

Grain Transportation Prospects

October 24, 2002



Featuring

- *Update on West Coast Ports Situation*
- *Shipping Volume and Rate Indicators*
- *Transportation Situation*
- *Drought and Heat Effects on Grain Transportation*

United States Department of Agriculture
Agricultural Marketing Service
Transportation and Marketing Programs
Transportation Services Branch
1400 Independence Ave., SW, Room 1203-S
Washington, DC 20250

Tel: (202) 690-1303
Fax: (202) 690-3616

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GRAIN TRANSPORTATION PROSPECTS

* Shipping Volume and Rate Indicators *

Mode		From last quarter	From last year	Next quarter (expected)
Ocean	Volume	Increased 3%	Decreased 10%	Slight increase
	Rates	Increased 1%	Decreased 7%	Slight increase
Barge	Volume	Decreased 10%	Decreased 6%	Moderate increase
	Rates	No change	Decreased 22%	Moderate decrease
Rail	Volume	Increased 1%	Decreased 10%	Moderate decrease
	Rates	Seasonal increase	Slight increase	Stable
Truck	Volume	Moderate decrease	Decrease 25%	Slight decrease
	Rates	Slight increase	Slight increase	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.

Karla Martin, Agricultural Economist, Karla.Martin@USDA.gov (202) 720-8264.

Surajudeen Olowolayemo, Agricultural Economist, Surajudeen.Olowolayemo@USDA.gov (202) 690-1328.

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Update on West Coast Ports Situation

Ports Reopened October 9. On October 8, President Bush sought a court injunction under the Taft-Hartley Act to end the 11-day shutdown of 29 West Coast ports. On the same date, a U.S. District Court judge granted a temporary injunction that lasts one day beyond a formal injunction hearing scheduled for October 16. Should the judge grant an 80-day injunction, contract negotiations will continue while the ports operate. Under the Taft-Hartley Act, should no contract agreement be reached during the cooling off period, the union could then strike.

Closures Threaten U.S. Agriculture Economy. U.S. agriculture has become very dependent economically on international trade. Exports are crucial for the success of the U.S. agricultural economy. The United States exports about 25 percent of its annual agricultural production, and for crops, 1 acre out of every 3 moves to export markets. Fiscal year 2001 agricultural exports were \$52.7 billion and provided an agricultural trade surplus of \$13.7 billion.

West Coast ports handle about half of all U.S. agricultural exports and 58 percent of all containerized agricultural exports from the United States. From 1999 through 2001, the Pacific Northwest (PNW) handled nearly 40 percent of total U.S. wheat exports, 15 percent of corn exports, and 8 percent of soybean exports, for a total of 19 percent of all U.S. grain and oilseed exports. Each month during October-December, an average of nearly 1.2 million metric tons of grain and oilseeds, worth more than \$250 million, move through West Coast ports.

- Approximately \$2 billion worth of containerized high-value agricultural products are exported each month through the West Coast ports.
- During the months of October, November, and December (1999-2001), an average of 10,000 40-foot containers of animal feed were exported each month.
- The average value (1999-2001) of wheat exported through the PNW during the 3 months of October, November, and December typically exceeds \$566 million (based on current free on board prices at port). Roughly 85 to 90 percent of Washington wheat is exported through the PNW, with similar percentages for exports of wheat grown in Idaho and Oregon.

Perishable Cargoes Jeopardized. The Pacific Maritime Association estimates that it will take at least 6 weeks to work through the backlog of freight, assuming that normal productivity levels are resumed. An estimated 250 ships are waiting at anchor or in terminals to be unloaded.

Time-sensitive, perishable commodities such as fruit, vegetables, poultry, fish, and meat are in the most danger of deteriorating. Once the products deteriorate, they have no salvage value and must be dumped. The timing of the closures is especially bad for perishable commodities. Nearly 30 percent of U.S. fresh fruit exports shipped through West Coast ports are shipped during the months of October-December, and 27 percent of fresh and frozen vegetable exports move through West Coast ports during these months.

Drought and Heat Effects on Grain Transportation

Poor Crops Reduce Transportation Demand for 2002/03. A severe drought, combined with abnormally high temperatures during critical periods of crop development, has reduced U.S. crop production forecasts as released by the U.S. Department of Agriculture (USDA). Reduced crop production will certainly reduce the volume of grain and oilseeds transported during the 2002/03 marketing year. Furthermore, smaller crops, combined with low grain stocks, will eliminate the need of many grain elevators to move old crops to make room for new crops.

Higher Crop Prices Could Stimulate Grain Transportation Demand This Fall. Higher crop prices could encourage producers to sell a greater proportion of their crops earlier than they normally would in the marketing year. If this were to occur, transportation demand could be stimulated this fall but drop off later in the marketing year.

Transport Patterns Will Change. The geographic extent and severity of the drought will result in changes to grain and oilseed transportation patterns this marketing year. Many domestic users will have to purchase grain and oilseeds from regions not traditionally sourced; thus crops will be hauled longer distances. Because of longer hauls, hired carriers may haul a greater proportion of crops to domestic users. Rail and barge transportation, which are more cost-efficient for longer hauls, may be chosen over truck transportation.

Because of the drought, swine and poultry producers in North Carolina, who usually purchase grain and oilseeds from Ohio, Michigan, and Indiana, will have to obtain grain from other regions and purchase more grain than normal. Although Delaware, Maryland, and Virginia often produce enough grain and oilseeds, poultry feeders in these States will need to purchase grain from outside the region this year.

Nearly Half of the United States Suffers from Drought. This summer, moderate to extreme drought covered more than 45 percent of the contiguous United States, compared to only 15 percent in a typical year. Large regions of the West and Midwest, as well as the Mid-Atlantic States, are affected by extreme drought ([figure 1](#)). According to the National Oceanic and Atmospheric Administration (NOAA), six States – North Carolina, Virginia, Colorado, Utah, Arizona, and Nevada – are suffering their worst drought on record. NOAA also reports that South Carolina, Maryland, Georgia, Delaware, and Wyoming are also near unprecedented dry levels.

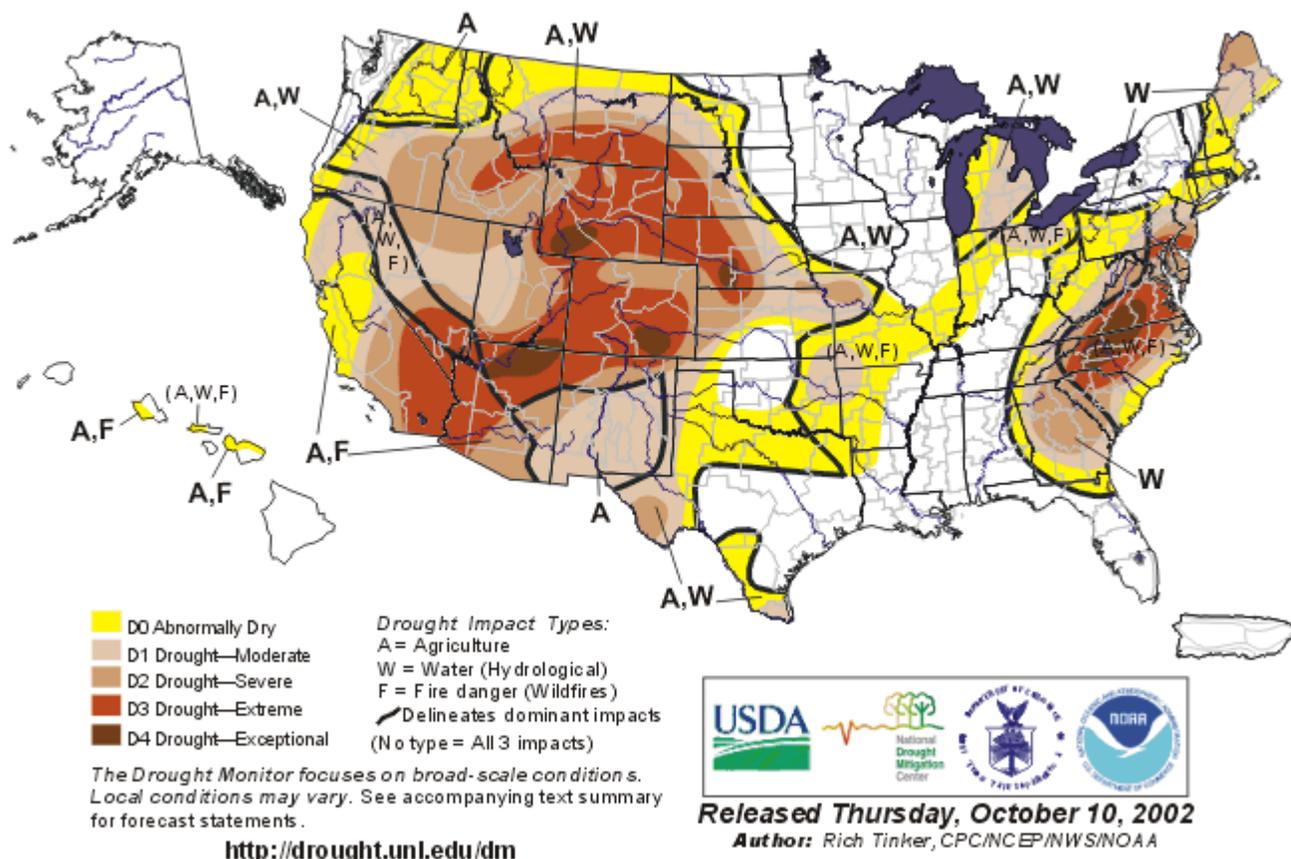
Drought Reduces Corn Production 5.6 Percent From 2001. U.S. corn production was forecast at 8.97 billion bushels with an average yield of 127.2 bushels per acre, the lowest for both since 1995.¹ Corn production in the Central Plains, Eastern Corn Belt, and Atlantic States are hardest hit by the drought. Indiana, Nebraska, Ohio, and Kansas are forecast to have the largest reductions in corn production from 2001, while Iowa and Minnesota are forecast to have increased corn production ([figure 2](#)).

¹ Sources for comparing yields and production of all crops discussed: **Crop Production**, National Agricultural Statistics Service, USDA, October 11, 2002, and **Historical Track Records**, National Agricultural Statistics Service, USDA, April 2002.

Figure 1 -- U.S. Drought Monitor Map

U.S. Drought Monitor

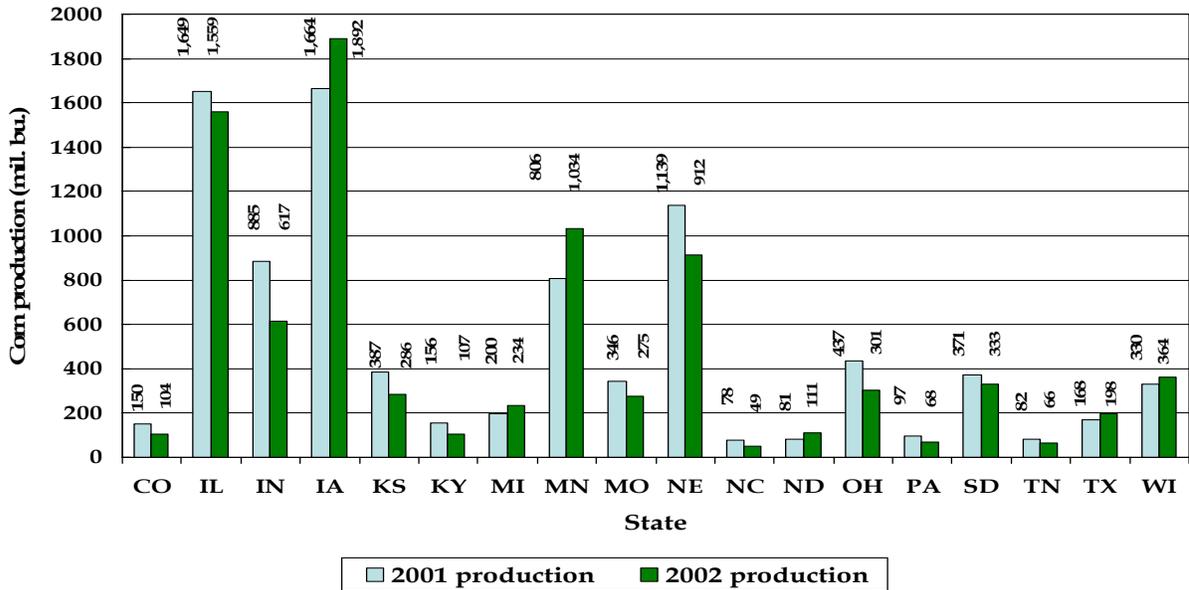
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Soybean Production Down 8.2 Percent from 2001. U.S. soybean production was forecast at 2.65 billion bushels with an average yield of 37.0 bushels per acre, the lowest for both since 1999. Drought and heat are expected to reduce soybean production most in the Central Plains, Eastern Corn Belt, and Atlantic States. States forecast to have the largest reductions in soybean production include Illinois, Nebraska, Indiana, Ohio, and Missouri (figure 3). Minnesota, Mississippi, Arkansas, Iowa, and North Dakota are forecast to have the largest increases in soybean production.

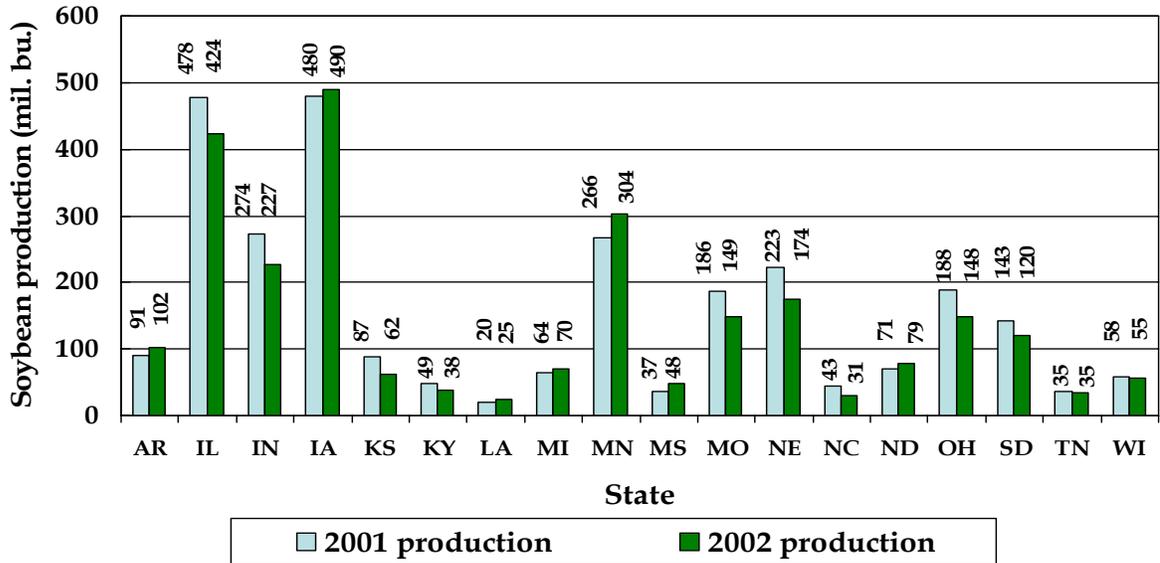
Wheat Production Down 13.9 Percent from 2001. U.S. wheat production was forecast at 1.69 billion bushels with an average yield of 35.4 bushels per acre, the lowest production since 1956 and the lowest yield since 1991. Nearly all regions of the United States were forecast to have reduced wheat production—due both to the effects of drought and reductions in acreage planted. Only the PNW and Western States are expected to see increased wheat output. States forecast to have the largest reductions in wheat production include Kansas, North Dakota, Colorado, Texas, and South Dakota (figure 4).

Figure 2 -- Forecast 2022 Corn Production Compared to 2001, by State



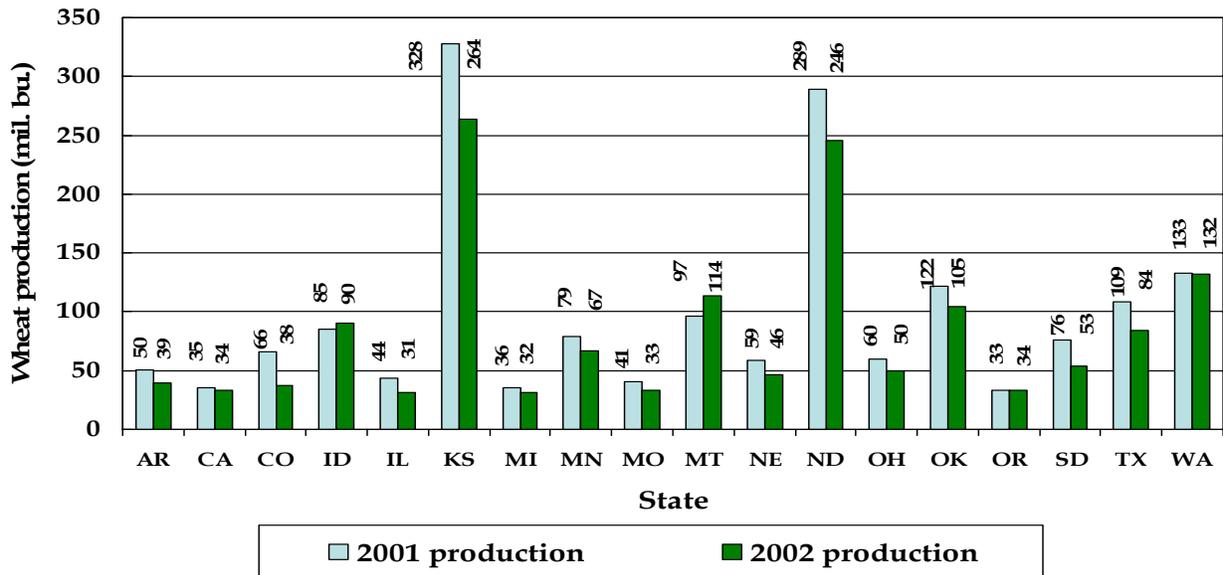
Source: **Crop Production**, National Agricultural Statistics Service, USDA, October 11, 2002, <http://usda.mannlib.cornell.edu/reports/nassr/field/pcp-bb/2002/>.
 These 18 States planted 93 percent of last year's corn acreage.

Figure 3 -- Forecast 2022 Soybean Production Compared to 2001, by State



Source: **Crop Production**, National Agricultural Statistics Service, USDA, October 11, 2002, <http://usda.mannlib.cornell.edu/reports/nassr/field/pcp-bb/2002/>.
 These 18 States planted 95 percent of last year's soybean acreage.

Figure 4 -- Forecast 2002 Wheat Production Compared to 2001, by State



Source: **Crop Production**, National Agricultural Statistics Service, USDA, August 12, 2002, <http://usda.mannlib.cornell.edu/reports/nassr/field/pcp-bb/2002/>.

These 18 States harvested more than 90 percent of last year's wheat acreage.

Ocean Freight

Ocean Grain Shipments Up from Last Quarter but Below Last Year. The Federal Grain Inspection Service (FGIS) inspected 20.7 million metric tons of grain for export from all U.S. ocean ports during the third quarter of 2002. While this is up 3.3 percent from the second quarter of 2002, it is 10.1 percent below the third quarter of 2001 and 10.1 percent below the 5-year third-quarter average. FGIS inspected 16.2 million metric tons of grain for export from the U.S. Gulf during the third quarter of 2002, which was 5.5 percent below both the third quarter of 2001 and its 5-year average. FGIS inspected 3.6 million metric tons of grain for export from the PNW during the third quarter of 2002, down 7.9 percent from the third quarter of 2001 and 18.7 percent below its 5-year average. Only 0.79 million metric tons of grain were inspected for export from the East Coast and the Great Lakes regions, down 34.5 percent from both the third quarter of 2001 and the 5-year average for these regions.

Ocean Freight Rates Send Mixed Signals. Ocean freight rates from the PNW to Japan show normal seasonal increases (figure 5). Ocean rates from the U.S. Gulf to Japan, however, are increasing sharply (figure 6). For the third quarter of 2002, average ocean freight rates from these two key grain routes, the PNW to Japan and the U.S. Gulf to Japan, were \$11.77 and \$20.34 per metric ton, respectively (see appendix table 1). Average quarterly ocean freight rates for both the PNW to Japan and the U.S. Gulf to Japan were close to their 5-year averages.

Figure 5 -- Ocean Freight Rates from PNW to Japan

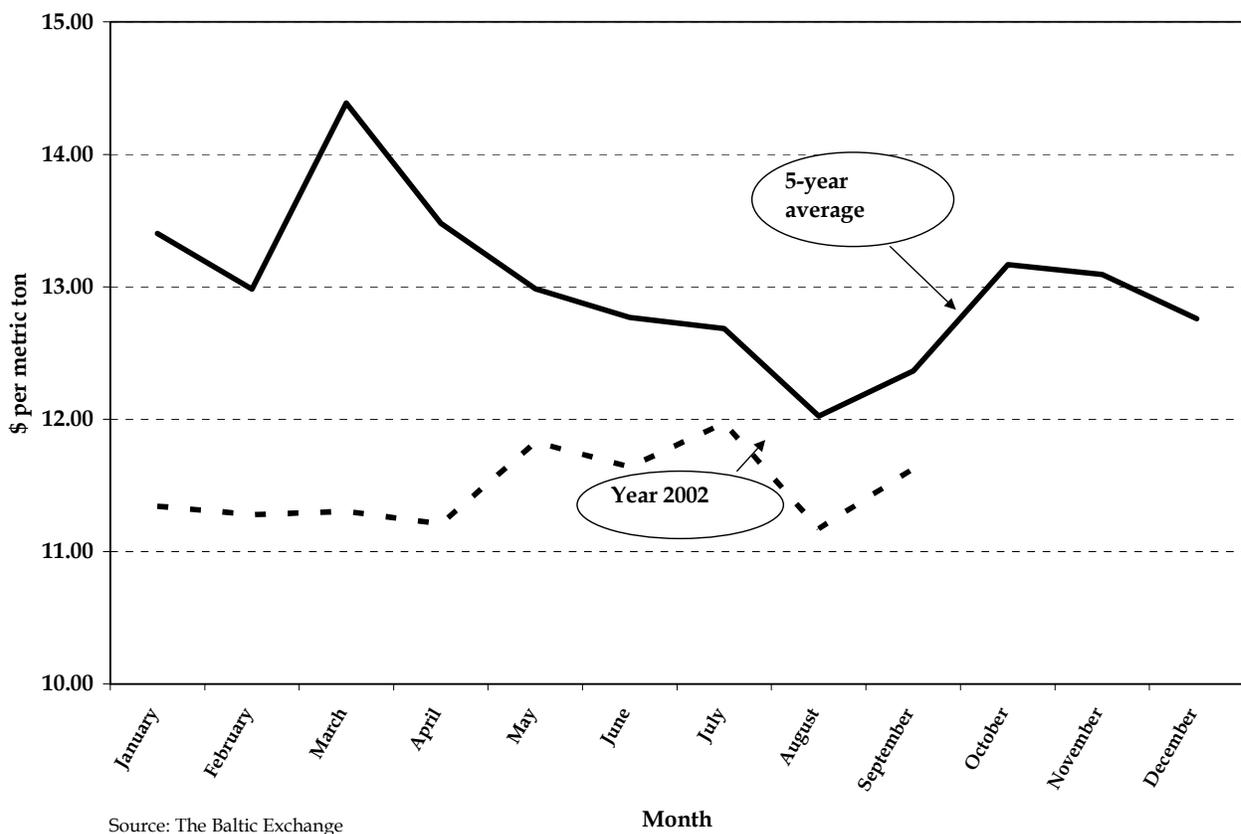
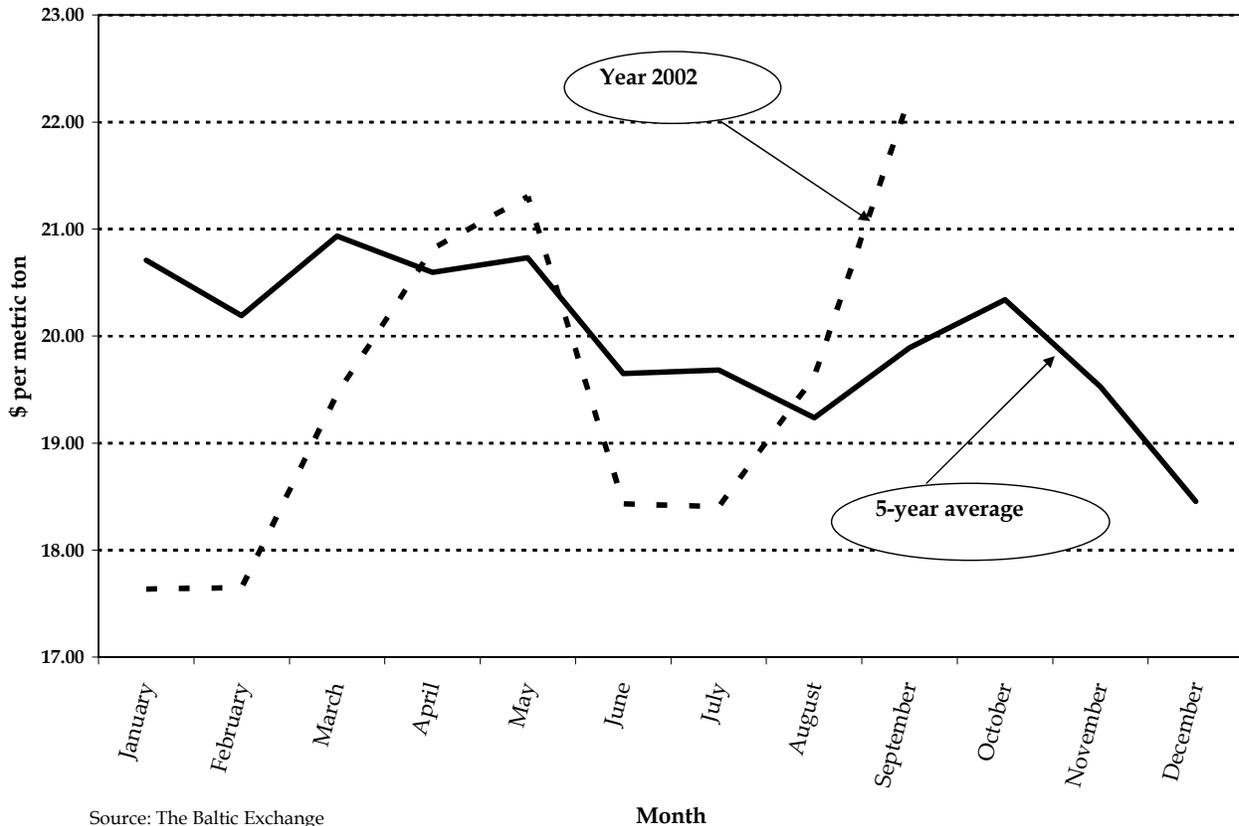


Figure 6 -- Ocean Freight Rates from U.S. Gulf to Japan



Source: The Baltic Exchange

U.S. Gulf to Japan Ocean Freight Rates Highest in 16 Months. The September 2002 average ocean freight rates from the U.S. Gulf to Japan, at \$22.99 per metric ton (figure 6), were the highest rates since May 2001. According to the Baltic Exchange, the average daily ocean freight rates from the U.S. Gulf to Japan have constantly increased since July 2002. In early July, the ocean freight rate from the U.S. Gulf to Japan for Panamax vessels (commonly used for grain shipments to Japan) was \$18.01 per metric ton. This rate increased to \$24.84 per metric ton by the end of the September, an increase of 38 percent. Every year, ocean freight rates increase during the third quarter due to seasonality.² This year's rate hike in the U.S. Gulf, however, may be due to a combination of higher Panama Canal tolls and concerns that labor unrest will restrict the ability to ship grain from West Coast ports.

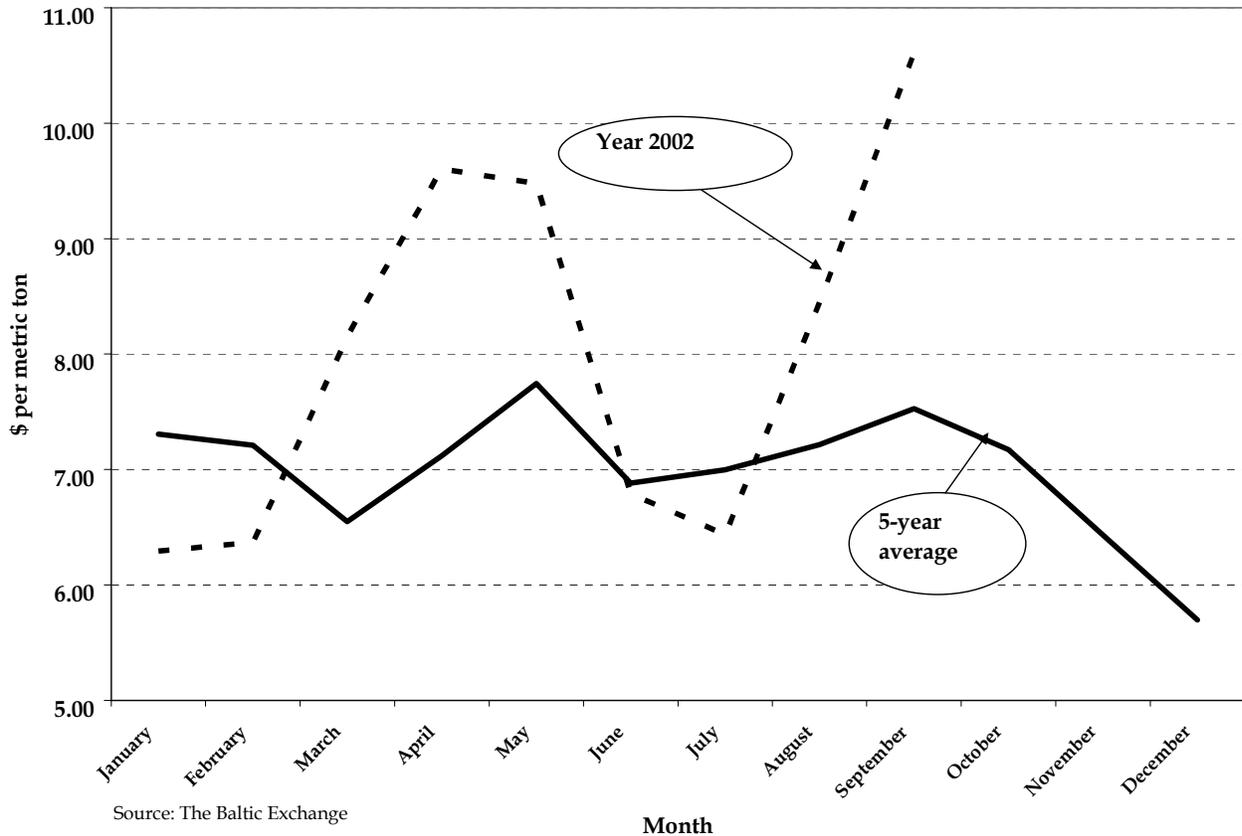
Spread in Ocean Freight Rates Follows Gulf Rate Trends. The "spread"³ in ocean freight rates has followed the increased U.S. Gulf to Japan rates very closely this year (figures 6 and 7). The "spread," currently⁴ at \$10.83 per metric ton, is at its highest level in years. On the average, it is 50 percent higher than last year. An increased "spread" between U.S. Gulf to Japan and PNW to Japan ocean freight rates could make exporting through the PNW more attractive than through the U.S. Gulf.

² Increased demand for ocean transportation of grain in the fall is usually associated with higher ocean freight rates.

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

⁴ As of September 30, 2002.

Figure 7 -- Ocean Freight Spread to Japan



Panama Canal Authority Increases Tolls. The Panama Canal Authority (PCA) has approved a two-phase plan to increase canal tolls. Beginning October 1, 2002, vessels that transit the canal must pay, on the average, 8 percent more for using the canal. After July 1, 2003, an additional 4.5 percent will be added to the tolls, resulting in the biggest increase in canal tolls in recent years (see [appendix table 2](#)). PCA had originally proposed a one-phase plan that would have increased the canal tolls by an average of 13 percent. Shipping companies and vessel owners, however, opposed the one-phase plan because of a sluggish global economy.

In addition to higher tolls for vessels, PCA has approved a charge of \$200 per locomotive wire used for pulling vessels through the canal. The number of wires used depends on the weight of the vessel and its contents. A loaded large vessel could pay as much as \$3,200 in wire charges to transit through the canal.

Ship Size Affects Panama Canal Tolls. Unlike previous toll structures, the proposed canal tolls are based on vessel tonnages. Other international canals, including the Suez Canal, also differentially price according to ship size. Before October 1, 2002, laden (loaded) ships paid a flat rate of \$2.57 per ton for using the Panama Canal while ballast (empty) ships paid \$2.04 per ton. After October 1, 2002, laden ships must pay \$2.80 per ton for the first 10,000 tons, \$2.78 per ton for the next 10,000 tons, and \$2.75 per ton for the remaining tons (see [appendix table 3](#)). After July 2003, these rates will be \$2.96 per ton, \$2.90 per ton, and \$2.85 per ton, respectively (see [appendix table 3](#)). Other charges include a new displacement charge of \$1.56 per displacement ton in phase I, and \$1.64 per displacement ton in phase II (see [appendix table 3](#)).

Although Panama Canal tolls will increase an average of 12.5 percent, they will vary depending on the size of the ship passing through the canal – larger ships will pay smaller rate increases. Panamax⁵ vessels carrying between 50,000 and 75,000 tons of grain will pay 5.1 percent more for their usage of the canal during phase I and an additional 3.8 percent after the implementation of phase II. The ocean freight cost of a typical grain shipment from the U.S. Gulf to Japan, which averaged \$22.99 per metric ton in September, will increase by \$1.17 per metric ton for a 54,000-metric-ton Panamax vessel. This increase in cost will likely be transferred to grain exporters via higher ocean freight rates for the U.S. Gulf to Japan route.

Panama Canal Important to U.S. Grain Exporters. The Panama Canal is the main artery for U.S. grain exports from the U.S. Gulf to the Pacific Rim countries such as China and Japan. Transporting U.S. grain through the Canal is the least costly way of exporting U.S. grain to major grain importers. On the other hand, the U.S. grain exports benefit the Panama Canal, too. Grain is the single most important commodity passing through the Panama Canal. Almost one-third of the tonnage shipped through the canal is grain, and more than 90 percent of the grain shipped through the Canal is U.S. grain. Vessels carrying U.S. grain exports to Pacific Rim countries generate a significant source of revenue for the Canal.

Hooshang Fazel, (202) 690-4440 Hooshang.fazel@usda.gov

⁵ Panamax vessels, the largest ships able to use the Panama Canal, are commonly used in the ocean transportation of U.S. grain exports to the Pacific Rim countries such as Japan and China.

Barge

Third Quarter Barge Shipments Near Average Levels. From July through September, weekly barge shipments averaged 912 thousand tons, slightly below the 5-year average and 6 percent below last year's third quarter of 973 thousand tons (see appendix table 4). During August and through most of September, barge shipments dropped significantly as empty barges made the return trip to the upper reaches of the rivers (figure 8).

Before the harvest peak, a portion of the empty barges in New Orleans, LA, make the 1,700-mile return trip to Minneapolis-St. Paul, MN, which can take 17 days. The downbound trip with loaded barges, aided by the downstream current, takes about 11 days. At the end of September, barge shipments increased and will continue to increase during the peak harvest months of October and November.

Despite the drought, water levels have been sufficient for navigation on the upper Mississippi River but have caused periodic Coast Guard advisories regarding tow size and barge drafts for the lower Ohio River and northern reaches of the lower Mississippi River. For October and November, low water conditions should not have a significant impact on navigation.

Barge Freight Rates Below Average. For the third quarter of 2002, Minneapolis-St. Paul to New Orleans barge freight rates were reported at 172 percent of tariff, 23 percent below the 5-year average of 222 percent of tariff (see appendix table 5). Barge rates are quoted in terms of differentials from barge tariff benchmarks.⁶ The tariff rate from Minneapolis-St. Paul is \$6.19 per ton; therefore, the spot market rate quoted is 1.72 times \$6.19 or \$10.65 per ton. Average third quarter rates for St. Louis, MO, to New Orleans were 113 percent of tariff (\$4.51 per ton based upon a \$3.99 tariff), 32 percent lower than the 5-year average of 165 percent of tariff. Barge futures for November shipments were quoted at 200 percent for Minneapolis-St. Paul and 138 percent for St. Louis. This suggests that for the rest of the year, barge shipment rates will be below average.

Debate Increasing on Upcoming Water Legislation. Funding levels for the U.S. Army Corps of Engineers (Corps) is being debated as both House and Senate and the White House have targeted different appropriations for the inland waterways. Every 2 years, the Water Resource Development Act (WRDA) is planned and typically contains project authorizations, modifications and deauthorizations, program revisions and policy initiatives, and related provisions involving Corps activities. These activities include navigation, flood control, shoreline protection, hydropower, dam safety, water supply, recreation, environmental restoration and protection, and disaster response and recovery. The eventual funding levels for the upcoming WRDA could have a significant impact on the inland waterways. Agricultural and barge interest groups hope that the upcoming WRDA 2002 will contain recommendations for possible navigation improvements on the upper Mississippi River-Illinois Waterway.

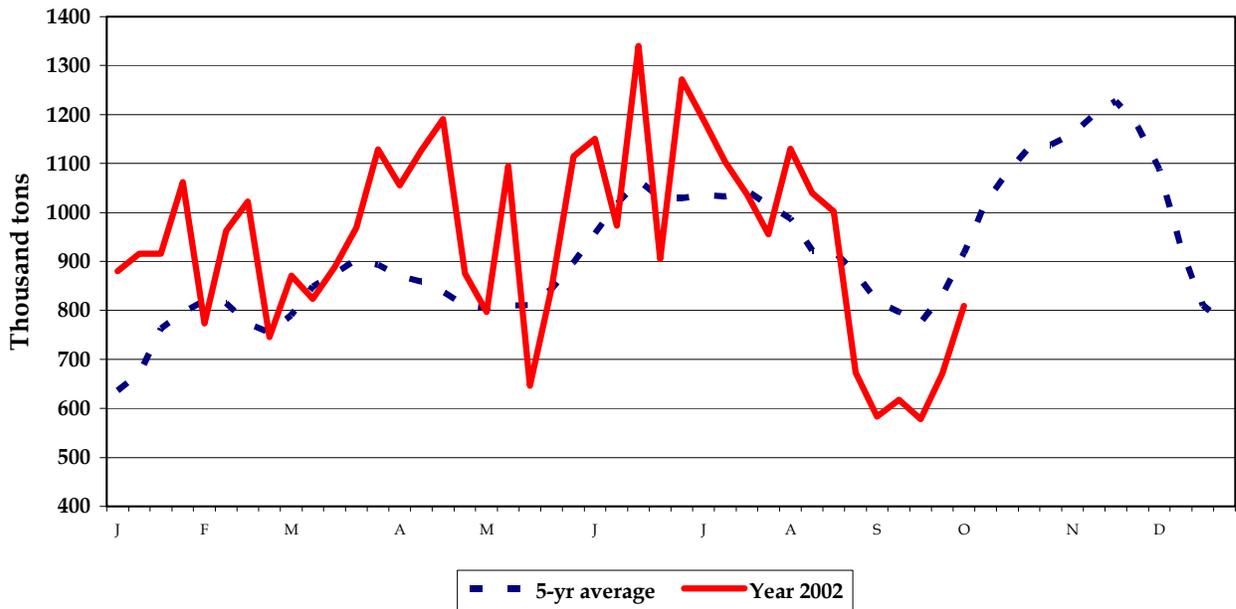
Corps officials and barge company representatives hope that the WRDA 2002 contains increased funding for operation and maintenance (O&M) of the 12,000 miles of inland and intracoastal

⁶ 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.

waterways that contain more than 200 locks and dams. As the waterway system ages the amount of required maintenance increases. Nearly one-half the locks and dams have exceeded their 50-year project life. The aging process has accelerated scheduled and unscheduled maintenance requirements, which in turn has created increased annual downtimes at locks. Downtimes and delays increase costs to shippers and are especially critical during periods of low rates.

With many project needs and the possibility of reduced O&M funding levels, debate is increasing on how O&M projects will be prioritized and funded. Some of the current proposals indicate that more heavily used waterways, based upon higher ton-miles, should get higher priority than those with lower commercial use. The high-use Ohio and Mississippi Rivers are credited with a majority of the tonnages moved long distances and reflect a higher need for funding based upon ton-miles. There are, however, many tributary waterways that move cargoes short distances to the mainstream system that may receive reduced O&M funding since they do not generate high ton-mile figures.

Figure 8 -- Weekly Grain Traffic at Upper Mississippi, Ohio, and Arkansas Rivers



Nick Marathon (202) 690-0331 nick.marathon@usda.gov

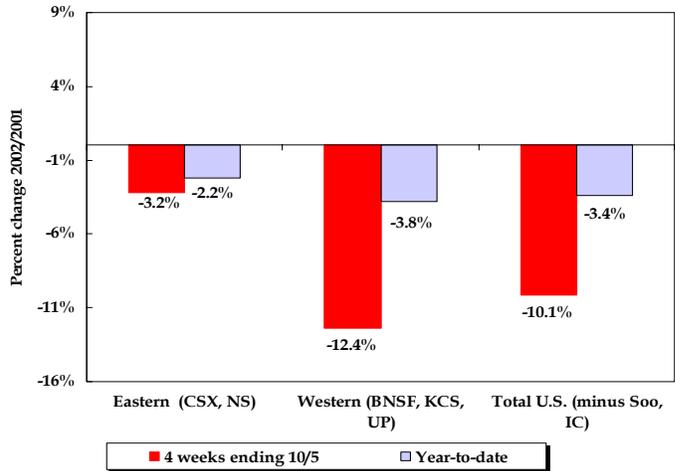
Rail

Adequate Rail Capacity This Fall. U.S. rail system capacity for grain and oilseeds is expected to be adequate this fall, mainly because the widespread U.S. drought has reduced projected yields for this year's crops. Furthermore, far fewer grain elevators than in past years will need to move grain and oilseeds to make storage room for the new crops; these movements often are hauled by rail.

Figure 9 -- Comparison of Rail Grain Transportation, September 8 Through October 5 and Year-to-Date

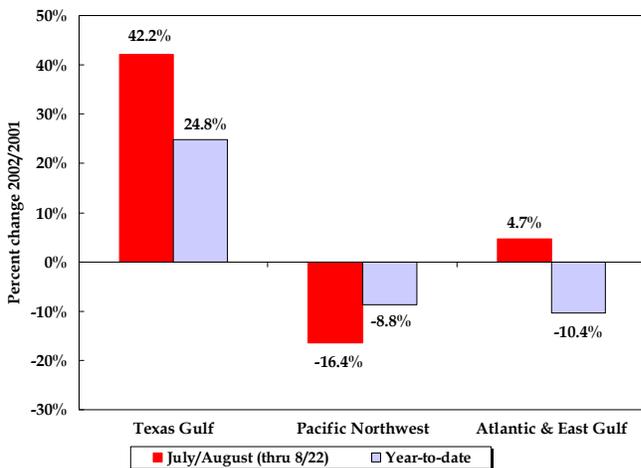
Year-to-Date Grain Transportation Demand Weak.

Overall demand for grain transportation by rail has been weak this year. Year-to-date grain traffic on U.S. Class I railroads decreased 3.4 percent, 789,219 railcars originated compared to 814,464 in 2001, with the decrease in traffic fairly evenly distributed between the Eastern and Western Class I railroads (figure 9). Grain originated on U.S. Class I railroads during the last 4 weeks (September 8 through October 5) decreased 10.1 percent compared to the same period in 2001. Grain originations on the western railroads during the last 4 weeks, however, decreased 12.4 percent, compared to a decrease of only 3.2 percent on the eastern railroads (figure 9).



Source: Weekly Railroad Traffic, Association of American Railroads.

Figure 10 -- Comparison of Rail Deliveries to Selected Port Regions, July Through August 22 and Year-to-Date Through August 22



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

Rail Deliveries Strong to the Texas Gulf Ports. July and August (through August 22) rail deliveries to Texas Gulf ports have increased 42.2 percent over the same period in 2001 (13,763 railcars compared to 9,680) and year-to-date carloads have increased 24.8 percent (62,108 carloads compared to 49,759 during the same period in 2001) (figure 10). Rail deliveries to PNW ports are down 8.8 percent year-to-date (65,209 railcars compared to 71,540) and rail deliveries to Atlantic and East Gulf ports are down 10.4 percent year-to-date (15,304 railcars compared to 17,079) (figure 10).

Rail Rates Up Slightly from Last Year. On the average, rail rates have increased slightly compared to last year's rates. Because rail tariff rates are based more on the rates of competing transportation modes than on the cost of providing rail service, competition from trucks (where cost-effective on shorter hauls) and barges limits the ability of railroads to increase rail grain tariffs in many markets.

Shippers having cost-competitive transportation options typically pay lower rail tariff rates than those that depend solely on rail transportation and are captive to a single railroad. As a result, rates can vary significantly by choice of route and can be higher for shorter hauls than for longer hauls using the same route. [Appendix table 6](#) shows rail rates for selected origins and destinations and also shows that rail rates can vary significantly between commodities for the same route.

Railroads Planning for Fall Grain Traffic. Major railroads are currently working to allocate their equipment and crews to reflect expected changes in traditional market patterns; this year's drought will force buyers to source grain and oilseeds from markets they normally do not access. Cycle times on the railroads may be a little slower this fall due to the challenges associated with crew availability, abnormal market patterns, and increased volume from nonagricultural traffic.

Railroad Share of Grain and Oilseed Traffic Could Increase. Railroad share of grain and oilseed traffic could increase this year relative to truck transportation. Buyers' need to obtain grain and oilseeds from nontraditional sources means that the average lengths of haul are almost certain to increase this fall. Longer hauls favor rail and barge transportation because of their cost competitiveness for longer distance hauls.

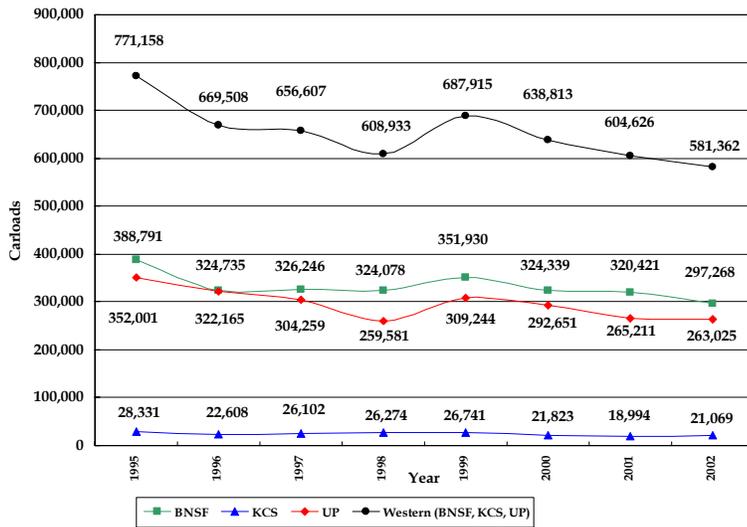
Western Railroads

Adequate Rail Capacity This Fall. Rail capacity on the Burlington Northern Santa Fe (BNSF) and Union Pacific (UP) railroads will be adequate because they have completed their merger integrations and, over the last several years, have invested heavily in locomotives and track improvements. Thus, those two railroads predict rail service will be relatively smooth this fall. Kansas City Southern Railways (KCS) is making progress on eliminating congestion that has been caused by its implementation of a new computer operating system.

Demand for Grain Transportation Weak. Both year-to-date and for the last 4 weeks, the demand for grain transportation has been weak ([figure 9](#)). Year-to-date grain originations on the western railroads were down 3.8 percent compared to the same period in 2001, down 9.1 percent from the 1997-2001 average and down 24.6 percent from 1995, which was before the last two western railroad mergers ([figure 11](#)). During the last 4 weeks, grain traffic on the western railroads was even weaker, down 12.4 percent, with only 58,998 railcars originated compared to 67,349 railcars during the same period in 2001.

Railcar Supply Is Adequate. Western railroads expect their railcar supply to be adequate this fall and winter because projected crop yields are less than normal. In addition, railcar cycle times are quicker, and railcar fleets are larger. Thus, bidding activity for guaranteed grain cars has been weak on the two major western railroads, BNSF and UP.

Figure 11 -- Comparison of Western Railroad Grain Car Loadings Year-to-Date (Through October 5)



Source: Weekly Railroad Traffic, Association of American Railroads.

As of August 27, railcars in the secondary market for October 2002 were selling at \$0 on BNSF and at average discounts of \$18 on UP; for November 2002, at discounts of \$10 and \$22, respectively; and for December 2002, at discounts of \$11 and \$22, respectively.

Corn and Soybean Movements

Strong to Mexico. Western railroads report relatively strong movements of corn and soybeans to Mexico. Some railroads, however, are reporting less than normal corn movements to domestic cattle feedlots. They also expect, because of

drought conditions in many Eastern Corn Belt States, that some of their customers will be competing with eastern users for corn and soybeans grown west of the Mississippi River.

BNSF Grain Movements Down. BNSF grain traffic is down 7.2 percent year-to-date compared to 2001 and down 9.8 percent from the 1997-2001 average (figure 11). For the most recent 4-week period, BNSF grain traffic is down 12.0 percent from 2001 (32,623 railcars compared to 37,070). This decrease in BNSF grain traffic is caused by BNSF’s dependence upon PNW grain export movements (which are down 8.8 percent compared to the same period in 2001) (figure 10) and the loss of grain traffic historically received from the Canadian Pacific Railway.

BNSF is considering shrinking its railcar fleet because of excess railcar capacity. On October 5, BNSF had 23,708 covered hopper railcars in its active grain fleet, with 1,198 in storage. As of October 5, 92.0, 34.0, and 15.6 percent of the guaranteed railcars offered for October, November, and December, respectively, have been sold.

KCS Grain Movements Up. Grain cars originated year-to-date on KCS increased 10.9 percent compared to 2001 but were down 12.2 percent from the 1997-2001 average (figure 11). Grain cars originated during the past 4 weeks, however, were down 16.0 percent compared to the same period in 2001 (1,749 railcars compared to 2,082). Because a large proportion of its grain traffic is originated on other railroads, however, the amount of grain originated on KCS does not reflect the total amount of its grain traffic.

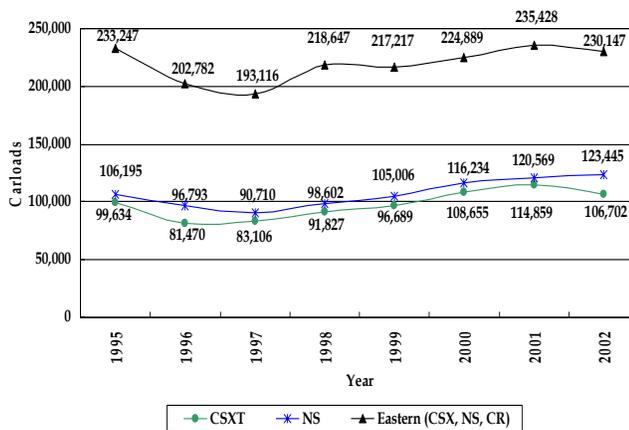
UP Grain Traffic Down Slightly. Grain originated on UP year-to-date decreased 0.8 percent compared to 2001 and was down 8.1 percent compared to the 1997-2001 average (figure 11). For the last 4 weeks, grain originated on the UP was down 12.7 percent compared to 2001 (24,626 railcars compared to 28,197). UP expects to benefit from the excellent corn and soybean crops in Iowa and Minnesota this fall because it traditionally originates a large quantity of grain in those States.

Eastern Railroads

Adequate Capacity This Fall. Eastern railroad operations have continued to improve as evidenced by increased train speeds and decreased yard dwell times that now approach or equal those of the western railroads. Furthermore, both eastern railroads have an adequate supply of covered hopper railcars and locomotives.

Year-to-Date Grain Transportation Down. Grain originated on the eastern railroads is down 2.2 percent, year-to-date, compared to 2001 but up 5.6 percent over the 1997-2001 average (figure 12). Grain transportation demand has been weak during the last 4 weeks, decreasing 3.2 percent over the same period in 2001 (21,188 railcars versus 21,891) (figure 9).⁷

Figure 12 -- Comparison of Eastern Railroad Grain Car Loadings, Year-to-Date (Through October 5)



Source: Weekly Railroad Traffic, Association of American Railroads.

Competition for Iowa, Minnesota, and Wisconsin Grain. Grain users located on the eastern railroads may have to compete for corn and soybeans grown in Iowa, Minnesota, and Wisconsin due to drought conditions in the Eastern Corn Belt and the Southeast. Eastern soybean users may also find sources in the States of Arkansas, Louisiana, Mississippi, and Tennessee. The Eastern railroads normally source much of their grain from the States of Illinois, Indiana, Ohio, and Michigan. The drought, though, has greatly reduced projected corn and soybean yields in southern Illinois, Indiana, Ohio, and Pennsylvania and reduced crops in those Eastern States that have large poultry and swine feeding operations.

Partnering with BNSF and UP May Be Limited. To obtain grain from States west of the Mississippi River, the eastern railroads may find it easier to partner with smaller railroads or Canadian National Railways than with UP or BNSF. The ability to partner with UP and BNSF on movements may be limited because projected crop yields in many Mountain and Plains States were severely affected by the drought and demand for grain is substantial in those States.

Longer Hauls Due to Drought. The drought has already resulted in longer hauls on the eastern railroads. Movement of feed grains to the Carolinas, Delaware, Maryland, and Virginia has been strong. So far, many of these shipments have originated in Ohio, Indiana, Michigan, or Northern Illinois.

CSX Grain Traffic Down. CSX grain car loadings, year-to-date, decreased 7.1 percent compared to 2001 (figure 12). Grain-car loadings on CSX are also down during the past 4 weeks, decreasing 8.3

⁷ All traffic comparisons exclude Illinois Central, which, in the fourth quarter of 2000, began to report its cars originated as part of those originated by Canadian National Railways. This leaves only the comparison of current rail traffic on CSX and Norfolk Southern (NS) to that of CSX, NS, and Conrail in the periods prior to the split of Conrail in June 1999.

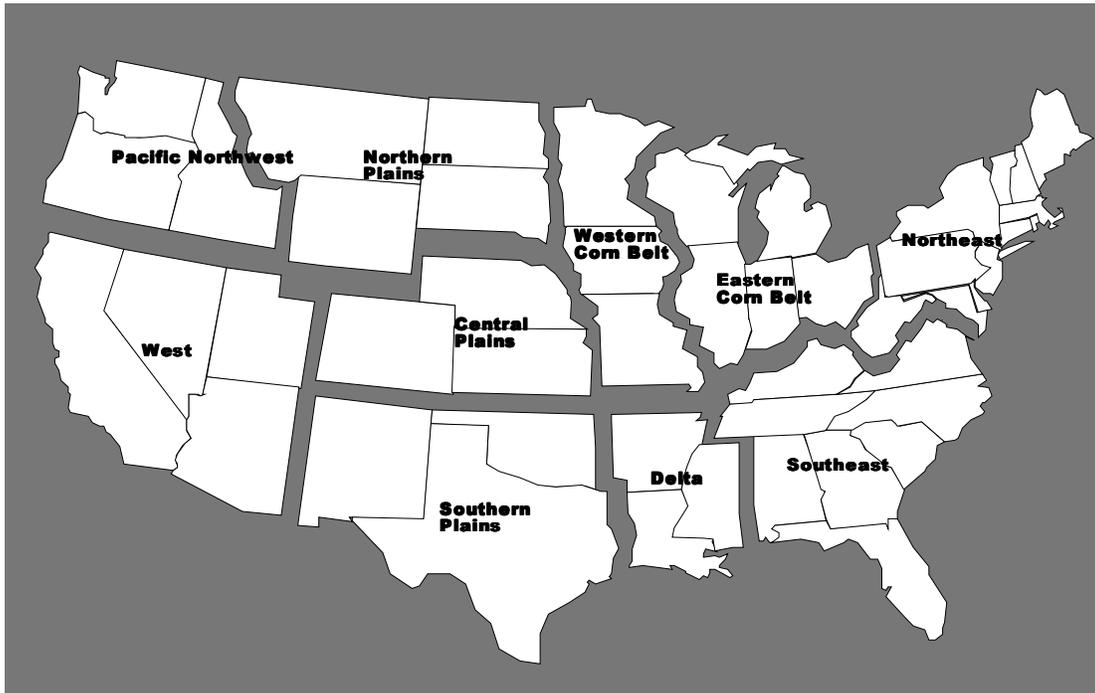
percent compared to 2001 (9,396 railcars compared to 10,248). CSX export movements of grain have been down substantially due to the closure of an export facility in Baltimore, MD.

Norfolk Southern (NS) Grain Movements Up. Year-to-date grain movements on NS increased 2.4 percent compared to 2001 ([figure 12](#)). Grain movements during the last 4 weeks have also increased by 1.3 percent as compared to 2001 (11,792 railcars versus 11,643).

Marvin Prater (202) 690.6290 marvin.prater@usda.gov

Trucking

Figure 13 -- Select U.S. Grain Production Regions



Source: USDA/AMS

Trucks Play a Major Role in Moving Grain. Although drought conditions have affected vast grain-producing regions this past summer and resulted in fewer grain loads for many truckers, truck transportation of grain is vital in a number of States where large quantities of grain are produced. Trucks are vital to transporting grain from farms and country elevators to huge 110-railcar shuttle-train loading stations for movement to the PNW, the U.S. Gulf, Mexico, and other markets. These new 100-plus railcar train-loading stations are being built in Kansas, Nebraska, Oklahoma, South Dakota, Texas, and other States as the trend toward the railroads' use of high-volume shuttle-trains continue for bulk grain movements over long distances. Trucks transport wheat, corn, and other grains directly from farms to terminal elevators and river facilities, often bypassing local elevators as more farmers become owners of semi-tractor trailer trucks with 50,000-pound load capacities.

With the increasing importance and reliance upon timely truck movement of grain, not only in traditional service from farm to local and terminal elevators or processors, but also to high-volume train loading facilities, this issue of *Grain Transportation Prospects* initiates an analysis of current and expected short-term trucking activity and rates in selected grain-producing areas.

Pacific Northwest (PNW)

Trucks Move PNW Wheat. Truck transportation is crucial in the States of Washington, Oregon, and Idaho, which, as of September 2002, were forecast by USDA to produce nearly 256 million bushels of wheat. Of the PNW total wheat production, 80 to 90 percent is destined for export.

Trucks play an important role in transporting PNW wheat from the fields to inland grain elevators and from inland elevators to terminal facilities located on the Columbia River.

Truck Rates Increase with Distance. Truck rates are based on distances to inland elevators and river terminals. Most hauls are about 50 miles, although they can be 200 miles or more. Currently, truckers typically charge \$0.13 to \$0.16 per bushel for hauls of 25 to 50 miles with loads of 900 to 1,000 bushels of wheat. Traveling 100 miles from origin to destination and back requires a rate of approximately \$0.35 per bushel. Hauls of 200 miles generate about \$0.51 per bushel. Wheat will be trucked to terminal markets throughout the winter. Ample truck capacity should be available.

Northern Plains

North Dakota Wheat Hauled to Minneapolis. As the wheat harvest comes to an end in North Dakota, much of the crop is being hauled by truck to major Minneapolis, MN, grain exchanges. The rate is about \$0.48 per bushel for distances averaging about 360 miles. Some wheat will be trucked to elevators within the State and to elevators in South Dakota. Trucks will also be used to move corn and soybeans, harvested later this fall.

Montana Wheat Hauled to Snake River. Montana farmers use trucks to haul large volumes of wheat directly to grain companies located on the Snake River at or near Lewiston, ID. Truck rates average about \$0.48 per bushel for typical loads of 50,000 pounds. In northeastern Montana, however, the majority of grain from elevators is being trucked about 60 miles south to a 110-car shuttle train railroad facility near Wolf Point. Typical loads are 1,000 bushels with rates averaging about \$0.16 per bushel. No problems have been reported regarding available truck capacity.

Central Plains

Drought Conditions Reduce Loads for Truckers. The Nebraska corn crop is down 20 per cent from last year because of drought conditions. As a result, trucking activity will be reduced. In addition, some elevator operators plan to store corn until the demand gets better. Some corn will be trucked 150 to 200 miles to feedlots in western Kansas at a rate of about \$2.00 per mile. Some Nebraska soybeans, which will be harvested after corn, will be trucked from local elevators to in-State processors at a rate of about \$1.00 per mile for an average distance of 60 miles.

Kansas Truckers Often Haul to Major Grain Terminals. Kansas wheat and soybeans are often trucked 150 to 200 miles from small country elevators to major terminal elevator facilities in Wichita, Hutchinson, and Salina. Much of the wheat trucked to Wichita (in semi-tractor trailer trucks carrying 900 bushels at \$0.13 to \$0.15 per bushel) is moved out of Wichita in 100-railcar trains destined to the U.S. Gulf for export.

Drought Causes Additional Trucking of Corn into Colorado. The poor Colorado corn crop, forecast by USDA to be down 30 percent from last year, has caused additional supplies of corn to be trucked in from other States to feed livestock. Corn from country elevators in eastern Colorado is being trucked to local feed lots at rates of \$0.05 to \$0.10 per bushel. During harvest, rates will increase to \$0.10 to \$0.12 per bushel. Truckers hauling corn from Nebraska to Colorado feed lots, distances of approximately 250 miles, are charging about \$1.00 per mile. Some eastern Colorado wheat is trucked 100 to 150 miles to terminal elevators in Denver at \$0.27 per bushel. Wheat hauled longer distances – from eastern Colorado to Des Moines and Council Bluffs, IA, and to Fremont and

Omaha, NE – moves at rates of \$0.30 to \$0.35 per bushel in semi-tractor trailer trucks of about 900-bushel capacity.

Southern Plains

Ports of Catoosa, OK, and Corpus Christi, TX, Busy. Oklahoma's Port of Catoosa, located 15 miles northeast of Tulsa, is receiving wheat by truck from Oklahoma and Kansas where it is loaded onto barges destined for New Orleans, LA. Soybeans and milo are hauled to Catoosa by truck at rates ranging from \$0.15 to \$0.35 per bushel.

Grain, which will ultimately move by rail or ship to Mexico, is being trucked at rates of \$0.30 to \$0.40 per hundred weight to the Port of Corpus Christi, TX, from farmers located within a 70- to 80-mile radius of the port. Some elevators in the Texas Panhandle near Amarillo have been receiving wheat, milo, and corn by truck from farms located about 20 miles away at a rate of approximately \$0.90 per mile.

Corn is also being trucked from southeast Kansas and northeast Oklahoma to feed lots in western Oklahoma and western Texas. Local corn, soybeans, and milo are coming in from fields in Oklahoma by truck to local elevators at rates of about \$1.00 per mile. Country elevators located 65 to 75 miles southwest of Enid, OK, are receiving grain by truck at rates averaging \$1.20 per mile during harvest.

Western Corn Belt

Truck Rates for Iowa Corn and Soybeans Average \$0.10 to \$0.14 per Bushel. Southwest Iowa soybeans should be hauled out of fields by truck beginning the middle of September, with corn to follow in late October. Some southwest Iowa soybeans will be trucked to local processors. Corn from the area will also be trucked about 60 miles at rates of \$0.12 to \$0.14 per bushel to Council Bluffs for loading in 100-railcar trains destined for the PNW where it will then be loaded onto ocean vessels for export. Grain is also being trucked to Arkansas and Texas poultry producers from southwest Iowa at rates of \$0.12 to \$0.14 per bushel. Charges for trucking of grain throughout Iowa average \$0.10 to \$0.14 per bushel.

Trucks To Transport Southern Minnesota Soybeans. The southern Minnesota soybean harvest should be under way by the first week of October. In October, USDA forecast a crop of 304 million bushels. Most of the soybeans are scheduled to be hauled from the fields to large processing plants in Mankato at \$0.15 to \$0.20 per bushel for distances of 20 to 30 miles. Truck rates are \$.15 to \$.20 per bushel. A sufficient number of trucks reportedly are available.

Harvesting of corn grown south of St. Louis, MO, is underway. The crop will be hauled by truck about 50 miles at rates of \$.10 to \$.17 per bushel to barge facilities on the Mississippi River for export.

Eastern Corn Belt

Drought Causing Reduced Truckloads in Eastern Corn Belt. The southern Indiana corn crop is expected to be 50 to 60 percent below last year's crop because of dry conditions resulting in reduced loads for truckers. Corn is coming in from fields by truck with about 50 percent of the crop headed for on-farm storage and the rest to country elevators. The longest truck hauls should be no more

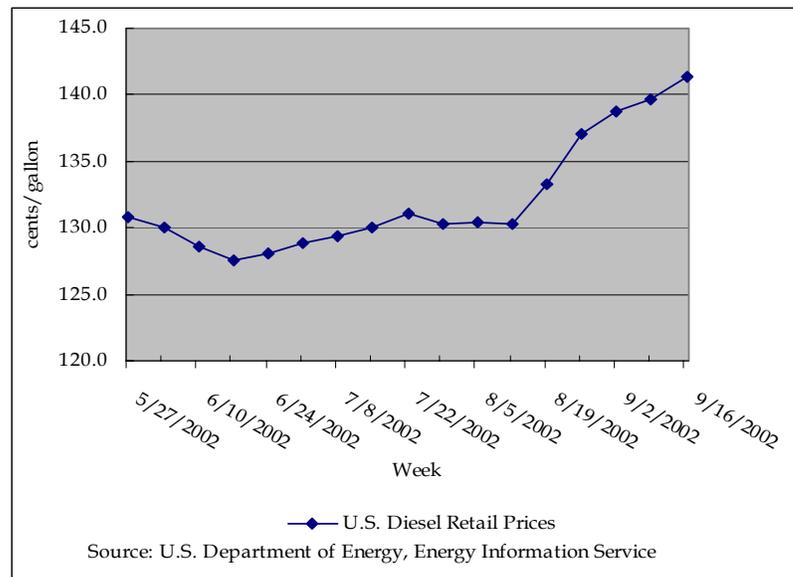
than 100 miles to the Ohio River where corn will be loaded onto barges for export. Truck rates average \$1.10 per mile for these movements.

The 2002 corn crop in Ohio is expected to be down 31 percent from last year's 437 million bushels. In northwest Ohio the soybean harvest is starting, with corn to follow in late October. Corn destined for southeastern poultry and livestock markets will be hauled about 50 miles by truck to rail facilities. Some corn will be trucked longer distances directly to the southeast at rates of \$0.20 to \$0.50 per bushel. Corn will also be trucked about 25 miles to the Port of Toledo at \$0.08 to \$0.10 per bushel. In northeast Ohio below Cleveland, not much trucking activity is expected this fall. Because the area is grain deficit, most of the corn produced will remain in the area to be trucked to local elevators and feed mills at rates of \$0.14 to \$0.15 per bushel.

Diesel Prices

Fuel Price Volatility Impacts Grain Truckers. Fuel cost is the second only to labor, or driver compensation, as the highest operating expense for truckers. As fuel prices increase, truck operating costs increase rapidly. For example, if diesel fuel increases from \$1.25 to \$1.50 per gallon, fuel costs per mile will increase from \$0.25 to \$0.30 for a truck getting 5 miles per gallon. Diesel fuel prices have been up and down during the past year (figure 14), fluctuating from a national average high of \$1.52 per gallon on September 17, 2001, to lows of \$1.14 per gallon on December 17, 2001, and again between January 28 and February 4, 2002. During the past 5 weeks, from August 12 to September 16, retail diesel prices have increased 8.5 percent, rising from \$1.30 to \$1.41 per gallon. When fuel prices are volatile, making it difficult to predict fuel prices in 30 to 60 days, risks increase markedly for trucking firms locking in long-term freight business, especially for small-to-medium-sized grain haulers. Many grain truckers also have difficulty recouping fuel cost increases through surcharges. Customers are reluctant and some refuse to pay fuel surcharges. Instead, because of abundant competition, shippers will take business to other trucking companies that operate without fuel surcharges.

Figure 14 -- U.S. Diesel Retail Price (cents per gallon)



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>

U.S. Surface Transportation Board,

<http://www.stb.dot.gov>

Association of American Railroads,

<http://www.aar.org>

CSX Transportation,

<http://www.csx.com>

Kansas City Southern,

<http://www.kcsi.com>

Norfolk Southern,

<http://www.nscorp.com>

Union Pacific,

<http://www.up.com>

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

Export location Year	1st quarter (Jan.-Mar.)	2d quarter (Apr.-June)	3d quarter (July-Sept.)	4th quarter (Oct.-Dec.)	Annual (Jan.-Dec.)
\$/ metric ton					
U. S. 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	N/A	N/A
5-year average ¹	20.61	20.33	19.60	19.44	20.00
Pacific Northwest					
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	N/A	N/A
5-year average ¹	13.59	13.08	12.36	13.01	13.01
Spread ²					
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	N/A	N/A
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 -- Panama Canal Historical Toll Rates (in US\$)
Per Panama Canal Universal Measurement System Net Ton (PC/UMS)

Date	Laden	Ballast	Displacement	Average percentage increase
Before July, 1974	0.90	0.72	0.50	N/A
July 8, 1974	1.08	0.86	0.60	19.7
November 18, 1976	1.29	1.03	0.72	19.5
October 1, 1979	1.67	1.33	0.93	29.3
March 12, 1983	1.83	1.46	1.02	9.8
October 1, 1989	2.01	1.60	1.12	9.8
October 1, 1992	2.21	1.76	1.23	9.9
January 1, 1997	2.39	1.90	1.33	8.2
January 1, 1998	2.57	2.04	1.43	7.5
October 1, 2002	See appendix table 3			
July, 2003	See appendix table 3			

Source: Panama Canal Authority

Appendix Table 3 -- Proposed New Rates for the Panama Canal Tolls

Type of vessel	Pre-Oct. charges		Proposed *					
			Phase I - October 1, 2002					
			First 10,000 tons (PC/UMS) ¹		Next 10,000 tons (PC/UMS)		Remaining tons (PC/UMS)	
	Laden ²	Ballast ³	Laden	Ballast	Laden	Ballast	Laden	Ballast
All including dry bulk	\$2.57	\$2.04	\$2.80	\$2.22	\$2.78	\$2.21	\$2.75	\$2.18
Displace.	\$1.43/displacement ton		\$1.56 / displacement ton					
			Phase II - July 1, 2003					
			Laden	Ballast	Laden	Ballast	Laden	Ballast
All including dry bulk			\$2.96	\$2.35	\$2.90	\$2.30	\$2.85	\$2.26
Displace.			\$1.64 / displacement ton					

1. PC/UMS = The Panama Canal/ Universal Measurement System

2. Laden = loaded

3. Ballast = empty

Source : The Panama Canal Authority

Appendix Table 4 -- 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		
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 5 -- Barge Rate Indices

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		
5-yr. avg.	188	177	222	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		
5-yr. avg.	129	108	165	162	

Appendix Table 6 -- Rail Tariff Rates for Selected Origins and Destinations

Origin	Destination	Railroad	No. of cars	Rate/ car	Rate/ bu.
Corn					
Kansas City, KS	Beaumont, TX	BNSF	110	\$1,560	\$0.44
Omaha, NE	Kalama, WA	BNSF	110-120	\$2,700	\$0.76
Des Moines, IA	Laredo, TX	UP	92-105	\$2,235	\$0.63
Omaha, NE	Beaumont, TX	KCS	75+	\$1,880	\$0.53
Evansville, IN	Rosehill, NC	CSX	65	\$2,250	\$0.63
Wheat					
Kansas City, KS	Beaumont, TX	BNSF	110-120	\$1,766	\$0.53
Omaha, NE	Kalama, WA	BNSF	52-110	\$4,285	\$1.29
Kansas City, MO	Laredo, TX	UP	n/a	\$2,110	\$0.63
Kansas City, MO	Galveston, TX	UP	92-105	\$1,650	\$0.50
Omaha, NE	Beaumont, TX	KCS	75+	\$1,880	\$0.56
Evansville, IN	Rosehill, NC	CSX	65	\$1,921	\$0.58
Soybeans					
Kansas City, KS	Beaumont, TX	BNSF	108-110	\$1,270	\$0.38
Omaha, NE	Kalama, WA	BNSF	108-110	\$2,480	\$0.74
Des Moines, IA	Laredo, TX	UP	69-91	\$2,285	\$0.69
Kansas City, KS	Galveston, TX	UP	69-91	\$1,475	\$0.44
Omaha, NE	Beaumont, TX	KCS	75+	\$1,850	\$0.56

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