

THE DYNAMICS OF GRAIN FREIGHT INDUSTRY CHANGES IN WASHINGTON

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OUTLINE

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Eastern Washington Grain Movement and Road Needs Survey

- First conducted in 1994 under the Eastern Washington Intermodal Transportation Study (EWITS) in cooperation with the Washington Department of Transportation (WSDOT).
- Study was an enormous success so it was decided to conduct another similar study for new information and comparisons.

Objectives of New Survey

- Collect information on the changing grain industry under the Strategic Freight Transportation Analysis Grant (SFTA) along with the Washington Wheat Commission and Washington Barley Commission.
 - ◆ Shipping Information by Mode & Season
 - ◆ Storage Information
 - ◆ Handling Information

- Compare Elevator Characteristics
 - ✓ Number of Licensed Warehouses
 - ✓ Number of Elevators
 - ✓ Capacities
 - ✓ Grain movement Characteristics by Mode & Season

1994 Survey

- 71 Public Grain Warehouse Owners
 - ◆ 64 responses
 - ◆ Total grain storage capacity of public grain warehouses is ??? bushels
- 470 Surveys Distributed
 - ◆ 410 responses
- Grain storage Capacity of 410 respondents is 154,523,000 bushels
 - ◆ Accounts for ???????????????????????%
- Focused on 16 Eastern Washington Counties

2002 Survey

- 50 Public Grain Warehouse Owners
 - ◆ 47 Responses
- Total Grain Storage Capacity of Public Warehouses is 166,419,000 bushels
- 383 Elevators surveyed
 - ◆ 364 responses
- Grain storage Capacity of 364 respondents is 147,826,000 bushels.
 - ◆ Accounts for 88.96% of storage capacity
- Focused on 17 Eastern Washington Counties

Changes in Survey Population

- Number of licensed grain warehouses shrank by 21 firms in 2002
- Number of elevators decreased by 87 in 2002 survey
- Volume of Storage ??????

Comparison of Size Distribution of Elevators

Number of Elevators

Survey Year	Bushels						TOTAL
	<=200,000	200,001 – 400,000	400,001-600,000	600,001-800,000	800,001-1,000,000	>1,000,000	
1994	105	77	56	21	11	39	309
2002	131	104	76	28	13	31	383

Elevator Capacity and Shipment Comparison

Survey Year	bushels	
	Total Capacity	Total Shipments
1994	140,324,000	125,399,458
2002	167,751,000	125,481,738

Farms Which Ship to an Elevator by Distance

Distance from Elevator (mi)	Percent of Farms in 1994 Survey	Percent of Farms in 2002 Survey
Less than 5	37.71	49.39
5 to 10	51.03	30.48
10 to 20	8.39	16.80
More than 20	2.79	3.33

Annual Wheat and Barley Receipts by Time Period

Time-Periods	Wheat		Barley	
	1994	2002	1994	2002
July-August	72.2	85.4	66.5	81.2
September-October	9.0	11.7	10.5	14.5
November-December	5.8	1.3	7.7	1.0
January-February	4.0	0.7	8.6	0.7
March-April	3.6	0.3	4.1	0.3
May-June	4.7	0.6	2.2	2.2

Annual Wheat and Barley Shipments by Time Period

Time-Periods	Wheat		Barley	
	1994	2002	1994	2002
July-August	19.1	16.6	11.2	17.4
September-October	19.8	23.5	17.6	20.2
November-December	20.3	20.7	28.8	23.2
January-February	15.3	17.7	24.6	12.9
March-April	14.5	13.7	12.2	14.7
May-June	6.5	8.0	4.9	11.6

Wheat and Barley Shipments by Destination

Destination	WHEAT		BARLEY	
	1994	2002	1994	2002
Columbia River Ocean Elevators	79.5	85.3	60.9	50.1
Puget Sound Elevator	2.1	0.7	1.9	-
Transshipment to Other Houses	12.3	10.8	4.5	12.0
In-State Flour Mills	0.9	0.3	-	0.3
Out-of-State Flour Mills (ONLY 2002)	-	0.3	-	0.1
Vancouver, WA	0.3	-	10.2	31.9
Feedlots	-	0.1	16.9	3.2
Other	4.8	1.1	4.6	2.5

Modes Used to Ship Wheat and Barley

Transportation Mode	WHEAT		BARLEY	
	1994	2002	1994	2002
Truck to Other Houses	12.5	14.9	14.5	13.3
Truck to Final Market	2.0	1.3	19.6	26.2
Truck-Barge	61.3	54.4	44.8	33.1
Rail-Barge (Only 2002)	-	5.2	-	5.1
Single-Car Rail	0.9	0.6	1.1	3.5
3-Car Rail	1.7	1.9	9.6	8.7
25/26-Car Rail	21.4	20.0	9.9	6.9
Other	0.1	1.6	0.2	3.3

1994 Modal Shipment Intensity for Wheat Using a Particular Mode

Percent of Elevators	Percent				
	Single-Car Rail	3-Car Rail	25/26-Car Rail	Truck-Barge	Truck Only
0-20	99.2	95.5	82.7	35.7	94.5
21-40	0.0	1.5	1.9	5.6	1.1
41-60	0.0	0.4	2.3	7.5	0.0
61-80	0.0	0.4	4.9	4.5	0.8
81-100	0.8	1.9	8.3	46.6	3.8
TOTAL	100.0	100.0	100.0	100.0	100.0

2002 Modal Shipment Intensity for Wheat Using a Particular Mode

Percent of Elevators	Percent				
	Single-Car Rail	3-Car Rail	25/26-Car Rail	Truck-Barge	Truck Only
0-20	57.1	46.7	6.8	21.5	50.0
21-40	14.3	0.0	6.8	7.4	0.0
41-60	14.3	33.3	21.6	15.6	0.0
61-80	0.0	13.3	21.6	6.7	37.5
81-100	14.3	6.7	43.2	48.8	12.5
TOTAL	100.0	100.0	100.0	100.0	100.0

New Modal Shifts Section

- Looked at impacts of monies invested or lack of for modal choices to and from elevators
- Elevator Manager Opinions
- Modal Choice Impacts Included:
 - ◆ Short Lines
 - ◆ Main Lines
 - ◆ Truck Technologies
 - ◆ Loading Technologies (120-Car Facilities)

Future Analysis of Modal Shifts

➤ Short Lines

- ◆ Change in Rates, Volume on Rail, and Volume on Roads as a result of infrastructure investments

➤ Main Line

- ◆ Changes in Rates, Volume on Rail, and Volume on Roads as a result of infrastructure investments

➤ Truck Improvements

- ◆ Use Geographic Information System (GIS) approach

➤ Multi-Car Loading Facilities (120-Car Loading Technology)

- ◆ Changes in rates, Volume, Volume on Roads, Volume on River, and on Rail.

Conclusions

➤ Elevators

- ◆ Overall Numbers have decreased
- ◆ Capacities have increased
- ◆ Farm storage more uncommon

➤ Drawing Capacity

- ◆ Elevators are still drawing from short distances, but elevators are expanding drawing distance by small amounts.

➤ Receiving and Shipping

- ◆ Larger percentage of elevators are receiving more wheat and barley during the July-August time period.
- ◆ Increased by 13.2% for wheat and 14.7 for barley to 85.4 and 81.2 respectively.
 - This indicates that there is less on farm storage and more direct shipment of grain to local elevators.

Conclusions (cont.)

➤ Shipment Destinations

- ◆ 85.3% of wheat and 50.1% of barley is still shipped to River Port Facilities
- ◆ 21.7% increase in Barley being shipped to Vancouver, WA.

➤ Shipment Modes

- ◆ Truck-Barge still ships over 50% of wheat and over 30% of barley
- ◆ 25/25-Car Rail is the second most prominent mode

Future Analysis Possibilities

- The Drawing Power of an Elevator (GIS Approach)
 - ◆ Distances to infrastructure
 - ◆ Distance to other elevators
- Cooperatives vs. Private owned Elevators
 - ◆ Size differences
 - ◆ Location
 - Modal choices available
 - ◆ Price