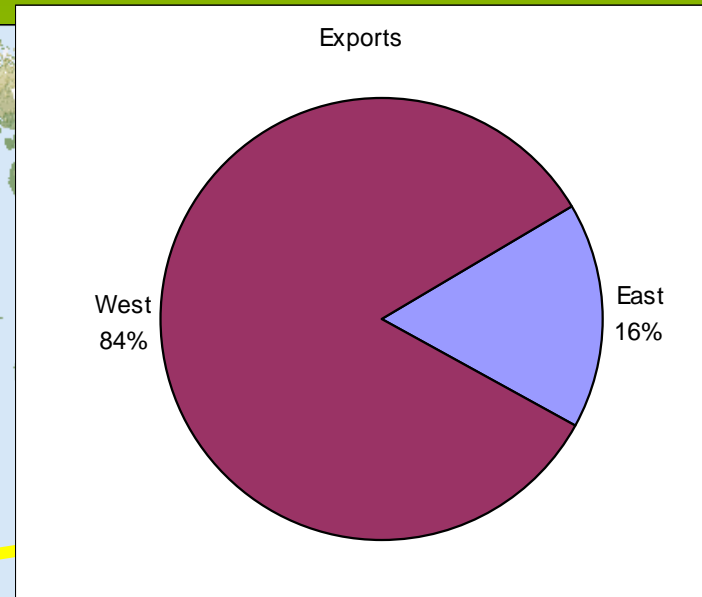
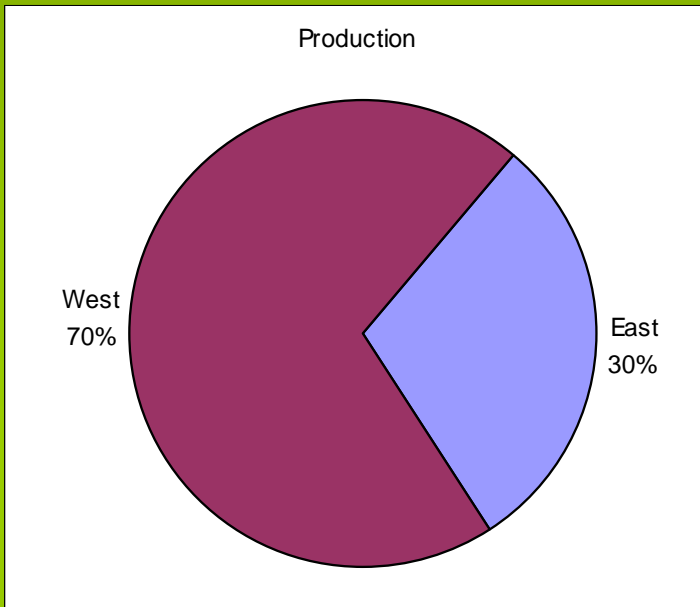
Perspective: Overview



- Major differences are
 - climate
 - length of haul
 - infrastructure approach
 - “On farm” storage
- Much driven by marketing approach
- Also differences in the approach to solutions



Canada: Production and Exports



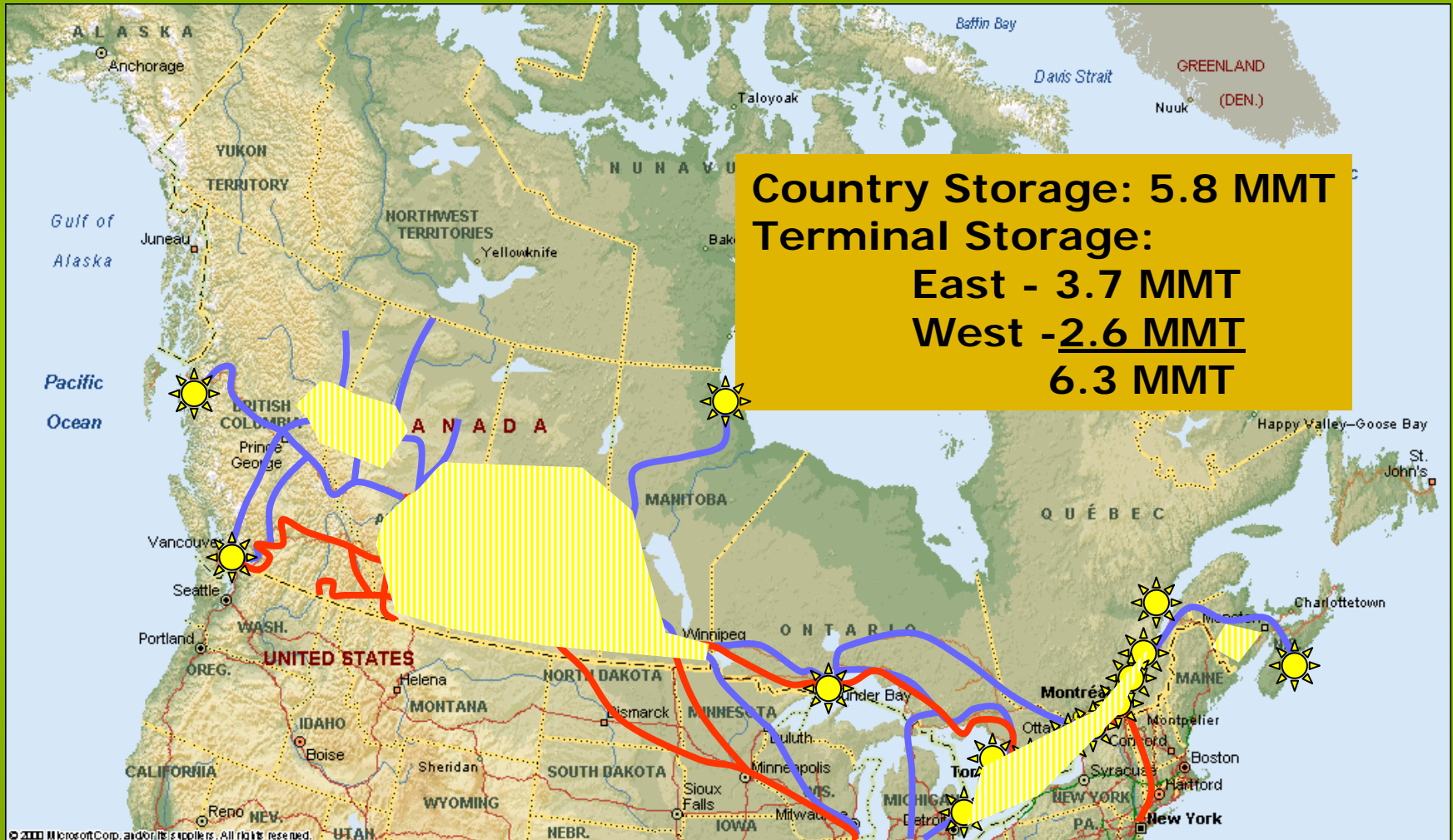


Grain Production in Canada

	West	East	Canada
Board Grains (Wheat, Durum, Barley)	31,029.4	3,240.2	34,269.6
Canola	6,338.1	236.4	6,574.5
All Other	8,033.5	15,844.1	23,877.6
	45,401.0	19,320.7	64,721.7



Canadian GHTS



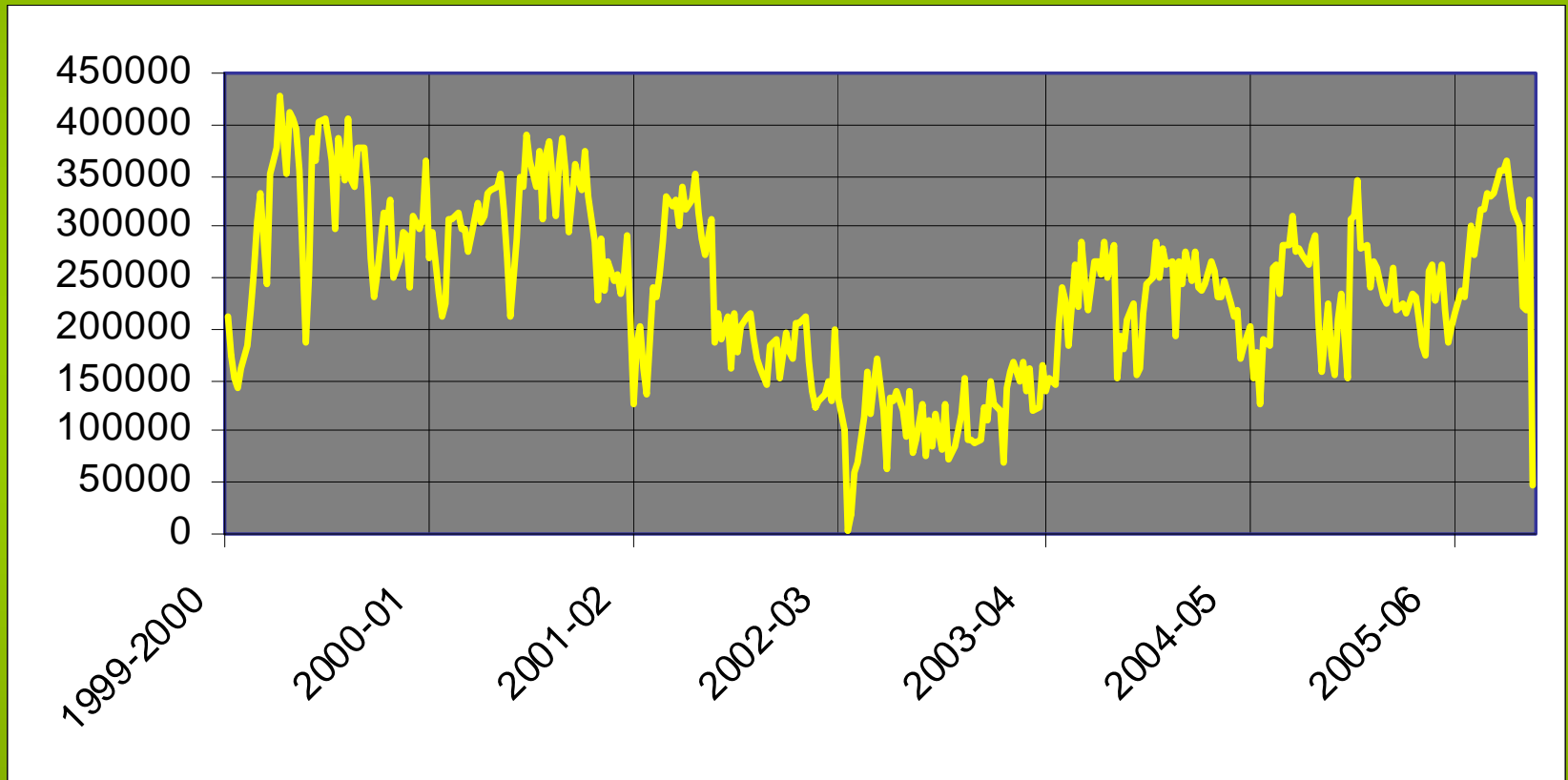


The Western Canadian GHTS...By the Numbers

- 20.8 million tonnes moved, 18.9 mmt loaded to bulk vessels
- Approx. 672,000 truckloads delivering grain
- 385 elevators at 282 delivery points
- 18,764 miles of track
- 218,447 cars unloaded at ports
- 695 vessels loaded with an average of 27,250 tonnes per load
- Average length of haul = 904 miles (1,446 km)
- Value of WC export movement = \$11 B ++
 - Cost of Transportation and Logistics = \$2.7 B ++



Actual tonnes unloaded/ week





Evolution of the GHTS Infrastructure

Aug 8, 2006

Agriculture Australia 2006



Country Receiving Network

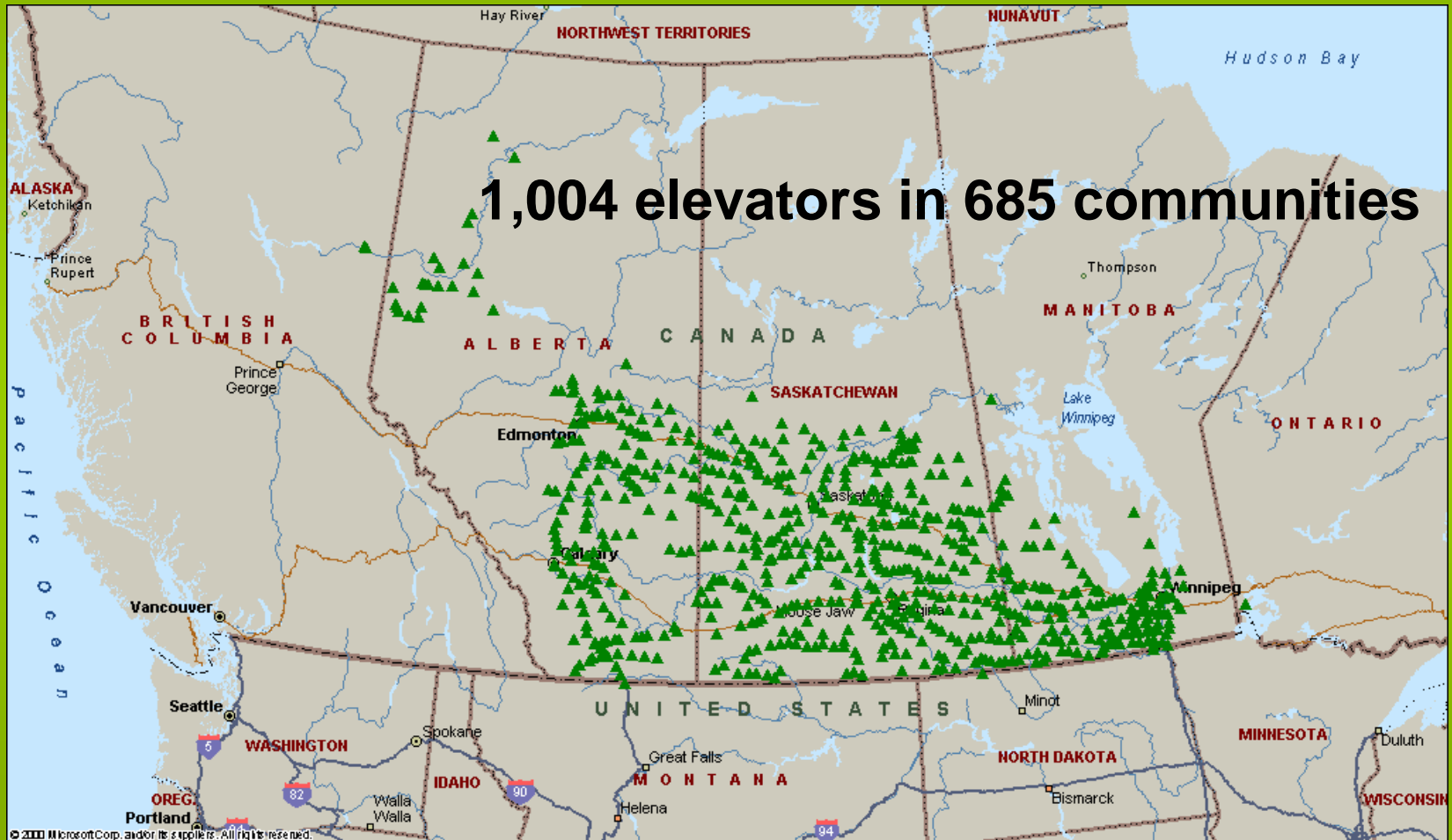


Aug 8, 2006

Agriculture Australia 2006



Country Elevators - 1999

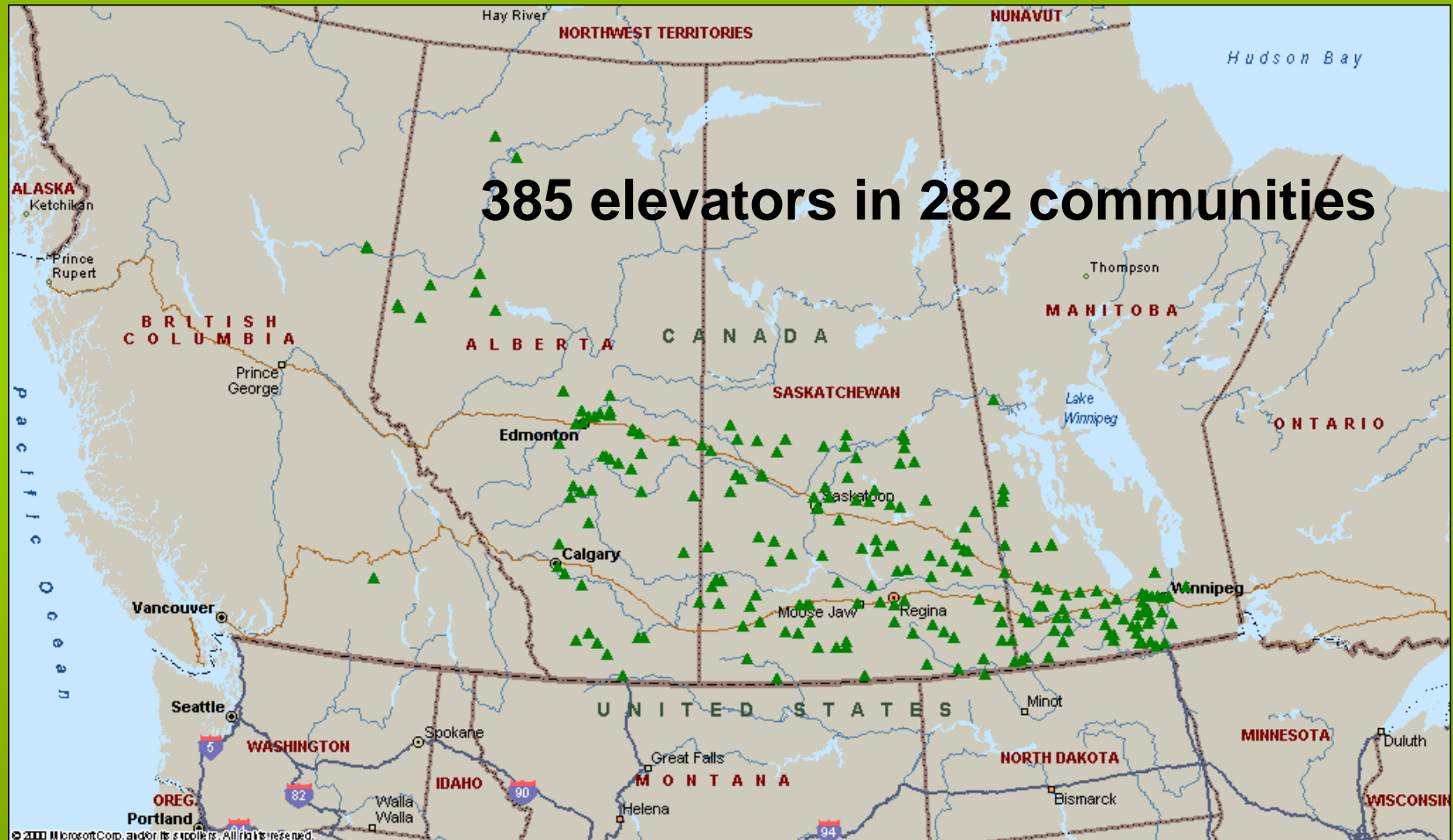


Aug 8, 2006

Agriculture Australia 2006



Country Elevators - 2005



Aug 8, 2006

Agriculture Australia 2006

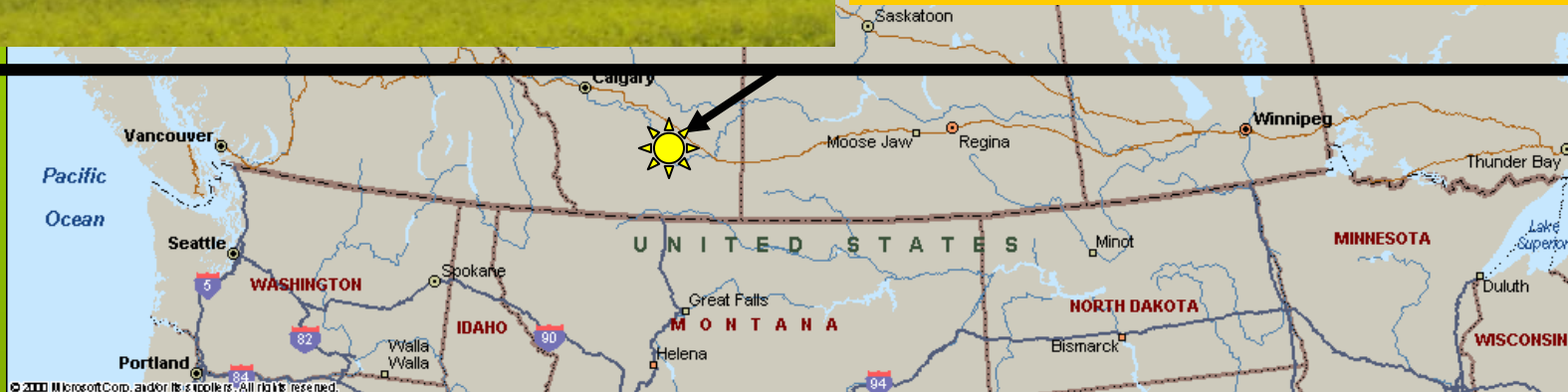


Country Receiving Network



AgPro Grain - Vulcan

- 31,500 Tonne Capacity
- Mixed Operation





Country Receiving Network



Weyburn Inland Terminal

- 105,000 Tonne Capacity
 - (Largest Primary in Canada)
- 366,000 MT Throughput in 2005
- Mixed Operation

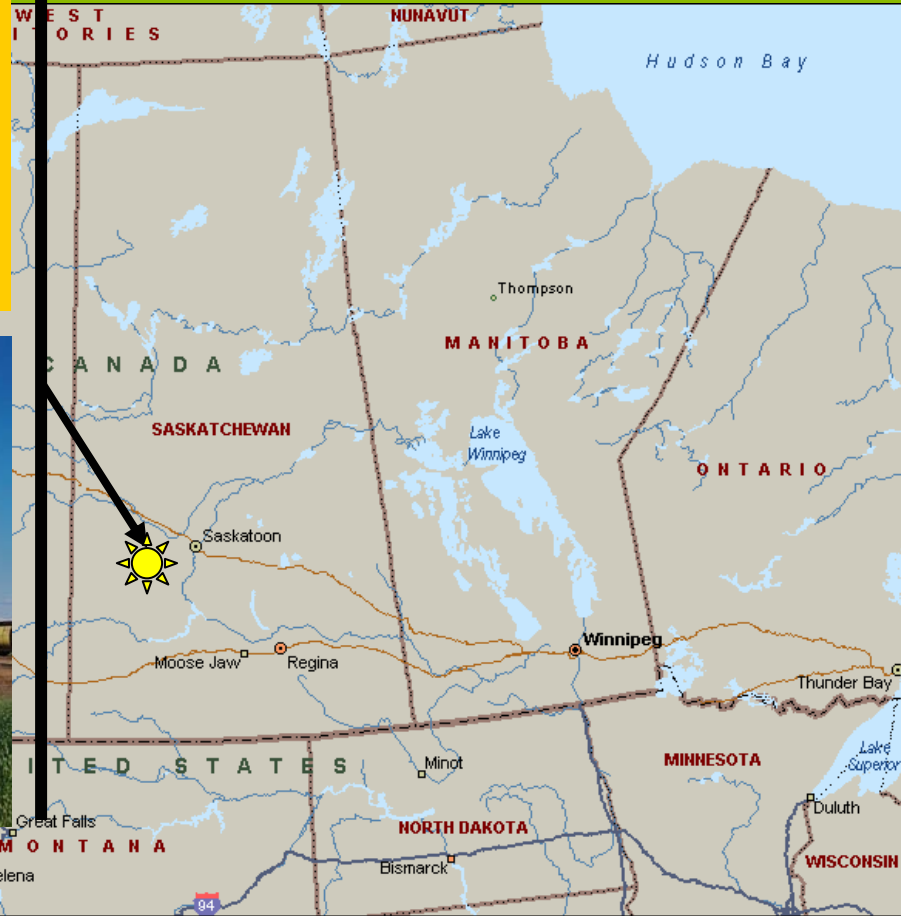




Country Receiving Network

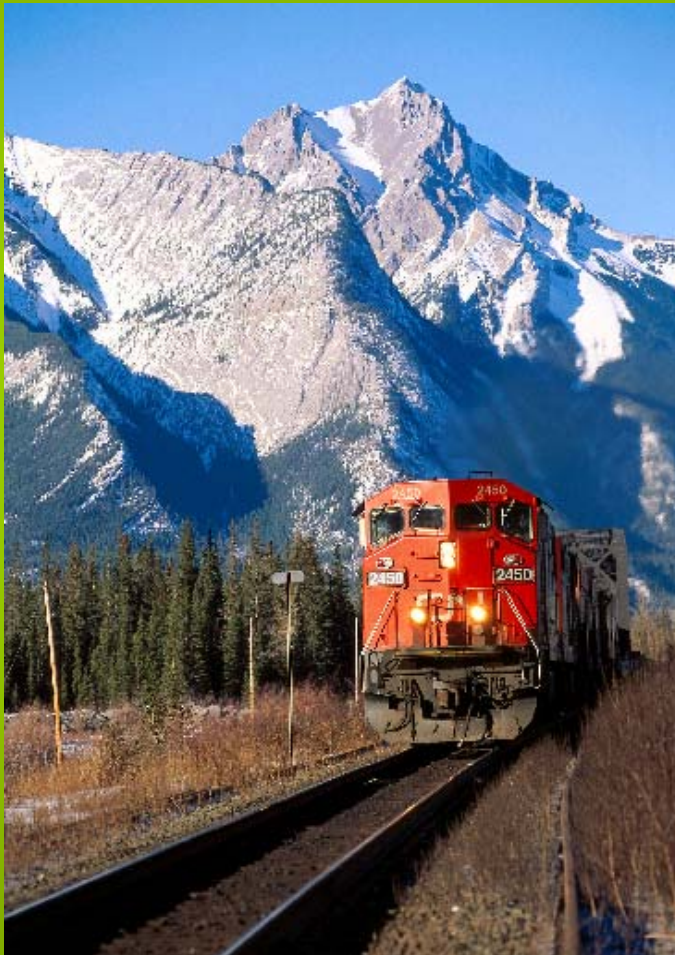
West Central Road & Rail

- 3,800 Tonne Capacity
- Producer Loading Site





Railroading in Western Canada



Aug 8, 2006

Agriculture Australia 2006



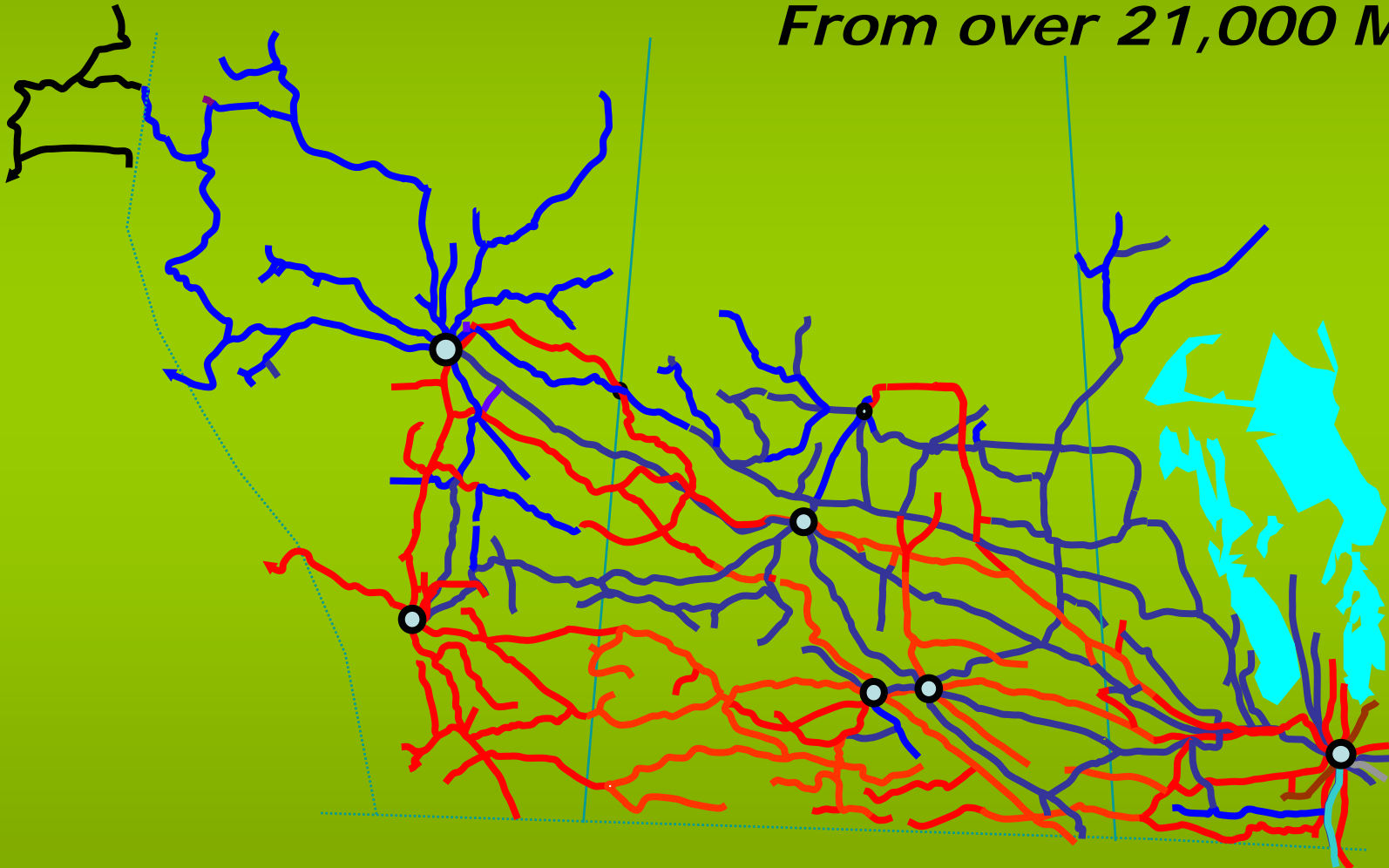
Railroading in Western Canada

- Grain trains typically 100-112 cars long
 - Carrying 10,000 – 12,000 tonnes each
- Train length on most trains now 8,000 ft. min with up to 14,000 tonnes/ train
- 2-3 4,000 HP Locomotives, 2 crew members
- Typical crew run is 120 miles
- Average length of haul is 906 miles



Western GHTS Rail Network - 1985

From over 21,000 Miles



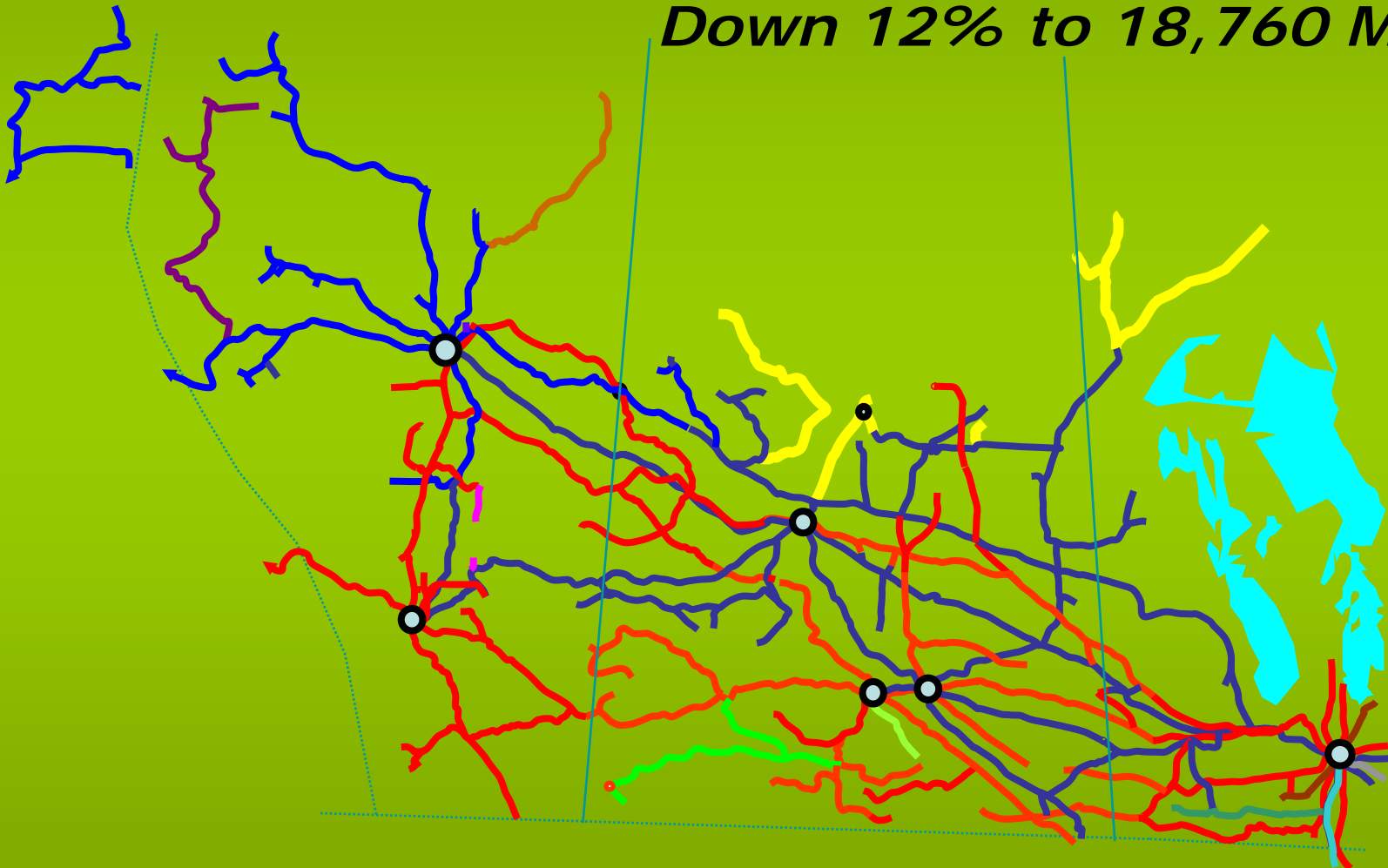
Aug 8, 2006

Agriculture Australia 2006



Western GHTS Rail Network - 2005

Down 12% to 18,760 Miles



Aug 8, 2006

Agriculture Australia 2006



Port Terminal Network



Aug 8, 2006

Agriculture Australia 2006



Quorum Corporation

Port Terminal Network

East Coast

- 9 Terminals in 5 Cities
- 1.462 Million Tonnes Capacity
- 2004-05 Shipped 4,059 M MT



Aug 8, 2006

Agriculture Australia 2006

Port Terminal Network

Thunder Bay

- 8 Terminals
- All Major Grain Co's
- Total Capacity = 1,338 M MT
- Uses St. Lawrence Seaway
- Limited to April – December
- 2004-05 shipped 6,049 M MT



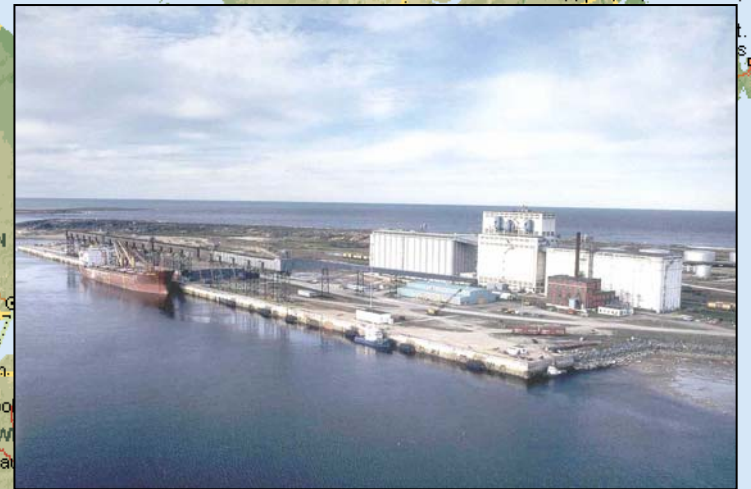


Port Terminal Network



Churchill

- Terminal owned by OmniTRAX
- 140,000 Tonnes Capacity
- Limited to August – October
- 2004-05 shipped 402 M MT



Port Terminal Network

Prince Rupert

- Terminal jointly owned by major Grain Cos
- Total Capacity = 209,500 M MT
- Shipped 2,673 M MT in 2004-05



Port Terminal Network



Vancouver

- 6 Terminals; 954,000 tonnes capacity
- 4 majors
- Highest throughput of all Canadian Ports – 11,135 M MT in 2004-05





Quorum
Corporation

GHTS US Gateways

Canada – USA Border Crossings

- Ft. Francis, Emerson, Northgate, Portal, Coutts, Kingsgate, Brownsville, (etc.)

- + Eastern Canada





Grain Companies - Evolution

- Alberta Wheat Pool
 - Manitoba Wheat Pool
 - United Grain Growers
 - Saskatchewan Wheat Pool
- Agricore United (Public)
- Pioneer (Richardson)
 - ConAgra
- SWP (Ag Pro) (Public)
- Cargill
 - Louis Dreyfus
 - Parish and Heimbecker
 - N.M. Patterson Grain
 - + about 20 others
- James Richardson Int. (Priv.)
- Cargill
- Louis Dreyfus
- P & H (Priv.)
- Patterson Global Foods (Priv)
- + about 20 others



Railways - Evolution

- Canadian National
 - Crown Corp
 - Priv. 1995
 - BC Rail
 - Owned by BC Gov't
 - Canadian Pacific
 - CP Holdings
 - Divers. 2003
- CN Rail
- Illinois Central
 - Wisc. Central
 - BC Rail
 - Various Smaller lines
- Canadian Pacific Railways



The GMP Dashboard

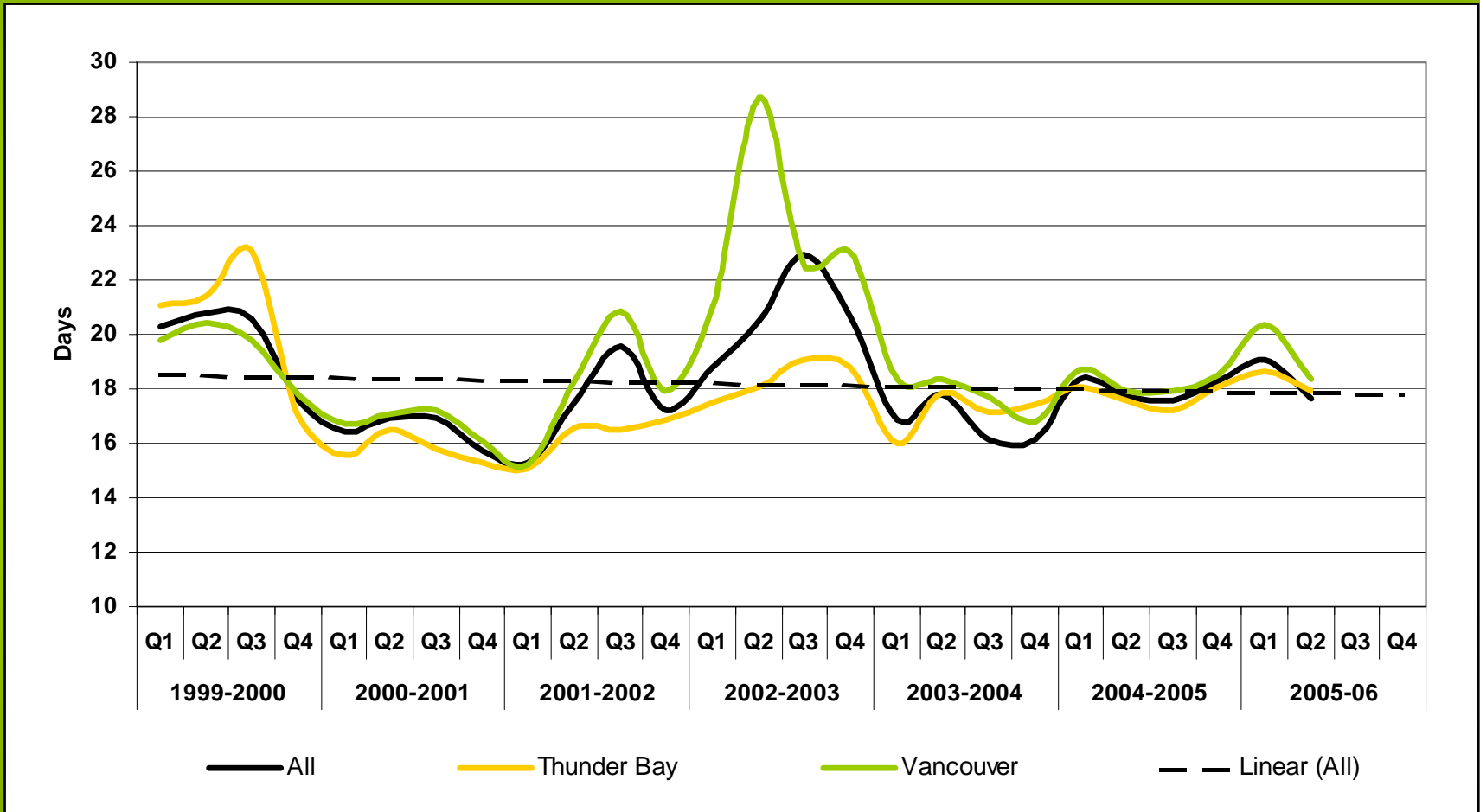
	2004-05	2005-06 Q1	
Total Time in System:	58.1	63.3 Days	9.0%
Loaded Transit Time:	8.8	9.5 Days	8.0%
Time In Store – Country:	29.6	33.5 Days	13.2%
Time in Store – Terminal:	19.7	20.3 Days	3.0%
Vessel Time in Port:	5.2	4.7 Days	9.6%

Elevator Turnover Ratio:

Country:	5.6	6.0	7.1%
Terminal:	7.5	n/a	
Total Car Cycle:	17.9	19.1 Days	6.7%



Car Cycles





Regulatory Change

Aug 8, 2006

Agriculture Australia 2006



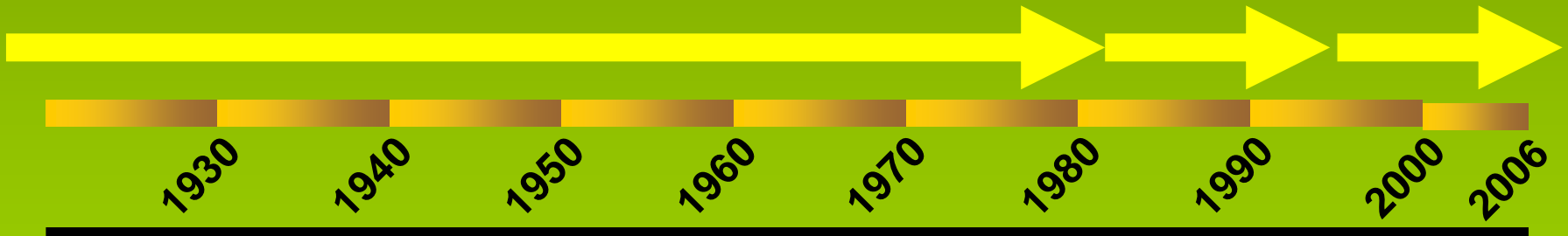
Regulatory History



- 1897 Crows Nest Pass Agreement
- Rail Strike (53)
- More Commissions of inquiry (54,58)
- National Transportation Act (67)
- Government creates Federal Hopper Car Fleet (72)
- More Commissions of inquiry
- Western Grain Transportation Act in effect 1984
- Railways hit low in profitability (early 80's)
- Transportation subsidies (Crow Benefit) eliminated (95-96)
- Canadian National Privatized (95)
- Canada Transportation Act (96)
- More Commissions of Inquiry
- CTA Changes (2000)
 - Regulated Rate replacement
 - Grain Monitor Established
 - CWB Tendering agreement



Regulatory Evolution



Crow Rate

- Started marginally over variable cost
- Gradually slipped to non profitability
- No Productivity to railways (no incentive)
- Capital resp. of the Railways

Crow Benefit

- Subsidy = 80% of cost (visible)
- Paid to railways (maintained export bias)
- Agency to control rail car allocation
- Mileage based fixed freight rates

Current Regs.

- Gov't "buy out" of subsidy to producers
- Revenue Cap
- Railway controls rates
- CWB Tendering
- Prairie Grain Roads Fund



The Revenue Cap

The Revenue Cap limits the maximum revenue entitlement a railway can charge based on a formula driven approach.

$$\text{Revenue Cap} = [(A/B) + ((C-D) \times \$0.022)] \times E \times F$$

Where:

A is the carrier's revenue for the movement in the base year;

B is the tonnage moved by the carrier in the base year;

C is the carrier's average length of haul for the movement of grain in the crop year;

D is the carrier's average length of haul for the movement in the base year;

E is the tonnage moved by the carrier in the crop year; and

F is the volume-related composite price index determined by the Agency.



Revenue Cap Definitions

- A statutory limit on amount of revenue railway can earn
- A dynamic revenue regulating mechanism
- Allows for adjustments of add. operating costs and inflation.
- It allows for the handling of more volume
- Does not incorporate static revenue limits



Revenue Cap Performance

	BASE	2001-02	2002-03	2004-05	Var.
Total Tonnes Moved (Millions)	26.3	22.1	16.4	24.3	(7.7%)
Average Length of Haul (miles)	967	896	869	904	(6.5%)
Allowable Revenue (\$Mil.)	710.9	580.3	425.5	629.3	
Reported Revenue (\$Mil)		558.0	401.7	628.8	(11.5%)
Reported Revenue Cap Differential (\$Mil)		22.3	23.8	0.4	
Actual Revenue per tonne (dollars)	\$27.00	\$25.28	\$24.52	\$25.87	(4.2%)
Actual Revenue per tonne- mile (cents)		2.82	2.82	2.86	2.5%



Revenue Cap Performance

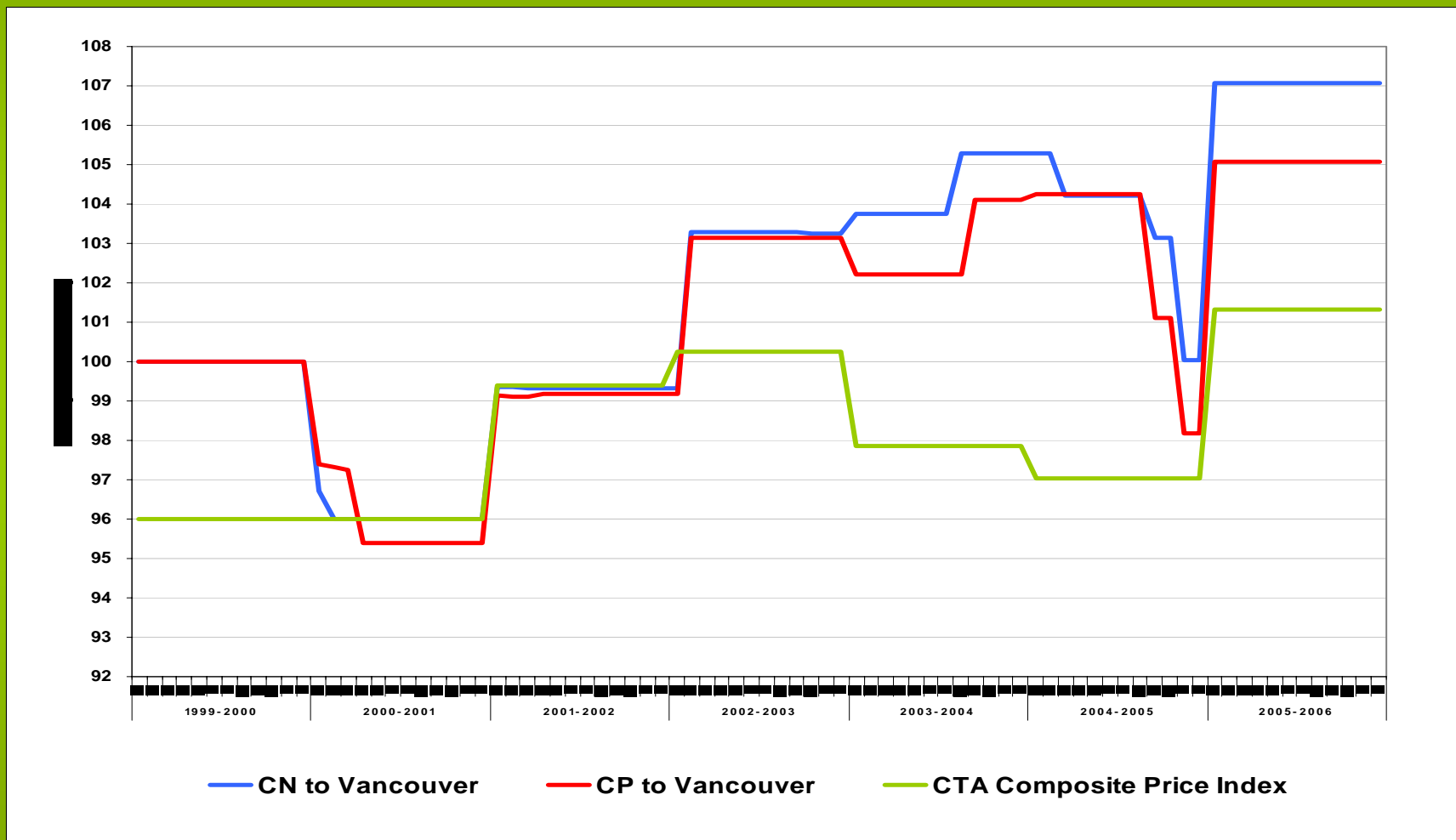
Crop Year 2004-05 Results

	CN	CP
Allowable Revenue (\$000)	305,670	323,582
Reported Revenue (\$000)	305,789	323,069
Reported Rev. Cap Diff. (\$000)	(119)	513
% Variance	-0.04%	0.16%

- Exceptional management of rates and costs to be within 2/10^{ths} of a percent
- What do the past two years results really indicate?



Single Car Rate Adjustments





CWB Tendering

- Regulatory imperative from 98-99 inquiries
 - intended to add “more commercial” flavour.
 - Required CWB to source a proportion of port export movement by commercial tender
 - Three year/ staged approach (25%-25%-50%)
 - Difficult negotiations between CWB and Grain Co's ...
 - Intent was to take discounts and pass them back to growers through the CWB Pool Accounts
- Qualified success but
 - Dissatisfaction with operation resulted in review and rollback to 20%



Economic Impact

Aug 8, 2006

Agriculture Australia 2006



Regulatory Impact on Export Basis

CPI= 14%/ FIPI =24%

	1999-2000	2004-2005	% Chg	
<u>Freight Costs</u>				
Weighted Applicable Freight	31.87	33.74	6%	Rev Cap
Churchill Freight Advantage Rebate		(0.05)	n/a	CWB Initiative
Trucking Costs	5.94	6.54	10%	Fuel
TOTAL FREIGHT	37.81	40.23	6%	
ELEVATION AND CLEANING	13.69	16.21	18%	
<u>Other Costs and Premiums</u>				
CWB Costs	5.40	6.50	20%	
Trucking Premiums	(2.32)	(3.68)	59%	Rev Cap
CWB Transportation Savings	-	(1.49)	144%	Tendering
TOTAL OTHER	3.08	1.33	-57%	
TOTAL EXPORT BASIS	54.58	57.77	6%	



Export Basis Estimates Comparison

	Canada 2004-05	Aus 2004-05	USA 2005-Q4
<u>Freight Costs</u>			
Rail Freight	33.74	16.00	49.49
Churchill Freight Advantage Rebate	(0.05)		
Trucking Costs	6.54	7.00	10.06
TOTAL FREIGHT	40.23	23.00	59.45
ELEVATION AND CLEANING	16.21	14.00	13.00
<u>Other Costs and Premiums</u>			
CWB Costs	6.50		
Trucking Premiums	(3.68)		
CWB Transportation Savings	(1.49)		
TOTAL OTHER	1.33		
TOTAL EXPORT BASIS	57.77	37.00?	72.45 +/-

Canada Basis from Quorum GMP Measures 2004-05; Australia Basis interpreted and estimated from SD&D Presentation at Agriculture Australia 2006 (Grain Sector Value Chains Commercial and Policy Implications); USA basis from USDA Report on Grain Transportation July 20, 2006 (Elevation is estimated based on Quorum data).

Aug 8, 2006

Agriculture Australia 2006



Looking to the Future

- Access to transportation capacity
 - Rail
 - Bulk Vessel
 - Container
- Inevitable changes that will come from evolving energy markets
 - Wheat for fuel, ethanol
 - Canola for biodiesel
 - DDGS – local feed demand
- Necessity for continued Supply Chain process improvements and coordination



Summary

- Canada now has a strong and rationalized GHTS – in terms of infrastructure and network capability
 - Due to strong economic growth, some short term issues lie in available transportation capacity ... Not insurmountable
- Next challenges lie in dealing with optimizing the Supply Chain
- Performance and trends starting to reveal real improvements (i.e. time in Supply Chain)
- Revenue Cap, and other regulatory actions have largely accomplished the intended goals
- More changes are coming for the Canadian GHTS – perhaps sooner than later ...



...in closing



Aug 8, 2006

Agriculture Australia 2006



Monitoring the Canadian Grain Handling and Transportation System



Thank You