

Grain Transportation Prospects

February 20, 2003



Featuring

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GRAIN TRANSPORTATION PROSPECTS

* Shipping Volume and Rate Indicators *

Mode		From last quarter	From same quarter last year	Next quarter (expected)
Ocean	Volume	Increased 28%	Decreased 8%	Seasonal decrease
	Rates	Increased 22%	Increased 45%	Remain above average
Barge	Volume	Increased 16%	Increased 3%	Down
	Rates	Increased 51%	Increased 10%	Up
Rail	Volume	Increased 12%	Decreased 4%	Slightly down
	Rates	Steady	Slight increase	Up 1-2% plus 2% fuel surcharge
Truck	Volume	Moderate decrease	Moderate decrease	Moderate increase
	Rates	Stable	Stable	Slight increase

Ocean: Based on Federal Grain Inspection Service and Maritime Research Service data

Barge: Based on U.S. Army Corps of Engineers and telephone survey

Rail: Based on Association of American Railroads data and railroad tariffs

Truck: Based on telephone survey

* Transportation Situation *

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USDA's Outlook Forum Addresses Transportation Issues

USDA's Agricultural Outlook Forum 2003 will be presented at the Crystal Gateway Marriott in Arlington, VA, on February 20-21. Barbara Robinson, Deputy Administrator, Transportation and Marketing Programs, AMS/USDA, will moderate a session entitled "The Effects of Transportation on the Competitiveness of U.S. Agriculture" on February 20 at 3:45-5:30 p.m. Below is a brief overview of the session topics and their presenters. For complete details, go to www.usda.gov/occe or e-mail agforum@usda.gov.

Transportation's Role in Competing in Global Markets. Bill Motes, Senior Vice President of Sparks Companies, Inc. (Sparks), will address the issue of where the United States stands in relation to other countries in infrastructure development including transportation and handling facilities. USDA, grain producers, and grain shippers are concerned that the United States is lagging behind other countries and will not be able to provide efficient low-cost transportation which is needed to compete in world markets. For more information about Sparks, go to www.sparkscs.com.

Transportation Capacity Issues on the Upper Mississippi and Illinois River Systems. Chris Brescia of Mid-West Area River Coalition 2000 will discuss the importance of the inland waterways and the need to replace locks and dams in the upper Mississippi and Illinois River systems. Information about the organization can be found at www.marc2000.org.

Rail Services and Capacity Effects. Gene Griffin, Director of the Upper Great Plains Transportation Institute (UGPTI), North Dakota State University, will speak on how rail capacity and pricing affect the competitiveness of U.S. agriculture. Go to www.ugpti.org for more information about UGPTI.

Intermodal Connectivity and Bottlenecks. Barry Prentice, Director of The University of Manitoba's Transportation Institute, will discuss ways to enhance intermodal connectivity for U.S. agriculture. He will identify bottlenecks in the U.S. transportation system and discuss how these bottlenecks increase transportation costs to the agricultural community. Go to www.umanitoba.ca for more information about the Institute.

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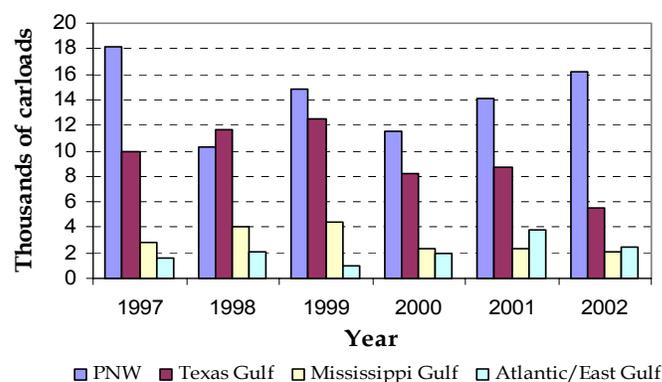
Closure of West Coast Ports Impacts Grain Transportation

Closure of Ports Increases Grain Shippers' Costs. Labor disputes between the International Longshore and Warehouse Union and the Pacific Maritime Association closed West Coast ports from September 29 through October 9, 2002. This closure caused a disruption and economic losses for commercial activities around the Nation, especially for shipments of agricultural products, including grains, from the Pacific Northwest (PNW). On average, the PNW accounts for about 40 percent of all wheat exported from the United States and about 20 percent of all feed grain exports. During the past 5 years, PNW exports accounted for approximately 40 percent of total U.S. grain exports to Asia.

An industry spokesperson reported that as many as 20 vessels were waiting in line to be loaded at one time during the closure. Depending on the size, a chartered vessel costs \$7,000-\$20,000 per day, and any idle or unloaded vessel may also incur demurrage fees (cost of using the vessel additional days beyond those allowed in the contract). In addition, nearly all export grain elevators were shut down during the closure.

October Rail Grain Deliveries to PNW Up, Down for Other Ports. Despite the disruption and the accompanying economic losses, the overall effect of the ports closure on delivery and export of grains during October was mixed. Rail carload deliveries of grain to the PNW during October were up 2,075 carloads (figure 1) or 15 percent, compared to October 2001, and 17 percent above the 5-year average. However, year-to-date deliveries (through October) to West Coast ports were 7 percent less than last year's. During the closure, there was an embargo on movement of commodities to West Coast ports, but railroad companies tried to accommodate shippers by continuing to move commodities that were already enroute or contracted.

Figure 1--October Rail Carloads Delivered to Ports, 1997-2002



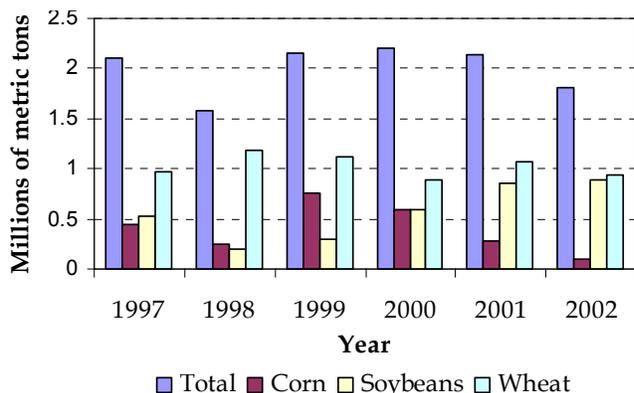
Data source: *Grain Transportation Report*, Agricultural Marketing Service, USDA.

In October, rail carload grain deliveries to Texas Gulf, Mississippi Gulf, and Atlantic and East Gulf ports were down 37, 12, and 36 percent, compared to the previous October. While carload deliveries to Texas and Mississippi Gulf ports were 46 and 35 percent below the 5-year average, deliveries to Atlantic and East Gulf ports were 15 percent above the 5-year average.

PNW October Shipments of Soybeans Up; Corn, Wheat, and Total Grain Shipments Down.

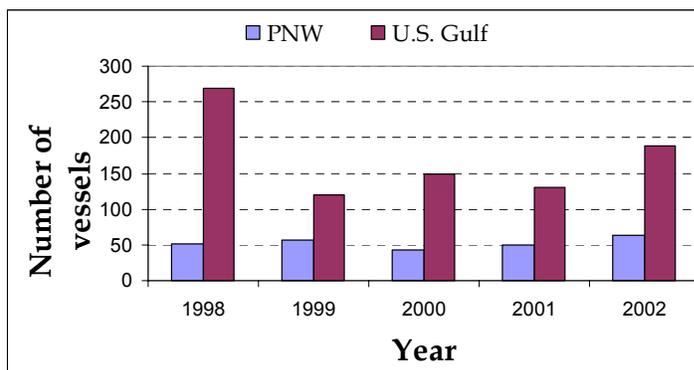
During October, the Federal Grain Inspection Service (FGIS) inspected 1.81 million metric tons of all grains for export from the PNW (figure 2). This is down 16 percent from October last year and 11 percent from the 5-year average. On a positive note, soybeans inspected totaled 0.89 million metric tons, up 5 percent from the previous year and 80 percent from the 5-year average. During the same period, however, corn inspected for export totaled only 0.10 million metric tons, down 65 percent from October of last year and 78 percent from the 5-year average. Wheat inspected for export totaled 0.93 million metric tons, down 12 percent from the previous October and 11 percent from the 5-year average.

Figure 2--October Pacific Northwest Grain Inspections, 1997-2002



Data source: Federal Grain Inspection Service, USDA.

Figure 3--October Ocean Grain Vessels, 1997-2002



Data Source: Grain Transportation Report, Agricultural Marketing Service, USDA

Corn shipments in October suffered the largest reduction. Unlike soybeans, which Asian countries were purchasing in large quantities, U.S.-grown corn was not being purchased by Asian countries at that time. Furthermore, because of the location and timing of corn production, it was easy to divert these shipments to the U.S. Gulf.

October Grain Loadings of Ocean Vessels in the PNW and U.S. Gulf Ports Up.

The number of ocean grain vessels loaded in the PNW during October was 63, an increase of 25 percent compared to 50 in October 2001, and 25 percent above the 4-year average of 50 vessels (figure 3). The loaded vessels were of varying sizes, ranging from an average of 40,000 metric tons (handy-max) to 54,000 metric tons (panamax). The number of ocean grain vessels loaded in U.S. Gulf ports was 188, a 44-percent increase, compared to 131 for the previous year, and 12 percent above the 4-year average of 167 vessels.

Shippers Welcome West Coast Port Settlement.

The International Longshore and Warehouse Union and the Pacific Maritime Association reached a tentative agreement on November 23,

2002. The agreement was ratified by union members on January 21, 2003.

Expectations are that this new agreement will normalize activity, generate efficiency, and increase port productivity, thereby reducing costs over time. Eventually, the reduced costs and other benefits can be transferred to the ultimate consumers, including shippers of agricultural products. Farmers will also benefit from lower transportation or shipping costs because those lower costs could result in increased exports.

Shippers of agricultural products, including grains, welcome the new agreement. West Coast ports handle approximately half of all U.S. agricultural exports and 58 percent of all U.S. containerized agricultural exports. Feed grains are among the top commodities exported by container from the United States. In addition, about 40 percent of total U.S. grain exports to Asia pass through West Coast ports.

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Containerized Grain

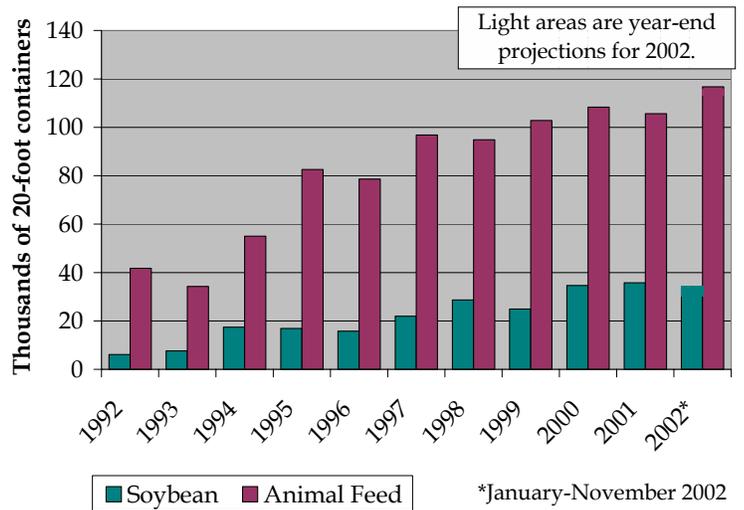
Due to the growing trend in the use of containers for shipping grain and oilseeds, the Grain Transportation Prospects will periodically report on the rates and volumes of containerized grain shipments.

Ten-Year Volume Increase for Containerized Grain Exports. Over the past 10 years, containerized soybean exports have more than quadrupled, and animal feed container exports have increased by more than 150 percent (figure 4). Soybeans and animal feed continually rank in the top 10 of all U.S. agricultural exports moved by container annually. In 2001, these two commodities accounted for almost 50 percent of all grain and grain products exported via container.

Small Increases for January-November 2002 Export Volumes. Over 116,000 containers of feed were exported from the United States as of November 2002, up 18 percent from 96,000 as of November 2001. As of November 2002, nearly 34,000 containers of soybeans were shipped, up 5 percent from November 2001 (figure 4).

Volumes Projected To Increase. Buyers are more frequently requesting that specialty grain shipments (including organically produced grains and grains with specific color, protein, or other intrinsic attributes) be stored and transported using methods, such as containerization, that provide identity preservation. As this demand for containerized shipping continues to grow, so should volumes of containerized grain and grain products, both in the short and long term. Based on the current trends in container exports, it is projected that total exports for 2002 will be nearly 40,000 20-foot containers of soybeans and 118,000 20-foot containers of animal feed. In addition, USDA reports that demand for feed is strong (WASDE-393, USDA, December 10, 2002) and also projects that soybean exports for the United States will increase (WASDE-394, USDA, January 10, 2003).

Figure 4--Animal Feed and Soybean Exports by 20-Foot Container, 1992-2002

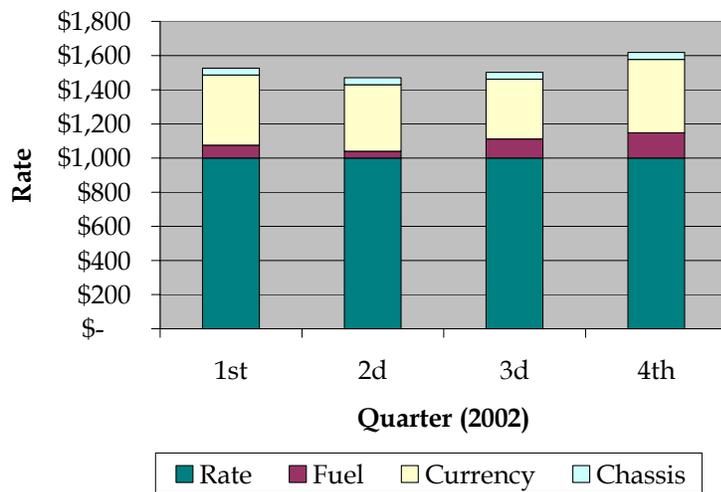


Source: Port Import Export Reporting Service (PIERS), *Journal of Commerce*, 1992-2002

Fuel Prices Drive Shipping Costs Up in Fourth Quarter. Compared to the third quarter of 2002, fourth quarter rates for containerized grain shipments have increased \$72 per 20-foot container due to an increase in the 2002 bottom-line freight rates, which include surcharges and others fees in the U.S.-Asia trade lane. Increased fuel surcharges can account for 15 percent of the current rate of an average shipment (figure 5). This surcharge has more than tripled since the second quarter of 2002, up to \$148 from \$40.

In contrast, publicly filed base rates (or “tariffs”) for both animal feed and soybeans have not changed over the past year. During the fourth quarter, base tariff rates for soybeans to Japan

Figure 5--U.S. Containerized Animal Feed Exports to Korea, Base Rates and Surcharges



Source: *Ocean Freight Rate Bulletin*, USDA/Agricultural Marketing Service, 2002

maintained the 2002 average rate of about \$1,000 per container, and rates for shipments of animal feed to Asia have maintained the 2002 average rate of about \$800 per container.¹

Rates Are Expected To Rise. Carriers within the Westbound Transpacific Stabilization Agreement (12 of the largest carriers in the U.S.-Asia trade lane) have filed for general rate increases of up to \$400 per container. As of January 1, all nonrefrigerated shipments originating inland are up \$320 per 20-foot container and \$400 per 40-foot container. Rates for shipments originating at the port are increased by \$160 and \$200 for 20-foot and 40-foot containers, respectively.

Available Space for U.S. Containerized Exports Up, Demand Down. Because export space is up and demand is down, there is an excess of available space for containerized grain and feed exports. The *Journal of Commerce* reports that availability of export container space increased from 2.5 million in the third quarter of 2001 to 2.6 million in the same quarter of 2002 (measurements are in 20-foot equivalent units), even though the actual number of containers exported decreased from 1.5 million in the third quarter of 2001 to 1.4 million in the third quarter of 2002 (*On Board Review*, Winter Report, PIERS, New York, 2002).

This excess container capacity may give grain shippers an advantage during rate negotiations. Due to the continued U.S.-Asia trade imbalance, shipping lines must ship large quantities of empty containers to meet the demand for containers in Asia, often absorbing the cost of repositioning the container. As a result, shipping lines frequently look for cargo that does not require special handling or equipment to fill these empty containers. Lower valued agricultural commodities, such as animal feed and grain products, meet these shipping criteria. Therefore, in times of excess capacity, as is the current situation, agricultural grain exporters may be able to negotiate reduced rates for lower valued agricultural commodities.

Container Capacity Expected To Decrease. Available space for containerized exports will continue to exceed demand (as a result of the ongoing trade imbalance with Asia). However, available space is expected to decrease over the first half of 2003 since projected mergers and acquisitions among shipping lines will reduce the number of ships in service and thus reduce available space.

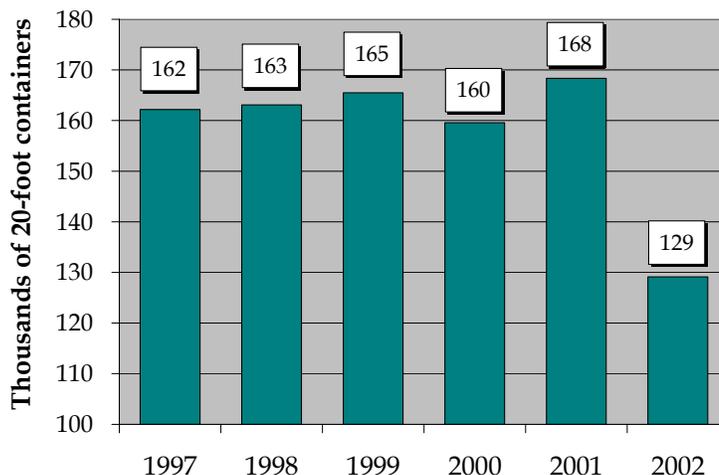
Port Shutdown Reduces Containerized Exports. Each year, on average, the U.S. West Coast ports handle nearly 60 percent of all agricultural exports from the United States. The delays caused by the West Coast port closures from September 29 to October 9, 2002, caused substantial decreases in

¹ Rates negotiated in confidential service contracts will most often be lower.

agricultural export shipments. This past October, only 129,000 containers were shipped from the United States, 23 percent less than in October of 2001, when 168,000 containers were shipped ([figure 6](#)). Further, millions of dollars worth of perishable agricultural products were destroyed and sales were lost due to long delays in delivery. Many foreign buyers denied payment or rejected product on those shipments that arrived late.

Although West Coast port operations have almost returned to normal, the port shutdown will have some long-lasting effects. Many shippers are preparing plans for rerouting their cargo should any future port interruptions occur. Shippers and shipping companies are also reviewing their legal rights under service contracts. During and immediately following the closures, shipping lines claimed that under *force majeure* they were relieved of their obligation to perform contractual duties.² Also, shipping lines filed for additional congestion surcharges (up to \$500 per container) and fees for moving rerouted containers to the contracted destination. Shippers protested against most of these fees, and many fees have been withdrawn. But, shippers may now attempt to limit future fluctuations to existing surcharges, such as fuel and port congestion, by amending service contracts (*Agricultural Ocean Transportation Trends--Interim Report*, USDA/AMS, November 2002).

Figure 6--All U.S. Agricultural Container Exports Each October, 1997-2002



Source: Port Import Export Reporting Service, PIERS, *Journal of Commerce*, New York, 1997-2002

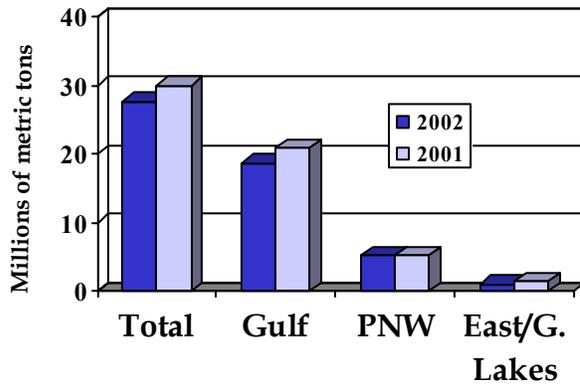
For additional information about shipping grains by container, visit the following web sites: www.ams.usda.gov/tmd/ipgrain and www.ams.usda.gov/tmd/ipgrainprofile. The *Ocean Freight Rate Bulletin* provides quarterly rate information for a variety of commodities shipped via container, including animal feed, soybeans, and pulses (www.ams.usda.gov/tmd/ocean).

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² *Force Majeure* is the title of a standard clause found in marine contracts exempting the parties for nonfulfillment of their obligations by reasons of occurrences beyond their control, such as earthquakes, floods, or war.

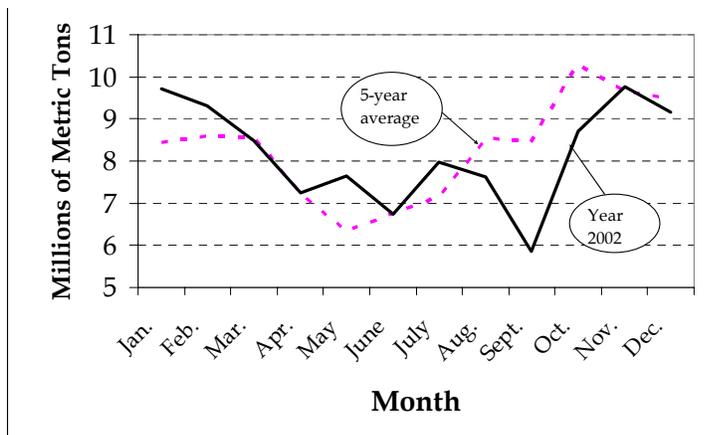
Ocean Freight

Figure 7--Fourth Quarter Grain Inspections



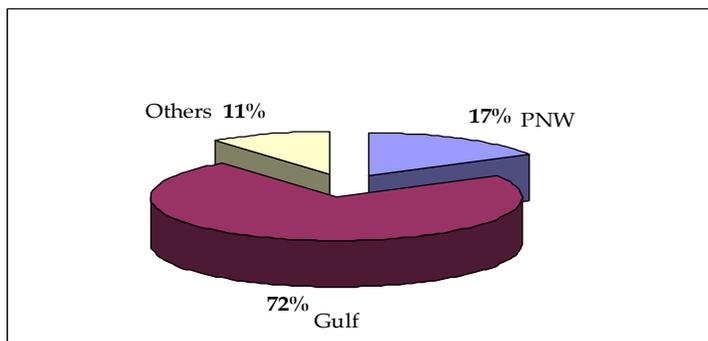
Source: USDA/FGIS

Figure 8--Total U.S. Grain Inspected, All Ports, 2002



Source: USDA/FGIS

Figure 9--Percentage of U.S. Grain Inspected for Export, by Port



Source: USDA/FGIS

Grain Inspections Show Steady Increase, but Remain Below Average. The FGIS inspected 27.9 million metric tons of grain for export from all U.S. ports during the fourth quarter of 2002. While this is up 28 percent from the third quarter of 2002, it is 8 percent below the fourth quarter of 2001 and 5 percent below the 5-year average (figure 7).

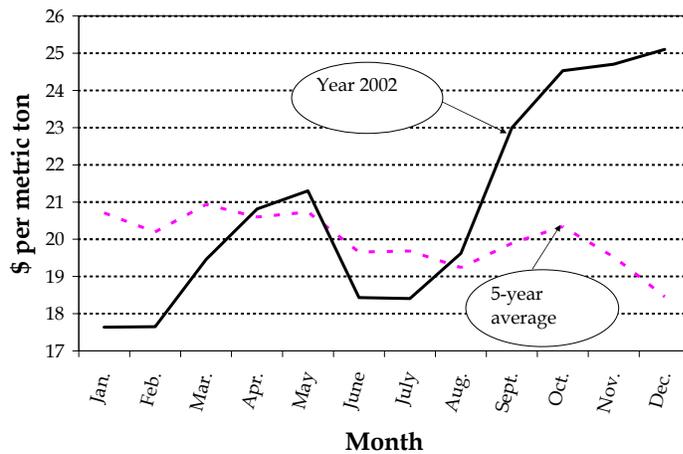
For the fourth quarter of 2002, the FGIS reported 18.7 million metric tons of grain inspected for export from the Gulf. The volume was 16 percent above the third quarter of 2002, 10 percent below the fourth quarter of 2001, and 5 percent below its 5-year average. During the same period, the FGIS inspected 1.1 million metric tons of grain for export from the East Coast and the Great Lakes area. The volume was below the third quarter of 2002 by 8 percent, below the fourth quarter of 2001 by 26 percent, and below its 5-year average by 35 percent. During the same period, the FGIS inspected 5.2 million metric tons of grain for export from the PNW. The volume was 21 percent above the third quarter of 2002, 2 percent below the fourth quarter of 2001, and 5 percent below its 5-year average (figure 7).

Total monthly grain inspections fell 15 percent below the 5-year average in October 2002 during the West Coast port shutdown but rose 4 percent in November (figure 8). Although total grain inspections for January 2002 were 9.7 million metric tons, 16 percent above the 5-year average of 8.4 million metric tons, they fell to a low of 5.9 million metric tons in September. Although shipments of grain normally increase from July to November of each year, the 2002 decrease was probably due to the slowdown of shipments caused by the closure of West Coast ports.

The percent of total grain inspected in 2002 for export from the U.S. Gulf and PNW was unchanged from the previous year. The Gulf accounted for about 72 percent of total U.S. grain inspections, and the PNW represented 17 percent of total inspections the previous year. The remaining ports represented only about 11 percent of total grain inspections for the year (figure 9).

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Figure 10--Fourth Quarter U.S. Gulf to Japan Ocean Freight Rates Above 5-Year Average

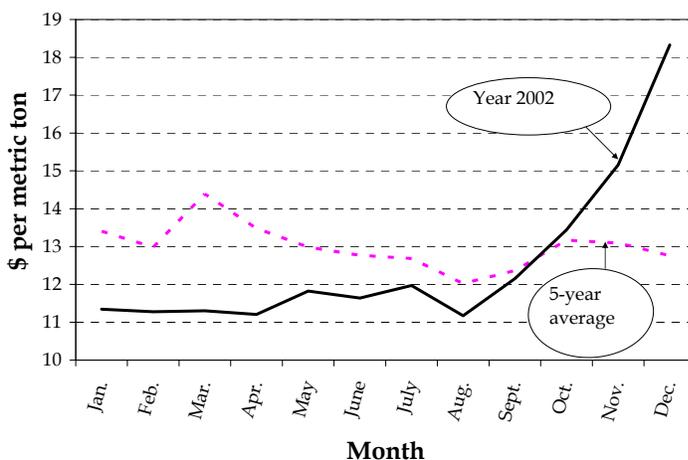


Source: The Baltic Exchange

Ocean Freight Rates Spike Upward. For the fourth quarter of 2002, ocean freight rates on two major grain routes exceeded their 5-year averages. Rates were \$24.75 per metric ton for the U.S. Gulf to Japan (Gulf) and \$15.39 per metric ton for the Pacific Northwest to Japan (PNW) (appendix table 1). The above-average trend in ocean freight rates started in August for the Gulf and in October for the PNW (figures 10 and 11).

For the Gulf, the \$24.75 per metric ton ocean freight rate in the fourth quarter of 2002 was 22 percent more than in the third quarter of 2002 and 45 percent more than in the fourth quarter of 2001. It was also 27 percent higher than the 5-year average.

Figure 11--Fourth Quarter Pacific Northwest to Japan Ocean Freight Rates Above 5-Year Average



Source: The Baltic Exchange

For the PNW, the \$15.39 per metric ton ocean freight rate in the fourth quarter of 2002 was 31 percent more than in the third quarter of 2002 and 51 percent more than in the fourth quarter of 2001. It was also 18 percent higher than the 5-year average.

The “spread”³ ocean freight rate is an important factor in determining the export port. The lower the “spread,” the more attractive shipments of U.S. grain from the Gulf would be relative to those from the PNW. The “spread” was \$9.35 per metric ton in the fourth quarter of 2002, exceeding the third quarter of 2002 by 9

³ The “spread” is defined as the difference in ocean freight rates between the U.S. Gulf to Japan and the PNW to Japan.

percent, the fourth quarter of 2001 by 36 percent, and the 5-year average by 45 percent ([appendix table 1](#)).

December Ocean Freight Rates Highest in 5 Years. The December 2002 ocean freight rates of \$25.10 per metric ton for the Gulf, and \$18.33 per metric ton for the PNW, were the highest in 5 years. According to the Baltic Exchange, the average daily ocean freight rates for the Gulf and PNW routes have constantly increased since July.

In December, the ocean freight rates for the Gulf route averaged \$25.10 per metric ton, a growth of almost 6 percent per month for the July–December (6-month) period. And, ocean freight rates from PNW had the highest increase in years, increasing by an average of 13 percent per month for the August–December (5-month) period.

Complex Factors Caused Higher Ocean Freight Rates. A combination of different factors caused the increase in ocean freight rates. While standard seasonal factors, such as higher U.S. grain exports during the fourth quarter of the year, helped push the ocean freight rates upward, other factors maintained the demand for bulk vessels. The following are the most important factors causing the increase in 2002 ocean freight rates:

- A steady increase in the U.S. grain exports during the last few months of the year.
- Increased demand for ocean transportation of coal to Japan due to the closure of nine Japanese nuclear reactors in the fall of 2002. Prior to the nuclear reactor closures, Japan imported 97 percent of its coal, which generated 16.4 percent of its primary energy supply. This year, with a higher percentage of its energy supply generated from coal, Japan's imports of coal will exceed 130 million metric tons.
- Every year, during the Northern Hemisphere grain harvests, demand for ocean transportation of U.S. coal adds to the total demand for bulk ocean transportation.
- An increase of almost 17 percent in Chinese steel production in 2002 required the importation of additional iron ore by the Chinese, resulting in an increased demand for ocean transportation.
- World supply of bulk vessels, especially the panamax vessels, did not increase fast enough to meet the additional demand for ocean bulk transportation.

Ocean Freight Rates Will Remain High in the Near Future. Ocean freight rates in the first quarter of 2003 are not expected to change significantly. With the factors causing ocean freight rates to increase still persisting, rates are likely to stay high at least until the end of March. The total demand for ocean bulk transportation is not likely to drop drastically, and new bulk vessels are not due to arrive until 2004.

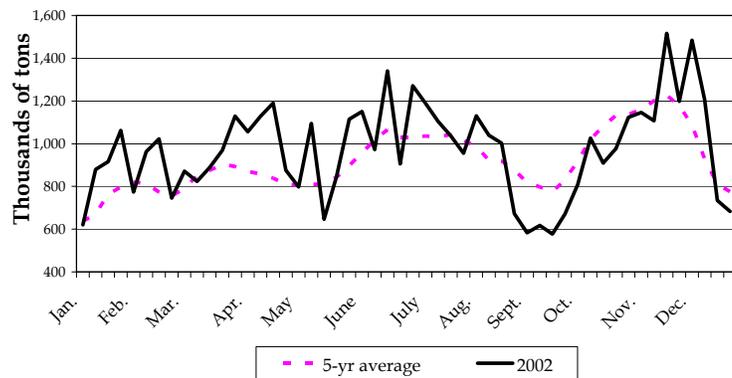
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Barge

2002 Volumes Largest in 3 Years. Annual barge volumes for 2002 amounted to 50.8 million tons, the largest yearly total since 1999 ([appendix table 2](#)). This total is an 8-percent increase, compared to the 2001 total of 47.1 million tons, which was lower due, in part, to the 2001 spring floods that delayed the beginning of the navigation season on the upper Mississippi River. Typically, the upper Mississippi River navigation season begins during March and ends by late November or early December. On March 16, 2002, the upper Mississippi River navigation season began when the first northbound tow arrived in St. Paul, MN. In 2001, floods delayed the opening until May 16.

Highest Fourth Quarter Barge Movements Since 1998. Fourth quarter barge movements were 1.06 million tons per week, the highest fourth quarter movements since 1998 ([appendix table 2](#)). While early fourth quarter barge shipments were below average, barge movements began to increase throughout the remainder of the year and eventually increased to slightly higher than average levels for the fourth quarter and the year ([figure 12](#)). Typically, the fourth quarter is the most active period for grain movements as new crops become available for shipment and barge companies anticipate the approach of winter conditions, which determines the end of the upper Mississippi navigation season. During this time, shippers must move their barges off the upper Mississippi so barges will not spend the winter trapped by ice.

Figure 12--Weekly Barge Shipments of Grain; Mississippi, Ohio, and Arkansas Rivers; 5-Year Average and 2002

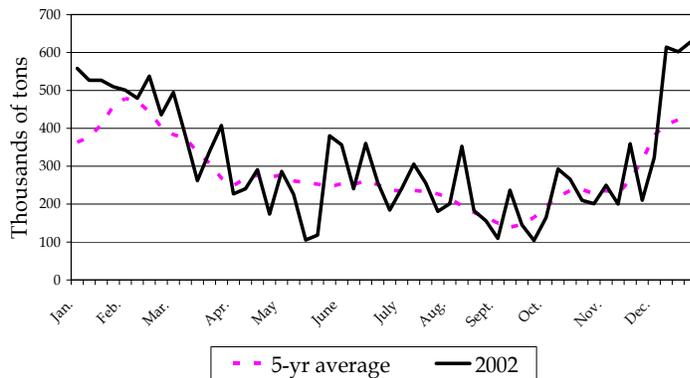


Source: U.S. Army Corps of Engineers.

Prospects for 2003 Barge Movements. Because of maintenance and repair work at several locks, the 2002 season ended early when the last tow left St. Paul Harbor on November 24. Major rehabilitation at Lock and Dam 24 (Clarksville, MO) will close the upper Mississippi River at that site from December 15, 2002, to March 15, 2003. Tows that did not want to be trapped in the upper Mississippi for the winter had to have passed Lock and Dam 24 by December 15. Lock and Dam 17 (Muscatine, IA) and Lock and Dam 19 (Keokuk, IA) will also be closed for repairs until March 1, 2003.

The Illinois River, which flows into the Mississippi River below Lock and Dam 25, is scheduled to remain open as usual for traffic. During 2002, Illinois River traffic was up 8 percent, compared to 2001, and should continue at above-average volumes for the beginning of 2003, especially with an early end to the upper Mississippi season. The increased barge supply from the closed portions of the upper Mississippi typically make the first quarter the busiest time of the year for Illinois River grain barge traffic ([figure 13](#)). Ice and low water conditions may limit traffic on the Illinois River if extremely cold temperatures persist throughout the remainder of February.

Figure 13--Weekly Barge Shipments of Grain on the Illinois River at La Grange Lock and Dam, 5-Year Average and 2002



Source: U.S. Army Corps of Engineers

Fourth Quarter Barge Freight Rates Near Average.

For the fourth quarter of 2002, Minneapolis-St. Paul, MN, to New Orleans, LA, barge freight rates were reported at 249 percent of tariff, almost at the 5-year average of 252 percent of tariff ([appendix table 3](#)). Barge rates are quoted in terms of differentials from barge tariff benchmarks.⁴ The tariff rate from Minneapolis-St. Paul is \$6.19 per ton; therefore, the spot market rate quoted is 2.49 times \$6.19 or \$15.41 per ton. In comparison to rail, the tariff rate for a unit train shipment from Minneapolis to Portland, OR, was about \$25 to \$28 per ton during November 2002.

Average fourth quarter rates for St. Louis, MO, to New Orleans were 175 percent of tariff (\$7.89 per ton, based upon a \$3.99 tariff), 6 percent lower than the 5-year average of 162 percent of tariff. Illinois River rates for the fourth quarter were 206 percent of tariff (5 percent higher than the average of 196 percent of tariff) but are expected to decrease in 2003 with the extra supplies of barges during the winter months. If the severity of the winter continues, short-term barge rates can be expected to increase significantly.

When the entire river system reopens in the spring, available barge services should be in ample supply. A short-term spike in spring rates can be expected, especially if the current winter conditions continue into March. Overall, with or without a spring surge in rates, barge rates should be average for 2003 unless there is a significant decrease in the number of available barges.

Low Water Causes Problems for River Navigation. The Mississippi River is experiencing low water levels in many sections of the river, especially in the St. Louis, MO, area. Drought conditions in north central United States and frozen smaller rivers have significantly reduced the water flow into the Mississippi River. During January, water gauge levels at St. Louis have been as low as minus 4.3 feet. At a reading of minus 4.5 feet, emergency conditions are issued, and river navigation is halted. The last low water emergency was in December 1989 when a reading of minus 5.1 feet was recorded. Water gauge measurements are in feet above or below zero, which is the reference water level for normal low water conditions.

During January, safety advisories were in effect for the Mississippi River between St. Louis and Cairo, IL. These restrictions limited the maximum configurations of tow sizes and reduced the maximum cargo capacity of individual barges. Barge operators are advised to limit barge drafts, the portion of the barge below the water's surface, which significantly reduces tonnage capacities.

⁴ The benchmarks are from the Bulk Grain and Grain Products Freight Tariff No. 7, which was issued by the Waterways Freight Bureau (WFB) of the Interstate Commerce Commission (ICC). In 1976, the U.S. Department of Justice entered into an agreement with the ICC and made Tariff No. 7 no longer applicable. Today, the WFB no longer exists, and the ICC has become the Surface Transportation Board of the U.S. Department of Transportation. However, the barge industry continues to use the benchmarks as rate units.

While most of the upper Mississippi River is closed until March, a closure or restrictions of the river at St. Louis would impact traffic from the Illinois River that is destined to Mississippi River export elevators. Exporters usually depend upon the Illinois River during the winter months, and, if the Illinois River were not accessible, exporters would have to obtain grain from the Ohio River or other locations. As of late January, preliminary data show a jump in grain shipments from the Ohio River. Furthermore, drought and water control plans stopped commercial traffic on the Missouri River in early December, and navigation will not resume until early April.

Progress of the Upper Mississippi River-Illinois Waterway System Navigation Study. The Upper Mississippi River-Illinois Waterway (UMR) System Navigation Study is a multiyear study to investigate the feasibility of navigation improvements on the upper Mississippi River and the Illinois Waterway over a 50-year planning period. The study, conducted by the U.S. Army Corps of Engineers (Corps), involves developing a framework for the comprehensive management of the UMR System. The framework will include navigation planning, ecosystem planning, ongoing operation and maintenance activities, and flood plain management.

The following study schedule shows the milestones for the multiyear project:

- December 2002 to September 2003 – The Corps will be working on the economic and environmental evaluation of the need for navigation and ecosystem restoration improvements.
- October 2003 – Public meetings to present tentative ecosystem restoration and navigation improvement plans.
- November 2003 – Briefings with State and Federal agencies to finalize study recommendations.
- April 2004 – Draft feasibility report released.
- April 2004 to May 2004 – Public review and comment period for the draft feasibility report.
- September 2004 – Final feasibility report with environmental impact statement released.
- November 2004 – Final recommendations sent to the Secretary of the Army, the Office of Management and Budget, and Congress.

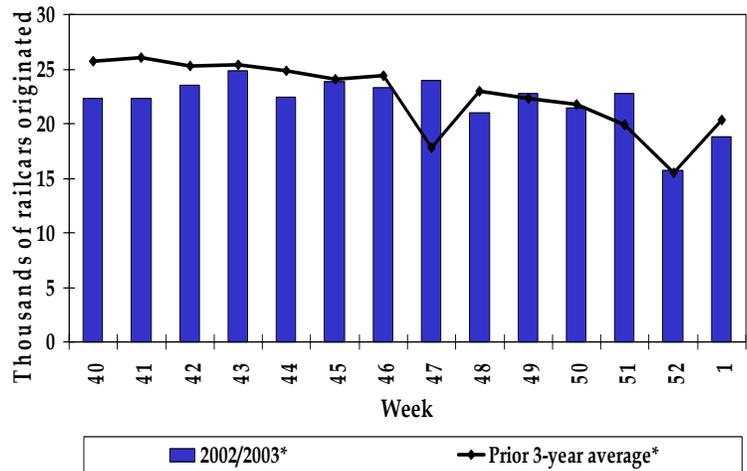
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Rail

December Weekly Grain Volumes Strengthen Compared to Past Years. During the 4-week period December 8, 2002 – January 4, 2003, the number of grain cars loaded on Class I railroads⁵ increased 2.0 percent from the same period in 2001/2002 and 1.5 percent from the prior 3-year average ([figure 14](#) and [appendix table 4](#)).

Early Closure of the Upper Mississippi River, Plus Large Crops in Iowa and Minnesota, Boost December Rail Grain Volumes. The early closure of the upper Mississippi River may have resulted in a larger proportion of Iowa and Minnesota crops being transported by rail or to barge loading facilities on the Illinois River, which is open all winter. Corn and soybean crops grown in Minnesota and Iowa – where producers traditionally transport a large proportion of their crops to market using the upper Mississippi River – were also unusually large this year. Furthermore, harvest was later than normal this year in several States bordering the Great Lakes, possibly resulting in some corn and soybeans being transported in December rather than November.

Figure 14 – December Weekly Grain Volumes Increase Compared to Prior 3-Year Average



Source: Association of American Railroads

* All U.S. Class I railroads excluding SOO and Illinois Central.

Drought-Related Changes in Transportation Patterns Continue into 2003. The severity and geographic extent of the 2002 drought changed grain transportation patterns in 2002, and these changes are expected to continue into 2003. Domestic users of grain and oilseeds, unable to obtain grain from their traditional suppliers – which are often located closer to the user – will have to purchase grain and oilseeds from suppliers located much farther away. These longer hauls will increase the demand for rail and barge transportation because those transportation modes are more cost-efficient for longer hauls. The increased volume of grain and oilseeds hauled by rail in December and the current noticeable changes in transportation patterns reflect these predictions.

One example of these changed transportation patterns is that southeastern hog and poultry feeders have had to locate new sources for feed ingredients. Southeastern feeders normally purchase grain and soybeans from producers located in Ohio, Indiana, Michigan, and Kentucky, as well as from nearby southeastern grain and oilseed producers. Because crops in all these States were severely affected by the drought, feeders have been purchasing feed ingredients from the Western Corn Belt and Delta regions, as well as Europe and Brazil.

Weak Fourth Quarter and Year 2002 Railroad Grain Volumes. Grain cars originated by U.S. Class I railroads were down 4.2 percent for the fourth quarter, compared to the same period in 2001, and down 2.0 percent, compared to the prior 3-year average. During 2002, U.S. Class I railroads

⁵ Class I railroads are defined as those having more than \$261.9 million of freight revenue during the year 2000.

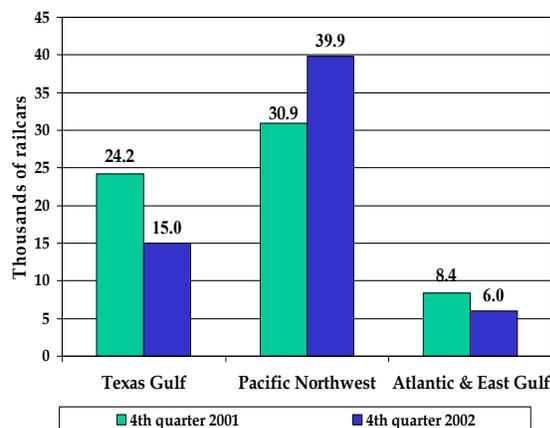
originated 3.4 percent fewer grain cars than during 2001 and 5.5 percent fewer than the 3-year average ([appendix table 4](#)).

The 3.4 percent fewer grain cars loaded does not mean that rail grain and oilseed tonnages decreased by the same amount. As the proportion of grain hauled by larger 286,000-pound railcars increases, the same amount of tonnage can be hauled by fewer grain cars.

Reported Fourth Quarter Rail Deliveries to PNW Increase, While Deliveries to Texas Gulf Decrease. Reported fourth quarter rail deliveries to PNW ports increased nearly 29 percent from the same period in 2001, while rail deliveries to Texas Gulf ports and Atlantic and East Gulf ports decreased 38 percent and 29 percent, respectively ([figure 15](#)).⁶

Rail Grain and Soybeans Traffic Expected To Decrease Slightly. Two factors affecting rail grain and soybeans traffic are working at odds with each other, resulting in a forecast that rail grain and soybean traffic will decrease only slightly during the 2002/03 marketing year.

Figure 15--Rail Deliveries to Port Increase in the PNW, but Decrease to Texas Gulf During Fourth Quarter



Source: *Grain Transportation Report*, Agricultural Marketing Service, USDA.

On the one hand, total U.S. domestic grain and oilseed use, as well as exports, is projected to decrease. U.S. domestic use of wheat during the 2002/03 marketing year is projected to decrease by 76 million bushels (6.3 percent), while exports are projected to decrease by 36 million bushels (3.7 percent).⁷ U.S. domestic use of feed grains and corn during the 2002/03 marketing year is projected to decrease by 86 million bushels (1.1 percent), and exports are projected to decrease by 39 million bushels (2.1 percent). U.S. domestic use and exports of soybeans is projected to decrease by 183 million bushels (6.2 percent) during the 2002/03 marketing year.

On the other hand, drought-related changes in transportation patterns that favor rail transportation will offset some of the decreases caused by reduced domestic and export use. Recent drought-related low water levels on the Mississippi River near St. Louis, MO, also have the potential to limit near-term barge movements of grain and soybeans, which could result in increased rail transportation of grain and oilseeds.

Grain Rail Tariff Rates Mostly Steady Since September; Small Increases Expected During 2003. Although a few grain tariff rates on specific routes for specific commodities have increased or decreased more than 10 percent since September, most rail tariff rates have remained the same

⁶ USDA personnel receive voluntary reports from railroads and export elevators on the number of grain railcars delivered to port. Since the reporting of these data is voluntary, the data do not include all railcar deliveries to port.

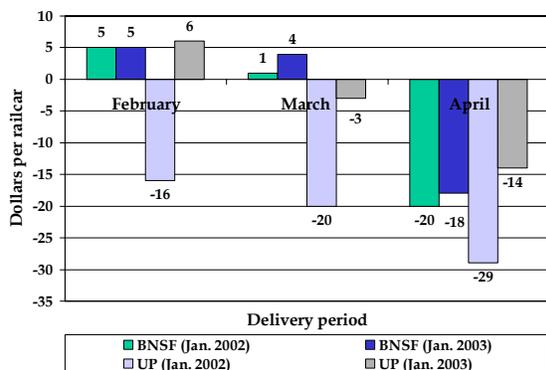
⁷ Source for all grain and oilseed statistics used in this paragraph: U.S. Department of Agriculture, World Agricultural Supply and Demand Estimates, January 10, 2003. It is available at <http://www.usda.gov/oce/waob/wasde/wasde.htm>.

([appendix table 5](#)). The railroads expect very modest increases in grain rail tariff rates during 2003 due to weaker volumes and competition from other modes. Norfolk Southern (NS) and CSX Transportation (CSX) expect to adjust their grain tariffs in February and expect the increases to be no more than increases in the Rail Cost Adjustment Factor. Burlington Northern Santa Fe (BNSF) expects its rail tariffs to increase 1 to 2 percent during 2003.

Fuel Surcharges Imposed Again. On January 29, NS and CSX reinstated a 2-percent fuel surcharge that had been discontinued December 11, 2002. BNSF added a 2-percent fuel surcharge as of February 1, and UP added a 2-percent fuel surcharge on January 28. Fuel prices have been up and down during the fall and winter of 2002/03 but recently have been trending up more than down. Some recent events affecting fuel prices have been the recent strikes in Venezuela and uncertainty regarding the effects a Gulf War would have on oil supplies.

Rail Capacity for Grain Expected To Be Adequate This Spring. Rail grain volumes are expected to be slightly down for the first half of 2003 due, in part, to the effects of last summer's drought. Covered hopper railcar capacity has steadily increased during the 1990s, and the use of unit- and shuttle-trains has decreased the cycle times for a railcar of grain. Thus, railroads can haul more loads of grain annually with each railcar than was possible in the past. Railroads report, however, that longer distance hauls this fall and winter have resulted in longer cycle times, thereby resulting in tighter railcar supply.

Figure 16--Secondary Railcar Markets Up Slightly From January 2002



Source: USDA, *Grain Transportation Report*. The January 14, 2003, issue for BNSF (Jan. 2003) and UP (Jan. 2003) bids; the January 9, 2002, issue for BNSF (Jan. 2002) and UP (Jan. 2002) bids.

Guaranteed Railcar Markets Also Indicate Adequate Rail Capacity for Spring. Low prices in the railcar auction markets and secondary railcar market indicate adequate rail capacity for this spring.⁸ Many times, in the railcar auction markets for February and March, no bids have been tendered or the bids range from \$0 to \$2 per railcar (compared to no bid reported in the January 9, 2002, issue of *Grain Transportation Report*). However, according to the January 14, 2003, issue of *Grain Transportation Report*, bids are reported to be a little higher than bids reported in the January 9, 2002, issue for railcar delivery in comparable months ([figure 16](#)).

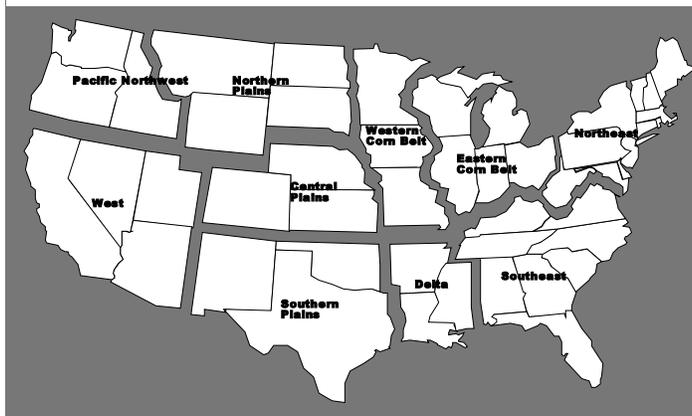
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⁸ Rail service can be ordered directly from a railroad through auctions for guaranteed service or through the secondary railcar market, in which guaranteed service originally purchased from the rail carrier is traded. USDA reports these prices weekly in its *Grain Transportation Report* available at <http://www.ams.usda.gov/tmd/grain/index.htm>.

Trucking

Reduced Truck Grain Shipments. Poor crop production in drought-stricken areas and weak export demand resulted in reduced grain trucking activity in many major production regions for the latter half of 2002. Last summer's drought reduced harvest yields in large areas of the Central Plains and in much of the Eastern Corn Belt. The pattern of reduced trucking activity continues in the first quarter of 2003. In addition, midwinter historically has been a slow period for hauling grain. By contrast, substantial and steady trucking of grain is occurring in some production regions. The following summary shows current and anticipated grain trucking activity in selected grain-producing areas ([figure 17](#)) for the first quarter of 2003.

Figure 17--Regions of the United States



Source: USDA/AMS

Pacific Northwest (PNW) Trucking Volumes Remain Constant; Rates Vary. About 150 million bushels of wheat are expected to be exported from PNW growers in 2003, roughly the same volume as last year. Sixty percent of this volume should be hauled by truck to Portland, OR, for barge loading and to wheat loading facilities on the Snake River. Currently, with weak export demand, country elevators are storing wheat for later movement from late February through May. Truckers should see volumes increasing at that time.

Truckers will charge about \$1.25 per mile or 11 cents per bushel for 1,000 bushel truckloads of wheat to facilities within 40-50 miles. Rates will increase for longer distances.

Northern Plains First Quarter 2003 Prospects Mostly Positive; Rates Remain Constant. Grain truckers are currently busy in northeastern Montana hauling previously contracted grain out of country elevators to 110-car rail loading facilities like the one located at Macon, MT. Approximately 1 million bushels of wheat are trucked out of the area each year. Spring wheat is also being trucked out of northeastern Montana about 60 miles to trainloading facilities at Wolfpoint. Not much trucking is occurring in the Bismarck, ND, area. In northwestern Montana, virtually all grain hauling is done by rail due to truck-competitive rail rates to the Portland, OR, market.

Truck rates for hauling grain in the Northern Plains generally remain steady year-round and average about 15-18 cents per bushel for hauls of 50 miles or less with loads of 900-1,000 bushels. Rates will increase slightly with longer hauls.

Central Plains Trucking Activity Steady Despite Less Grain Production; Rates Remain Constant. Less grain production in 2002/2003 than in 2001/2002 in Kansas because of drought has resulted in less grain to haul by truck. However, steady trucking activity occurred during the fourth quarter of 2002 and continues during the first quarter of 2003. Trucks have been relocating grain from farms to country elevators, terminal elevators, and processing plants. In the Wichita area, about 200,000 bushels of soybeans and milo are being stored in anticipation of shipment in June. Roughly 50 percent of this volume will be trucked to in-State mills, with the rest trucked to large terminals for

unit-train shipment to export locations. Overall, grain trucking is slow in the Wichita area because the harvest season is over. Trucking is expected to pick up starting in February or March as farmers begin preparing fields with loads of fertilizer delivered by truck.

Within the next 6 months, 25-30 million bushels of corn will be trucked to elevators and feedlots for livestock and poultry in central Colorado. This will be hauled a distance of about 200 miles from northeast Colorado and western Nebraska. Colorado has just experienced one of its poorest wheat and corn crops in years because of drought conditions that still persist.

In Kansas, a rate of about 13 cents per bushel for hauling 900-bushel truckloads of grain within the State is common. Elsewhere in the Central Plains, rates are commonly 20 cents per bushel for distances of 200 miles or more.

Fourth Quarter Volumes Mixed in Southern Plains with 2003 Prospects Positive; Rates Constant but Could Increase. Grain movement by truck is down throughout all major production areas in Texas because of the off-harvest season and low demand. Most trucking activity is intrastate, moving about 100 miles or less. In the Amarillo area, some corn and sorghum is being trucked about 75 miles to Panhandle feedlots. In northeast Oklahoma, country grain elevators are emptying grain bins. Some elevators expect to be out of grain by the end of March.

In 2003, about 150 million bushels of wheat and 160 million bushels of corn and milo are expected to be hauled from the area, about the same as last year. Eighty percent of the production will be trucked approximately 200 miles to New Orleans, LA, for barge loading. Western Oklahoma corn is also moving by truck to feedlots in the Texas Panhandle.

For 2002, truck rates averaged 20 cents per bushel for 900-bushel loads on an average 100-mile haul. During spring harvest 2003, rates could increase to about 40 cents per bushel.

Truck Volumes in Eastern Corn Belt Reduced in 2002 with Positive 2003 Prospects; Rates Are Constant. A bad crop year in 2002 in the Eastern Corn Belt has led to reduced grain trucking activity in east central Indiana. Furthermore, because farmers are putting grain under loan rather than selling, grain truck movements are fewer. Some soybeans are being trucked about 50 miles to in-State processors.

Currently, some wheat is being trucked to in-State processors in southern Indiana. The soybean and wheat trucking patterns are expected to continue through this spring. Grain truck movements are expected to be much more numerous in the summer of 2003.

In eastern Illinois, trucks are hauling wheat and soybeans 20-100 miles south to processors. Some northern Illinois elevators are trucking soybeans to Illinois River barge facilities. Much of the corn from the area is trucked to in-State ethanol plants. Slow truck grain movement is being experienced, however, in northwest Ohio, although some wheat is moving to in-State processors. About 100,000 bushels per month are expected to be trucked to processors between now and April.

Rates for trucking grain throughout the Eastern Corn Belt continue to remain constant since the fourth quarter of 2002. Rates range from 9 cents per bushel for a 35-mile haul to 25 cents per bushel for longer hauls of about 100 miles. Trucks carry 900-950 bushels of grain.

In Western Corn Belt, 2002 Grain Production Up, but Truck Movement Slow; Rates Remain Constant. Grain trucking is currently slow in central Minnesota, although about 60 miles northwest

of Minneapolis/St. Paul, approximately 20,000 bushels of corn and soybeans per week are being trucked to Mississippi River ports for later barge movements (when the river reopens from frozen conditions) to export markets. Expecting higher prices, farmers are storing crops instead of shipping grain. Much of the local grain is used by feedlots located within 25 miles. Truck movements are expected to pick up beginning in February or March 2003. Truck rates for hauls within 25 miles average about 10 cents per bushel.

Southeast Regional Grain Volumes Steady but Prospects Uncertain; Rates Are Constant. The Southeast is generally grain deficient, causing grain to be shipped in from other production areas. Grain trucks are active in the region, however, hauling truckloads of locally produced corn and feed ingredients to feed mills in the Carolinas, Georgia, and Florida. Adequate truck capacity is available in the Southeast.

Feed mills are using 200,000-300,000 bushels of corn and feed ingredients per week. Between January and the end of May, trucks will move corn out of elevator storage to buyers who purchased the grain earlier. Although trucks are moving large amounts of grain, hauls would be greater if some farmers were not holding out for a more favorable market. Adequate truck capacity is available in the Southeast. However, the region may soon run out of corn. Truckers charge about 25 cents per bushel for hauling grain throughout the Southeast.

Cross-Border Trucking. In late November 2002, President Bush signed regulations that would allow Mexican trucks access to highways throughout the United States and allow U.S. truckers to operate in Mexico beyond the traditional 20-mile commercial zone near the border. When the Secretary of Transportation determines that all safety concerns have been satisfied, President Bush is expected to lift the ban on cross-border trucking.

A rush of grain truck traffic from the United States to interior Mexican destinations is not expected to occur immediately after the border opening. One reason is the poor quality of Mexican roads and highways, which could take an expensive toll in terms of damage to U.S. trucks. U.S. and Mexican grain truckers may also want to build up more cross-border business relationships, which will take time before large volumes of trucking operations commence.

Figure 18--Map of Texas Showing Region Concerned About U.S.-Mexico Border



Source: University of Texas

One segment of the industry that is concerned about the possible impact resulting from opening the U.S.-Mexico border to truck traffic is the south Texas small grain elevators and grain truckers ([figure 18](#)). Mexico is the biggest export market for Texas grain sorghum, also known as milo. Mexico currently imports about 1 million tons per year (2000 figures) to supply the Mexican poultry and cattle industries. Presently, south Texas grain sorghum is trucked to elevator facilities along the border where it is eventually transferred to Mexican trucks. Ninety percent of south Texas grain sorghum is destined for Mexico.

There are two views developing as to how and to what extent south Texas grain elevator operators, including lower Rio Grande Valley local grain elevators and grain truckers, will be affected by the border opening to truck traffic.

Some Lower Rio Grande elevator operators and grain sorghum industry officials are concerned that once cross-border trucking operations begin, trucks could start hauling grain and sorghum directly

from farms to Mexican buyers, bypassing elevators. The result would be a loss of revenue that elevators usually generate by handling and storing grain.

Other lower Rio Grande Valley grain elevator operators do not foresee much impact on operations and truck service mainly because of U.S. truck weight restrictions and expensive fees charged truckers to cross bridges into Mexico. Such requirements, in addition to the fact that Mexican truckers can haul almost twice as much as the federally regulated 50,000-pound payload of U.S. trucks, may preclude U.S. trucks from trying to compete with Mexican trucks south of the border. Very little grain is trucked north from Mexico due in part to severe drought conditions affecting Mexican crops in recent years.

New Truck Security Rules. In addition to rising fuel costs and insurance premiums, the trucking industry may face additional operating expenses as new rules, aimed at securing cargo and guarding against terrorist threats, should be proposed by the end of September 2003. Grain truckers could be especially affected because, among the Transportation Security Administration's (TSA) new truck security rules, a focus on securing truck shipments of food, as well as poultry and livestock feed, will be a priority.

Many small to medium-size grain truckers operate with narrow profit margins in order to remain competitive. Having to comply with upgraded security measures could be problematic for this segment of the trucking industry. One possible solution might be to pass added costs for security along to customers in the form of security surcharges. However, many grain truckers continue to experience customers' reluctance to pay fuel surcharges.

Hours-of-Service Regulations: Any changes in current Federal motor carrier hours-of-service (HOS) regulations, which govern the amount of time commercial truckers, including local farm and other drivers, can be behind the wheel, can affect carrier operating costs. Similarly, elimination of existing agricultural driver exemptions or reduction in the maximum time a driver can be on duty would create difficulty for farm operators and could adversely change the cost structure for hauling grains and other agricultural commodities, especially during harvest time when grain truckers often get delayed in the fields by combines that are behind schedule.

Since 1995, because of the importance of timeliness and flexibility, agricultural drivers have received exemptions from HOS requirements when transporting agricultural commodities and farm supplies within a 100-mile radius of the distribution point for farmers and retail farm suppliers during planting and harvesting seasons. The Department of Transportation's Federal Motor Carrier Safety Administration (FMCSA) is expected to propose new HOS regulations by March 2003. Agricultural truckers will want to carefully review the proposed new rules to determine whether agricultural exemptions have been altered or eliminated. In addition, in view of a recent FMCSA interpretation regarding the exempt status of hauling poultry and poultry feed, the proposed HOS rules should be examined to determine what commodities qualify as agricultural commodities for exemption purposes.

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Additional Sources of Information:

More detailed information on grain and oilseed production and stocks is available from the National Agricultural Statistics Service in:

Crop Production,

<http://jan.mannlib.cornell.edu/reports/nassr/field/pcp-bb>

Grain Stocks,

<http://jan.mannlib.cornell.edu/reports/nassr/field/pcp-bb>

Small Grains Summary,

<http://jan.mannlib.cornell.edu/reports/nassr/field/pcp-bbs>

More detailed information on grain and oilseed supplies and use is available from the Economic Research Service in:

Feed Outlook,

<http://usda.mannlib.cornell.edu/reports/ersor/field/fds-bb>

Wheat Outlook,

<http://usda.mannlib.cornell.edu/reports/ersor/field/ocs-bb>

Oil Crops Outlook,

<http://usda.mannlib.cornell.edu/reports/ersor/field/ocs-bb>

More detailed information on grains inspected and/or weighed for export by region and port area is available from the Federal Grain Inspection Service in:

Grain and Feed Weekly Summary and Statistics,

http://www.ams.usda.gov/lsg/mncs/pdf_weekly/dc_grain.pdf

The latest and most detailed grain and oilseed supply and demand information is available from the World Agricultural Outlook Board at:

<http://www.usda.gov/oce/waob/wasde/wasde.htm>

For additional information on grain, rail, and ocean freight transportation see:

USDA-AMS, *Grain Transportation Report*,

<http://www.ams.usda.gov/tmd/grain.htm>

USDA-AMS, *Agricultural Ocean Transportation Trends*

<http://www.ams.usda.gov/tmd/AgOTT/index.htm>

USDA-AMS, *Ocean Freight Rate Bulletin*

<http://www.ams.usda.gov/tmd/Ocean/Index.htm>

Appendix Table 1--Average Daily Ocean Grain Freight Rates to Japan by Quarter, 1998-2002

Export range Year	1st quarter (Jan.-Mar.)	2d quarter (Apr.-June)	3d quarter (July-Sept.)	4th quarter (Oct.-Dec.)	Annual (Jan.-Dec.)
\$/ metric ton					
Gulf					
1998	18.95	16.85	13.41	13.65	15.72
1999	15.18	16.91	19.10	21.74	18.23
2000	21.45	22.97	23.97	23.57	22.99
2001	22.13	22.90	18.79	17.06	20.22
2002	18.25	20.18	20.34	24.75	20.88
5-year average ¹	20.61	20.33	19.60	19.44	20.00
Pacific Northwest					
1997	14.72	13.09	13.25	13.06	13.53
1998	11.08	11.31	10.41	12.20	11.25
1999	9.74	10.88	11.07	13.91	11.40
2000	15.33	15.78	16.03	16.11	15.81
2001	17.15	14.67	11.50	10.20	13.38
2002	11.31	11.56	11.77	15.39	12.51
5-year average ¹	13.59	13.08	12.36	13.01	13.01
Spread ²					
1997	10.75	9.22	9.98	8.66	9.65
1998	7.87	5.54	3.00	1.45	4.47
1999	5.44	6.03	8.03	7.83	6.83
2000	6.12	7.19	7.94	7.46	7.18
2001	4.98	8.23	7.29	6.86	6.84
2002	6.94	8.63	8.57	9.35	8.37
5-year average ¹	7.02	7.25	7.25	6.43	6.99
¹ From 1997 to 2001					
² Gulf minus Pacific Northwest					
Source: Baltic Exchange					

Appendix Table 2--Average Weekly Barge Shipments by Quarter, 1997-2002

Year	1st quarter (Jan.-Mar.)	2d quarter (Apr.-June)	3d quarter (July-Sept.)	4th quarter (Oct.-Dec.)	Annual (Jan.-Dec.)
1,000 tons					
1997	753	785	803	1,145	871
1998	741	786	866	1,078	868
1999	831	1,081	1,040	1,039	998
2000	799	948	975	989	928
2001	784	834	973	1,031	906
2002	897	1,009	912	1,061	970
5-yr. avg.	782	887	932	1,056	914
Note: All averages based on shipments through Mississippi L&D 27, Ohio L&D 52, and Norrell L&D on the Arkansas River. Source: U.S. Army Corps of Engineers					

Appendix Table 3--Average Weekly Mississippi and Illinois Rivers Barge Rates by Quarter, 1997-2002

Minneapolis-St. Paul to New Orleans - Tariff rate \$6.19 per ton				
	1st quarter (Jan.-Mar.)	2d quarter (Apr.-June)	3d quarter (July-Sept.)	4th quarter (Oct.-Dec.)
1997	165	146	179	248
1998	164	166	241	325
1999	213	182	271	269
2000	210	177	248	201
2001	no rates	214	221	217
2002	174	172	172	249
5-yr. avg.	188	177	232	252

St. Louis to New Orleans - Tariff rate \$3.99 per ton				
	1st quarter (Jan.-Mar.)	2d quarter (Apr.-June)	3d quarter (July-Sept.)	4th quarter (Oct.-Dec.)
1997	119	90	122	140
1998	93	106	199	189
1999	123	107	197	163
2000	145	110	201	153
2001	166	127	159	166
2002	126	100	113	175
5-yr. avg.	129	108	176	162

Illinois River to New Orleans - Tariff rate \$4.64 per ton				
	1st quarter (Jan.-Mar.)	2d quarter (Apr.-June)	3d quarter (July-Sept.)	4th quarter (Oct.-Dec.)
1997	132	130	201	175
1998	113	130	210	219
1999	160	143	234	199
2000	187	131	212	190
2001	210	159	182	189
2002	151	131	135	206
5-yr. avg.	160	139	196	196

Source: USDA-AMS

Appendix Table 4--Grain Carloads Originated by Railroads

Period	Eastern railroads			Western railroads				Total minus Soo, IC
	CSXT	NS	Total	BNSF	KCS	UP	Total	
Dec. 8, 2002, to Jan. 4, 2003	10,302	11,947	22,249	28,891	2,431	25,032	56,354	78,603
Dec. 9, 2001, to Jan. 5, 2002	9,920	11,239	21,159	29,033	2,195	24,705	55,933	77,092
Percent change to last year	3.9	6.3	5.2	-0.5	10.8	1.3	0.8	2.0
Percent change to prior 3-year average	0.0	12.0	6.2	-4.2	19.8	3.2	-0.2	1.5
4 th quarter, 2002	39,248	44,276	83,524	112,184	6,473	87,741	206,398	289,922
4 th quarter, 2001	40,292	46,399	86,691	118,522	7,713	89,581	215,816	302,507
Percent change to last year	-2.6	-4.6	-3.7	-5.3	-16.1	-2.1	-4.4	-4.2
Percent change to prior 3-year average	-3.3	6.7	1.7	-4.7	-6.9	-1.4	-3.4	-2.0
Total 2002	142,760	164,745	307,505	400,179	27,161	344,296	771,636	1,079,141
Total 2001	151,864	163,018	314,882	428,603	26,330	347,156	802,089	1,116,971
Percent change to last year	-6.0	1.1	-2.3	-6.6	3.2	-0.8	-3.8	-3.4
Percent change to prior 3-year average	-0.8	8.6	2.2	-9.0	-6.1	-7.0	-8.0	-5.5

Source: Association of American Railroads

Appendix Table 5--Rail Tariff Rates for Selected Origins and Destinations

Origin	Destination	Firm	No. of cars	Rate/car (\$)		Percent change
				Jan. 7, 2003	Sept. 13, 2002	From Sept. 13, 2002
Corn (Standard Transportation Commodity Code (STCC) 0113215)						
Kansas City, KS	Beaumont, TX	BNSF	110	1,560	1,560	0.0
Omaha, NE	Kalama, WA	BNSF	110-120	2,700	2,700	0.0
Des Moines, IA	Laredo, TX	UP	92-105	2,525	2,235	13.0
Omaha, NE	Beaumont, TX	KCS	75+	1,880	1,880	0.0
Evansville, IN	Rosehill, NC	CSX	65	1,921	2,250	-14.6
Sheldon, IL	Frankford, DE	NS	1	1,900	n/a	n/a
Wheat (STCC 0113710)						
Kansas City, KS	Beaumont, TX	BNSF	110-120	1,796	1,766	1.7
Omaha, NE	Kalama, WA	BNSF	52-110	4,357	4,285	1.7
Kansas City, MO	Laredo, TX	UP	n/a	2,110	2,110	0.0
Kansas City, MO	Galveston, TX	UP	92-105	1,650	1,650	0.0
Omaha, NE	Beaumont, TX	KCS	75+	1,880	1,880	0.0
Evansville, IN	Rosehill, NC	CSX	65	1,921	1,921	0.0
Soybeans (STCC 0114410)						
Kansas City, KS	Beaumont, TX	BNSF	108-110	1,540	1,270	21.3
Omaha, NE	Kalama, WA	BNSF	108-110	2,580	2,480	4.0
Des Moines, IA	Laredo, TX	UP	69-91	n/a	2,285	n/a
Kansas City, KS	Galveston, TX	UP	69-91	1,630	1,475	10.5
Omaha, NE	Beaumont, TX	KCS	75+	1,850	1,850	0.0

Sources: Web pages of the individual railroads (in the case of CSX, a quotation)