



United States
Department of
Agriculture

Agricultural
Marketing
Service

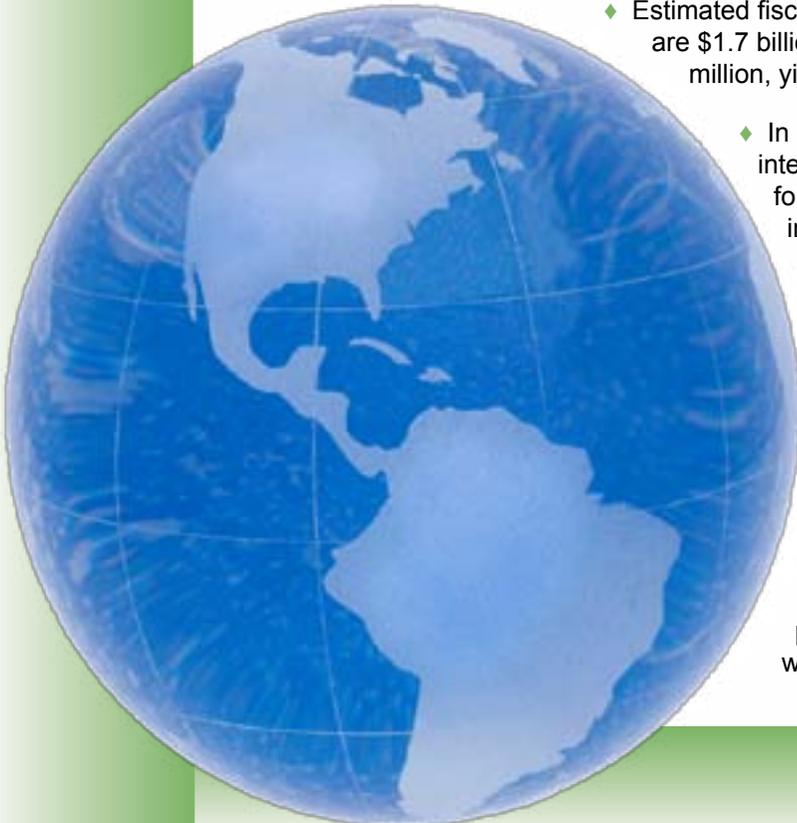
February 2012

A Reliable Waterway System Is Important to Agriculture

Do You Know Why?

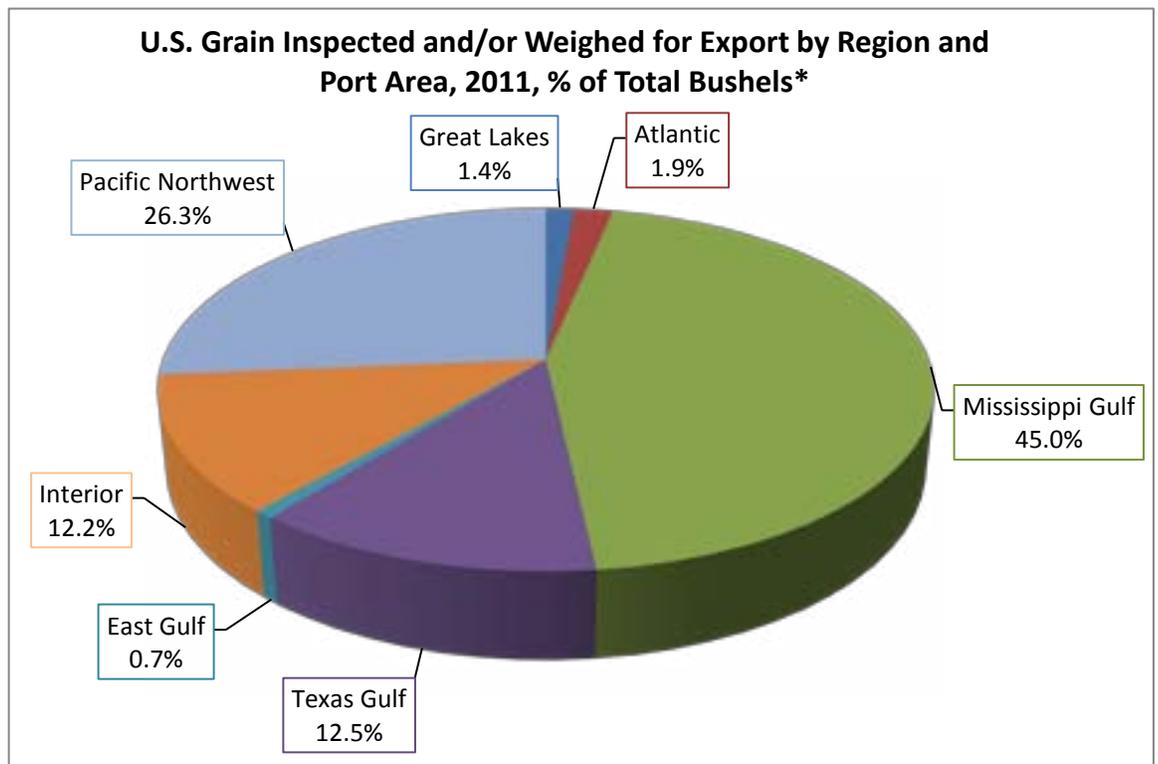
Big Picture Overview

- ◆ U.S. agriculture is expected to contribute \$24.5 billion to the U.S. balance of trade in fiscal 2012 (*USDA ERS/FAS Outlook for U.S. Agricultural Trade*, February 23, 2012).
- ◆ Exports are forecast to reach \$131 billion, while imports are forecast to reach \$106.5 billion.
- ◆ Forestry and fishery products, and critical farm inputs such as fertilizer, feed, and fuel move on the waterway system as well.
- ◆ Agriculture Secretary Tom Vilsack noted that every \$1 billion in farm exports supports roughly 8,400 jobs in the United States.
- ◆ In calendar year 2010, 81 percent of U.S. agricultural exports (158 million metric tons), and 77 percent of imports (37 million metric tons) were waterborne (*Census Bureau, U.S. Department of Commerce, and PIERS*).
- ◆ Exporters, importers, and domestic shippers depend on authorized port and waterway depths and widths, and locks and dam infrastructure.
- ◆ U.S. importers and certain domestic shippers pay the Harbor Maintenance Tax (HMT), a 0.125 percent ad valorem tax on the value of the cargo.
- ◆ Estimated fiscal 2012 HMT revenues and investment interest are \$1.7 billion. Requested transfers from the fund are \$869 million, yielding a year-end balance of \$7.2 billion.
- ◆ In 2011 \$84 million in revenues and investment interest from a 20 cents per gallon tax on diesel fuel for commercial vessels engaged in inland waterways transportation goes into the Inland Waterways Trust Fund to finance one half the Federal costs of authorized locks and dams projects.
- ◆ Fiscal 2011 transfers included \$97.2 million from the fund and \$76.6 million is requested for fiscal 2012.
- ◆ In fiscal 2011, U.S.-flag vessels earned over \$259 million from approximately 1.5 million metric tons of U.S. humanitarian food aid under cargo preference law. Cargo preference helps provide U.S. seafarer and vessel availability in wartime and other national emergencies.



Grain Exports

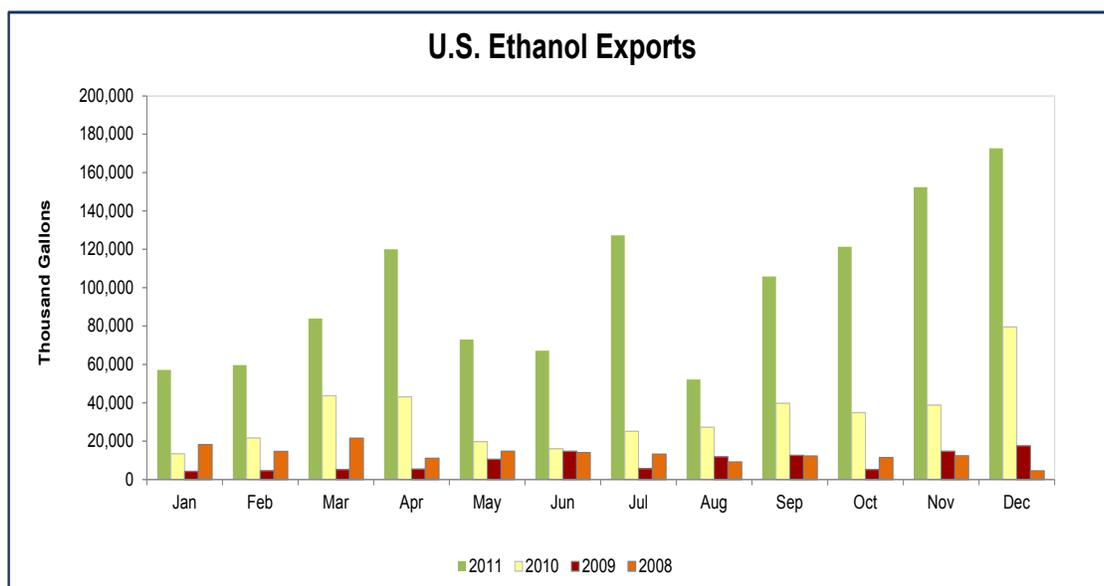
- ◆ The United States exports approximately one quarter of the grain it produces. On average, this includes nearly 45 percent of U.S.-grown wheat, 35 percent of U.S.-grown soybeans, and 20 percent of U.S.-grown corn.
- ◆ Over 58 percent of grain inspected for export departed from the U.S. Gulf in calendar year 2011, more than 2.5 billion bushels (*USDA GIPSA*).
- ◆ Pacific Northwest (PNW) ports accounted for over 26 percent of U.S. grain inspected for export in 2011, over 1.1 billion bushels.
- ◆ The February 9, 2012, *USDA World Agricultural Supply and Demand Estimates* projections for 2011/12 U.S. exports includes:
 - Corn—1.7 billion bushels (47.6 million short tons)
 - Soybeans—1.275 billion bushels (38.5 million short tons)
 - Wheat—975 million bushels (29 million short tons)
 - Soybean meal—8.8 million short tons
 - Rice—89 million hundredweight (4.5 million short tons)
 - Sorghum—60 million bushels (1.7 million short tons)
 - Soybean oil—1.2 billion pounds (0.6 million short tons)



Source: USDA Market News, *Grain Inspected and/or Weighed for Export by Region and Port Area*, January 9, 2012

Ethanol, DDG, Corn Production, Fertilizer, and Barge Traffic

- ◆ U.S. ethanol production capacity at 195 operating refineries is nearly 14.2 billion gallons per year. (*Renewable Fuels Association, Biorefinery Locations, February 13, 2012*).
- ◆ Nearly 1.2 billion gallons of ethanol were exported in calendar year 2011, compared to nearly 403.5 million gallons in calendar year 2010, a 196 percent increase (*Census Bureau, Department of Commerce*).
- ◆ Major multimodal ethanol terminals include Albany, NY, Baltimore, MD, Chicago, IL, Houston, TX, Linden, Newark, and Sewaren, NJ, New Orleans, LA, and Providence, RI.
- ◆ Barges move an estimated 5 percent of ethanol.
- ◆ Barges also move some of the fertilizer needed to grow corn for the production of ethanol, as well as some of the distillers dried grains (DDG), an ethanol by-product used for animal feed.
- ◆ For every gallon of corn ethanol, about 6.34 pounds of DDG are produced. Over 7.6 million metric tons of DDG were exported in calendar year 2011. (*Census Bureau, Department of Commerce*).

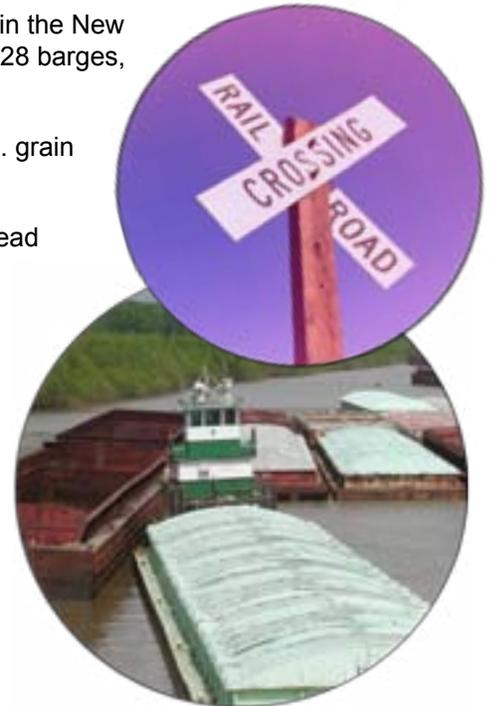


Source: Census Bureau, U.S. Department of Commerce

- ◆ Increased ethanol production means increased corn acreage and transportation of fertilizer to grow the corn.
- ◆ USDA projects a corn harvested area of 84 million acres, yielding 147.2 bushels per acre, with 5 billion bushels to be converted to ethanol and by-products in 2011/12 (February 9, 2012, *USDA World Agricultural Supply and Demand Estimates*).
- ◆ Corn uses about 240 pounds of fertilizer per planted acre, as it has high nitrogen requirements.
- ◆ The United States imported 43 million short tons of fertilizer in calendar year 2011.
- ◆ This included 19.6 million short tons of nitrogen. (*Census Bureau, U.S. Department of Commerce*).

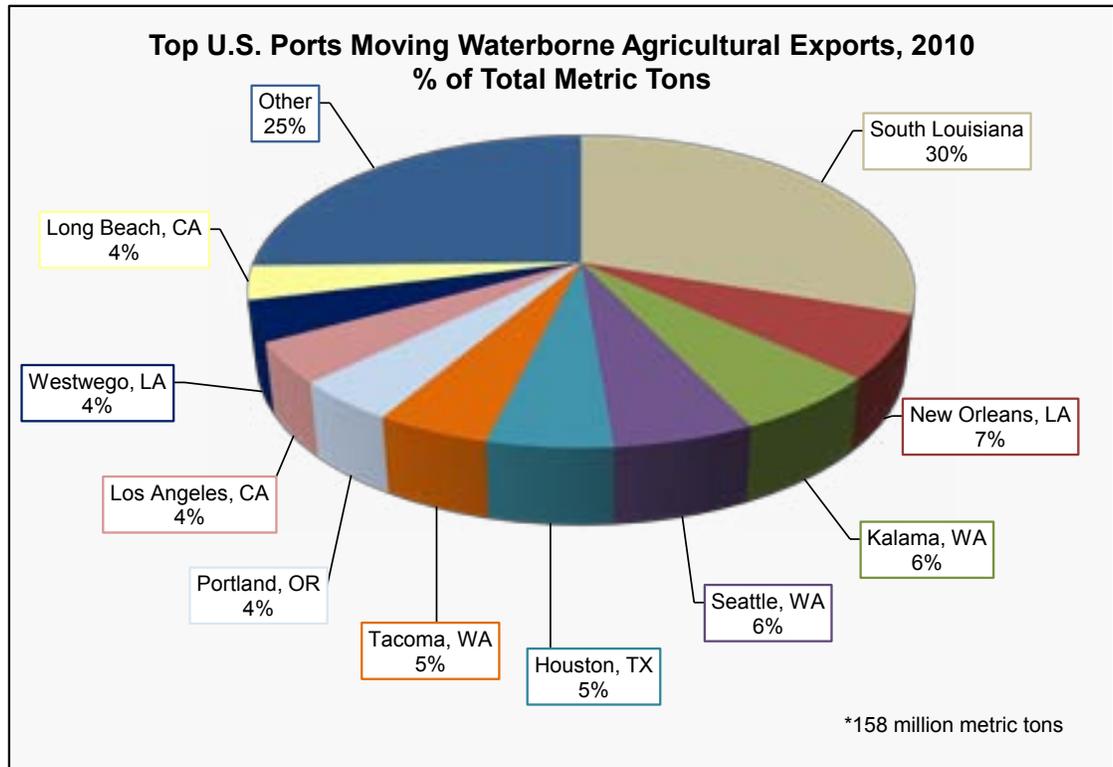
Barge and Rail Competition

- ◆ According to U.S. Army Corps of Engineers' statistics, in calendar year 2011 the total barge traffic (upbound and downbound) at Mississippi Lock 27, Ohio Lock and Dam 52, and Arkansas Lock and Dam 1 (*USACE OMNI RPT 06 Waterway Traffic Report*) included:
 - Corn—20.7 million short tons
 - Oilseeds—soybeans, flaxseed, and others—9.2 million short tons
 - All chemical fertilizers—10.3 million short tons
 - Processed grain and animal feed—4.5 million short tons
 - Wheat—1.6 million short tons
 - Rye, barley, rice, sorghum, and oats—0.5 million short tons
 - Other agricultural, food, fish, and forest products—2.1 million short tons
- ◆ Additionally, substantial amount of export grain enters the Mississippi River below Mississippi River Lock 27, Ohio River Lock and Dam 52, and Arkansas Lock and Dam 1 (*U.S. Army Corps of Engineers and USDA GIPSA*).
- ◆ In 2011, 19,466 downbound grain barges passed through Locks 27, 52, and 1, with nearly 30.4 million short tons of grain.
- ◆ In comparison, 27,594 grain barges were unloaded in the New Orleans region during the period, a difference of 8,128 barges, with an estimated 14.6 million short tons of grain.
- ◆ Railroads originate approximately 35 percent of U.S. grain shipments.
- ◆ Railroads take into account barge rates and the spread between U.S. Gulf and Pacific Northwest ocean vessel freight rates, and price their services accordingly.
- ◆ *USDA Transportation of U.S. Grains, A Modal Share Analysis, 1978-2007*, shows that barges moved 44 percent of all grain exports in 2007.
 - Barges moved 55 percent of corn to ports and 1 percent of corn to processors, feed lots, and dairies in 2007. Rail shares were 35 percent for exports and 26 percent for domestic moves.
 - Barges moved 46 percent of soybeans to ports and 2 percent of soybeans to processors in 2007. Rail shares were 41 percent for exports and 14 percent for domestic moves.
 - Barges moved 28 percent of wheat to ports and 1 percent of wheat to processors in 2007. Rail shares were 66 percent for exports and 65 percent for domestic moves.
 - Barges moved 19 percent of sorghum to ports in 2007. Rail shares were 47 percent for exports and 9 percent for domestic moves.
- ◆ Additional studies¹ have shown that without barge competition, agricultural shippers pay higher rail transportation costs, the farther they are from an inland waterway.



Top U.S. Ports for Agricultural Exports

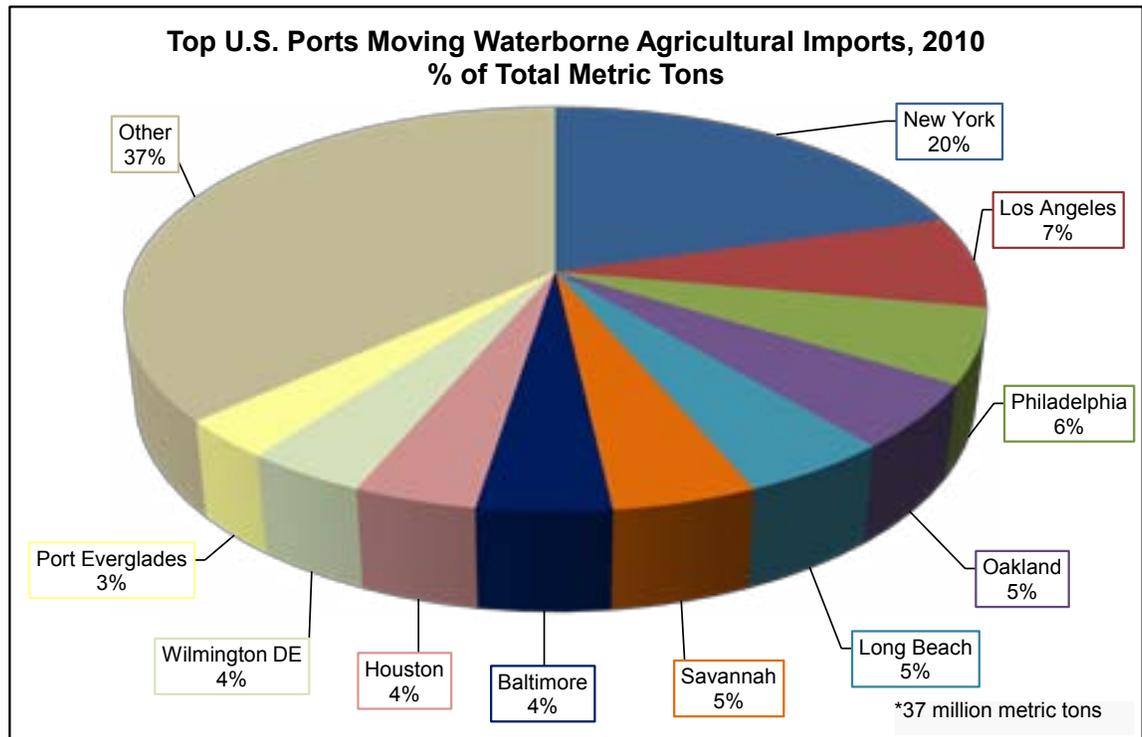
- ◆ In calendar year 2010, U.S. waterborne agricultural exports totaled 158 million metric tons, 21 percent were moved in containers (*PIERS*).
- ◆ During the same period, containers were used to transport 5 percent of total waterborne grain exports and 7 percent of U.S. grain exports to Asia.
- ◆ The top five U.S. ports for bulk and containerized agricultural exports were, South Louisiana, New Orleans, Kalama, Seattle, and Houston. In terms of containerized movements, the top five ports were Los Angeles, Long Beach, Oakland, Seattle, and Norfolk.



Source: (*PIERS*)

Top U.S. Ports for Agricultural Imports

- ◆ Additionally, in calendar year 2010, U.S. bulk and containerized waterborne agricultural imports totaled 37 million metric tons, 71 percent were moved in containers (*PIERS*).
- ◆ The port of New York brought in more agricultural cargo than Los Angeles, Long Beach, and Oakland, CA combined—more than 7.6 million metric tons.
- ◆ The top five U.S. ports for bulk and containerized agricultural imports were New York, Los Angeles, Philadelphia, Oakland, and Houston.



Source: (PIERS)

Harbor Channel and Inland Waterway Draft Issues

- ◆ Inadequate channel depths and widths can lead to higher transportation costs. Barges and vessels may be loaded to less than capacity and more barges and vessels may be required to ship the same amount of commodities, and one-way, or day time only traffic restrictions may be imposed.
- ◆ In recent years there have been extended periods where low river levels and reduced channel widths impeded grain barge movements. When river levels are low, barges must be loaded lighter than normal and the number of barges in a tow may be reduced to the available channel width.
- ◆ At a 9-foot draft, a barge has 1,500 short tons of capacity; for each foot of reduced draft, the barge loses about 200 short tons of capacity.
- ◆ When harbor channels are at less than authorized depths, S-Class container vessels lose 3,840 tons of cargo capacity per foot, Panamax bulk grain carriers lose 2,148 tons per foot, and Great Lakes ocean-bound vessels lose 1,389 tons per foot.

Effects of Temporary Closures on Costs, Receipts, and the Federal Budget

- ◆ U.S. exporters compete on the basis of world prices.
- ◆ Temporary closures² and restrictions on traffic in channels due to high and low water conditions, sedimentation, groundings, natural disasters, man-made disasters, strikes, and lockouts can lead to delays, spoilage, diversion to other modes and ports, higher transportation costs, and lost sales.
- ◆ Higher transportation costs can result in lower cash bids in interior markets. As cash prices fall, USDA loan deficiency payments may increase³.
- ◆ U.S. exporters may be unable to pass on higher transportation costs, as customers can purchase similar products from other countries.
- ◆ In contrast, U.S. importers may be able to pass on higher transportation costs to their customers.
- ◆ Users of railroads and highways face congestion, constrained capacity, and driver and equipment shortages.
- ◆ Authorized channel depths and widths, and locks and dams maintained by the U.S. Army Corps of Engineers moderate the effects of congestion, provide resiliency, and enhance recovery after transportation disruptions.
- ◆ Other important partners in a reliable waterway system include:
 - U.S. Coast Guard, which provides security, safety, and aids to navigation.
 - National Oceanic and Atmospheric Administration which provides nautical charts and maps, marine weather and river level information, and surveys after disruptions.
 - Maritime Administration which promotes the development and maintenance of an adequate, well-balanced, United States merchant marine.
 - Saint Lawrence Seaway Development Corporation which maintains and operates the two U.S. Seaway locks and vessel traffic control in areas of the St. Lawrence River and Lake Ontario, in collaboration with its Canadian partner, the St. Lawrence Seaway Management Corporation.
 - Federal Maritime Commission which regulates oceanborne transportation in U.S. foreign commerce for the benefit of exporters, importers, and the American consumer.



Want to Know More? Try These Publications:

¹Studies and reports on modal share and competition

Salin, Delmy, Adam Sparger, Marvin Prater, Surajudeen Olowolayemo, April Taylor, and Jessica Ladd. November 30, 2011. "Mexico Transport Cost Indicator Report." [quarterly] USDA Agricultural Marketing Service, Transportation Services Division.

Salin, Delmy and Jessica Ladd. February 14, 2012. "Brazil Soybean Transportation." [quarterly] USDA Agricultural Marketing Service, Transportation Services Division.

"America's Locks & Dams: A Ticking Time Bomb For Agriculture?" December 2011. Texas Transportation Institute. (prepared for United Soybean Board)

"Panama Canal Expansion: Impact on U.S. Agriculture." September 2011. Informa Economics (prepared for United Soybean Board, U.S. Soybean Export Council, and Soy Transportation Coalition).

Denicoff, Marina. August 4, 2011. "U.S. Agriculture Depends on Long-term Funding of Transportation Infrastructure." Grain Transportation Report. pp. 2. USDA Agricultural Marketing Service, Transportation Services Division.

Salin, Delmy and Jessica Ladd. July 2011. "Soybean Transportation Guide: Brazil 2010." [annual] USDA Agricultural Marketing Service, Transportation Services Division.

Marathon, Nick and Marina Denicoff. April 2011. "Transportation of U.S. Grains, A Modal Share Analysis 1978-2007." USDA Agricultural Marketing Service, Transportation Services Division.

Salin, Delmy. April 2011. "U.S. Grain and Soybean Exports to Mexico, A Modal Share Transportation Analysis, 2007-2010." USDA Agricultural Marketing Service, Transportation Services Division.

"Grain Transportation Report." [weekly] USDA Agricultural Marketing Service, Transportation Services Division.

Prater, Marvin E., Ken Casavant, Eric Jessup, Bruce Blanton, Pierre Bahizi, Daniel Nibarger, and Isaac Weingram. Fall 2010. "Rail Rate and Revenue Changes since the Staggers Act." Journal of the Transportation Research Forum, Vol. 49, No. 3, pp. 111-132.

"Study of Rural Transportation Issues." April 2010. USDA and U.S. Department of Transportation.

"A Modal Comparison of Domestic Freight Transportation Effects on the General Public." November 2007. Amended March 2009. Texas Transportation Institute, Center for Ports and Waterways.

Harbor, Anetra. 2007. "Competition in the U.S. Railroad Industry: Implications for Corn, Soybean, and Wheat Shipments." Presentation given by Marvin Prater at Transportation Research Forum, Fort Worth, Texas, March 17, 2008.

"Trends in Freight Railroad Rates and Competition (GAO-07-292SP), an E-supplement to GAO-07-291R." August 15, 2007. United States General Accountability Office, Washington, DC.

"Freight Railroads: Industry Health Has Improved, but Concerns about Competition and Capacity Should Be Addressed." GAO-07-94. October 6, 2006. United States General Accountability Office, Washington, DC.

²Temporary closures

Meyer, Seth, Luis Fellin, and Peter Stone, December 2007. "Impact of a Lock Failure on the Mississippi or Illinois Rivers." Food and Agricultural Policy Research Institute.

"Effects on Agriculture of a Closure of West Coast Port Facilities," United States District Court for the Northern District of California, San Francisco Headquarters, United States of America, Plaintiff, v. Pacific Maritime Association, and International Longshore and Warehouse Union, Defendants, Declaration of Ann M. Veneman, Secretary of Agriculture, October 7, 2002.

³Higher transportation costs, lower cash bids

Denicoff, Marina. December 23, 2010. "Carry and Basis: Grain Market Signals and Transportation Implications." Grain Transportation Report. pp. 2-3.

Nibarger, Daniel, Pierre Bahizi. September 2, 2010 "Commodity Basis, Price Spreads, and Transportation Cost." Grain Transportation Report. pp. 2-3.

"Transportation and The Farmer's Bottom Line." June 2010. O'Neil Commodity Consulting (on behalf of the Soy Transportation Coalition and the United Soybean Board).

Review and Analysis of Corn Rail Rates." June 2010. Informa Economics (on behalf of National Corn Growers Association).

Nibarger, Daniel. July 2, 2009. "Basis and Transportation Cost Primer." Grain Transportation Report: pp. 2-3.