

A Reliable Waterway System Is Important to Agriculture

Do You Know Why?

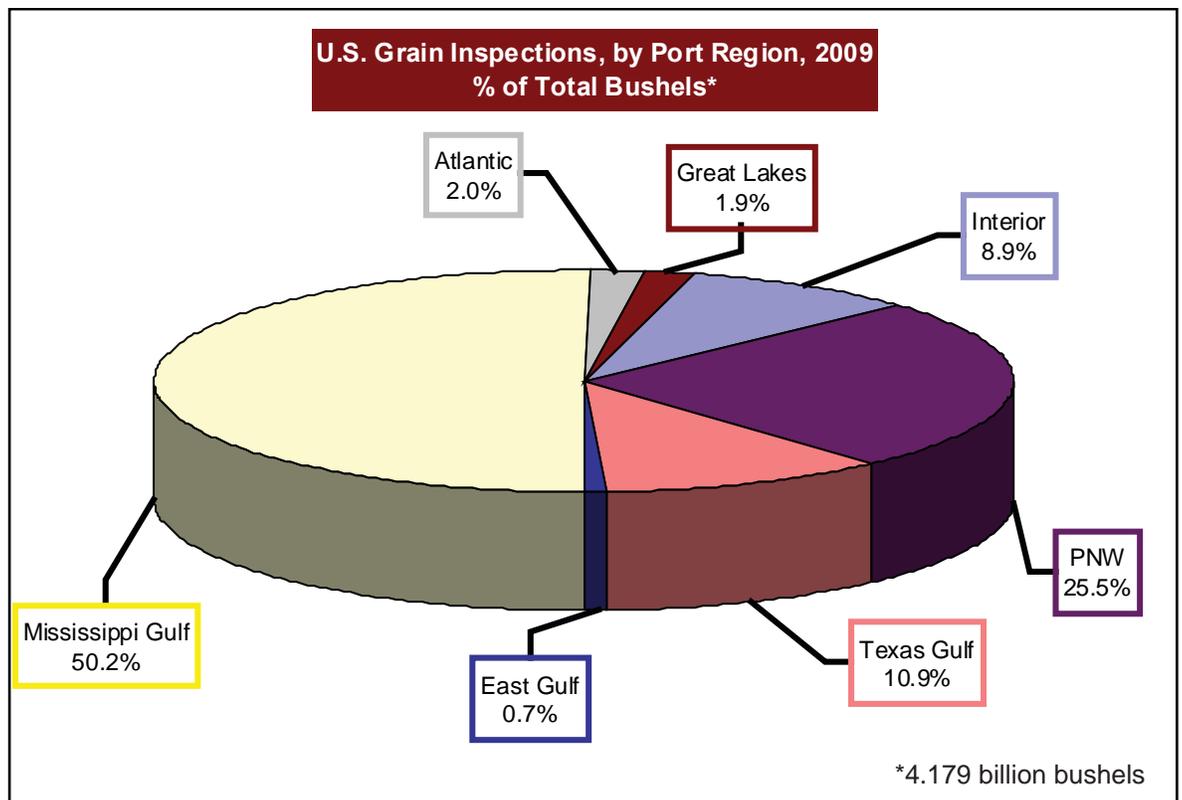
Big Picture Overview

- ◆ U.S. agriculture is expected to contribute \$22.5 billion to the U.S. balance of trade in fiscal 2010 (*USDA ERS/FAS Outlook for U.S. Agricultural Trade*, February 18, 2010).
- ◆ Exports are forecast to reach \$100 billion.
- ◆ Imports are forecast to reach \$77.5 billion.
- ◆ In calendar year 2009, 83 percent of U.S. agricultural exports (145 million metric tons), and an estimated 84 percent of imports (38.6 million metric tons) were waterborne (*U.S. Census Bureau and Journal of Commerce 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 2010 HMT revenues and investment interest are \$1.342 billion. Requested transfers from the fund are \$828 million, yielding a year-end Harbor Maintenance Fund balance of \$5.627 billion.
- ◆ Estimated fiscal 2011 HMT revenues and investment interest are \$1.555 billion. Requested transfers from the fund are \$800 million, yielding a year-end balance of \$6.382 billion.
- ◆ Approximately \$85 million 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 in fiscal 2010 to finance one half the Federal costs of authorized locks and dams projects.
- ◆ The fiscal 2010 appropriations for construction and major rehabilitation of inland and intracoastal waterways projects will include \$67.1 million from the fund.
- ◆ Requested fiscal 2011 appropriations include \$82.3 million from the fund.



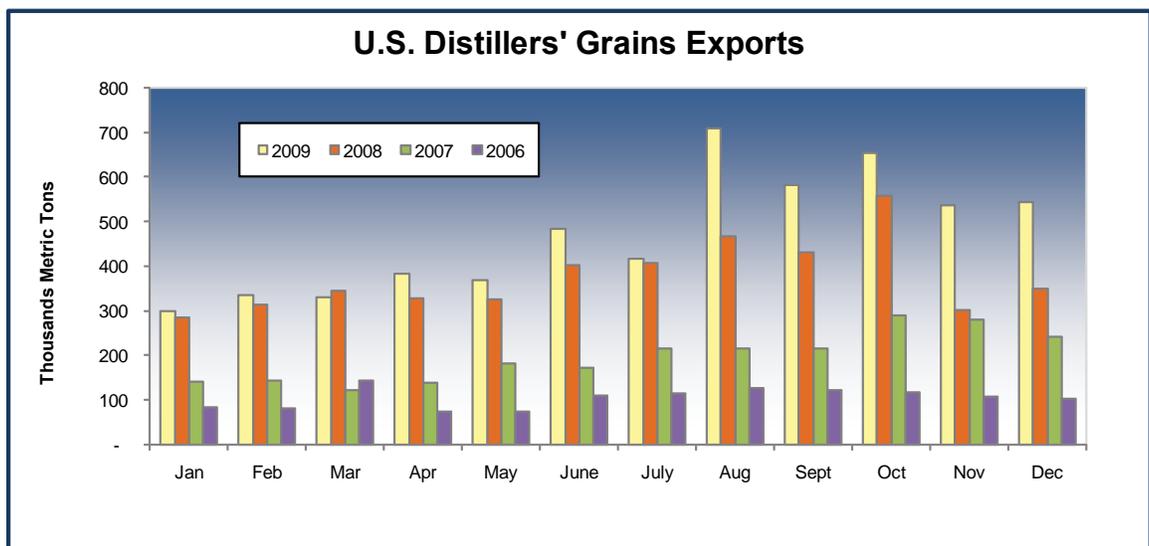
Grain Exports

- ◆ The United States exports approximately 26 percent of the wheat, soybeans, and corn it produces. On average, this includes nearly 50 percent of its wheat, 37 percent of its soybeans, and 18 percent of its corn.
- ◆ Approximately 62 percent of grain inspected for export departed from the U.S. Gulf in 2009, nearly 2.6 billion bushels (*USDA GIPSA*).
- ◆ The Pacific Northwest (PNW) ports accounted for 25.5 percent of U.S. grain inspected for export in 2009, nearly 1.07 billion bushels.
- ◆ The March 10, 2010, *USDA World Agricultural Supply and Demand Estimates* for 2009/10 U.S. exports includes:
 - Feed grains—52.2 million metric tons (57.5 million short tons)
 - Corn—1.9 billion bushels (53.2 million short tons)
 - Soybeans—1.42 billion bushels (42.6 million short tons)
 - Wheat—825 million bushels (24.8 million short tons)
 - Soybean meal—10.2 million short tons
 - Rice—100 million hundredweight (5 million short tons)
 - Sorghum—150 million bushels (4.2 million short tons)
 - Soybean oil—3.25 billion pounds (1.6 million short tons)



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

- ◆ U.S. ethanol production capacity, at 185 operating refineries, is nearly 12.37 billion gallons per year as of February 24, 2010. U.S. capacity will reach nearly 13.52 billion gallons when 12 refineries under construction or expansion are completed (*Renewable Fuels Association*).
- ◆ 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 with solubles (DDGS), an ethanol co-product used for animal feed.
- ◆ For every gallon of corn ethanol, about 6.34 pounds of DDGS are produced, and about 10 percent are exported. Calendar year 2009 DDGS exports totaled 5.64 million metric tons.



Source: USDA/FAS/U.S. Trade Data

- ◆ Increased ethanol production means increased corn acreage devoted to it, and transportation of fertilizer to grow the corn.
- ◆ U.S. farmers expect to harvest 79.6 million acres of corn in 2009/2010 — an estimated 4.3 billion bushels will be used for ethanol (March 10, 2010, *USDA World Agricultural Supply and Demand Estimates*).
- ◆ Corn uses about 240 pounds of fertilizer per planted acre, as it has high nitrogen fertilizer requirements.
- ◆ In calendar year 2009, the United States imported nearly 25.9 million short tons of fertilizer, including nearly 13.9 million short tons of nitrogen, and exported 11.8 million short tons of fertilizer, including 8.9 million short tons of phosphate. (*Department of Commerce, U.S. Census Bureau, Foreign Trade Statistics*).

Barge and Rail Competition

- ◆ In calendar year 2009, total upbound and downbound traffic at Mississippi Lock 27, Ohio Lock 52, and Arkansas Lock 1 (*USACE OMNI RPT 06 Waterway Traffic Report*) included:
 - Corn—24.4 million short tons
 - Oilseeds—soybeans, flaxseed, and others—11.2 million short tons
 - All chemical fertilizers—6.7 million short tons
 - Processed grain and animal feed—5.9 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 million short tons

- ◆ A substantial amount of export grain enters the Mississippi River below Mississippi River Locks 27, Ohio River Locks and Dam 52, and Arkansas Lock and Dam 1 (U.S. Army Corps of Engineers and USDA GIPSA).

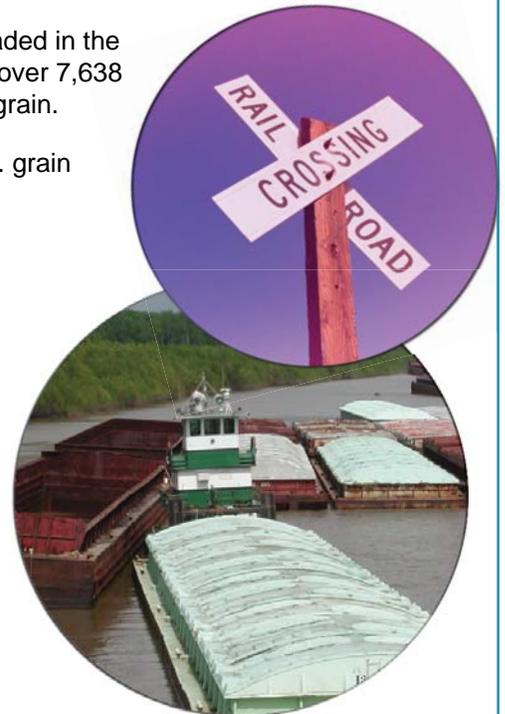
- ◆ In calendar year 2009, over 23,334 downbound grain barges passed through Locks 27, 52, and 1, with 35.8 million short tons of grain.

- ◆ In comparison, over 30,972 grain barges were unloaded in the New Orleans region during the year, a difference of over 7,638 barges, with an estimated 11.5 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.

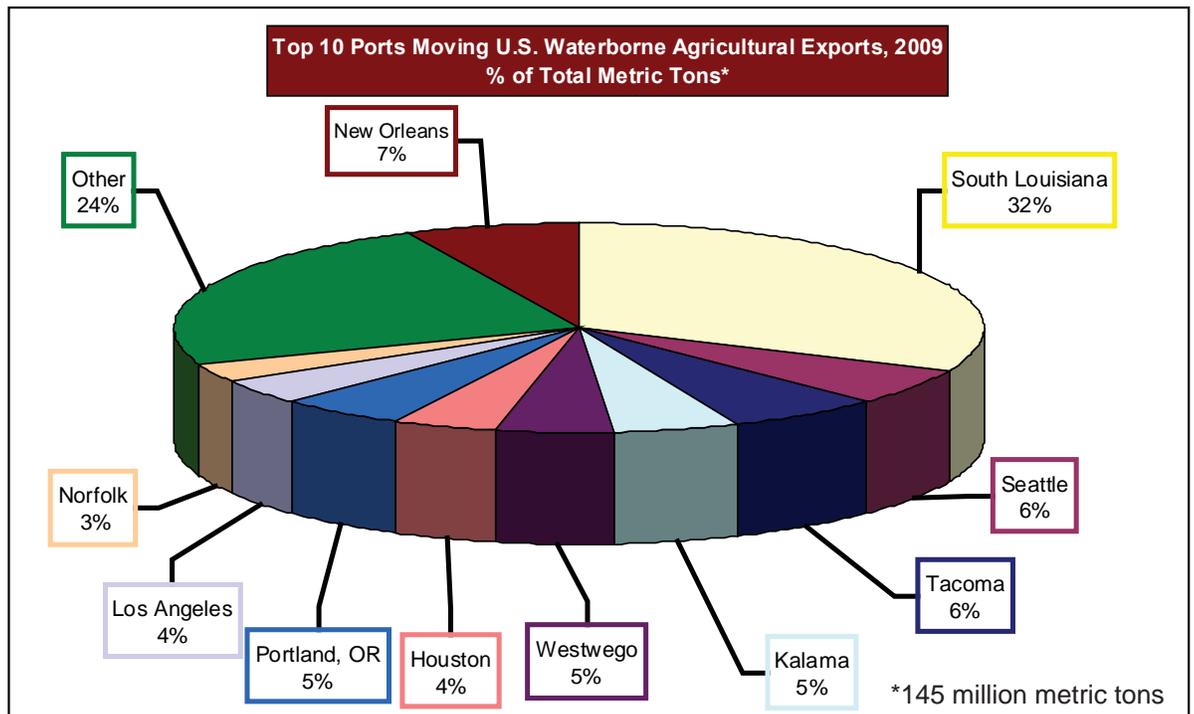
- ◆ Preliminary 2007 data from USDA *Transportation of U.S. Grains, A Modal Share Analysis, 1978-2007*, showed that barges moved 44 percent of all grain exports.
 - Barges moved 55 percent of corn to ports and 1 percent of corn to processors, feed lots, and dairies in 2007. Rail shares were 35 percent 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.



- ◆ Studies¹ have shown that without barge competition, agricultural shippers pay higher rail transportation costs, the further they are from an inland waterway.

Top U.S. Ports for Agricultural Exports

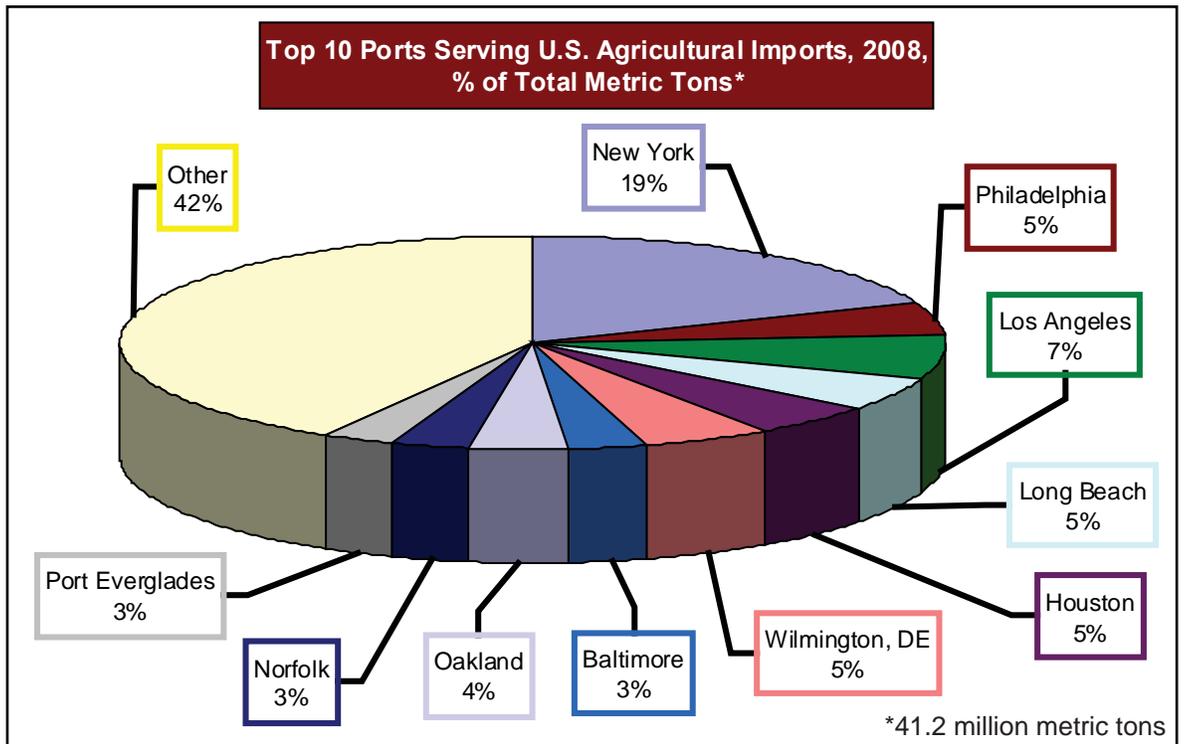
- ◆ In calendar year 2009, U.S. waterborne agricultural exports totaled 145 million metric tons—20 percent were moved in containers (*Journal of Commerce PIERS*).
- ◆ During the same period, containers were used to transport 5 percent of total waterborne grain exports and 6 percent of U.S. grain exports to Asia.
- ◆ The top 5 U.S. ports for bulk and containerized agricultural exports were, South Louisiana, New Orleans, Seattle, Tacoma, and Kalama. In terms of containerized movements, the top 5 ports were Los Angeles, Oakland, Long Beach, Seattle, and Tacoma.



Source: Port Import Export Reporting Service (PIERS)

Top U.S. Ports for Agricultural Imports

- ◆ In 2008, U.S. bulk and containerized waterborne agricultural imports totaled 41.2 million metric tons (*Journal of Commerce PIERS*).
- ◆ In terms of container movements, the port of New York brought in more agricultural cargo than Los Angeles, Long Beach, and Oakland, CA combined.
- ◆ The top 5 U.S. ports for bulk and containerized agricultural imports were New York, Los Angeles, Philadelphia, Houston, and Long Beach.



Source: Port Import Export Reporting Service (PIERS)

Harbor Channel and Inland Waterway Draft Issues

- ◆ Inadequate water depths can lead to higher transportation costs as 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.
- ◆ In recent years there have been extended periods where low river levels 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.
- ◆ At a 9-foot draft, a barge has 1,500 short tons of capacity; for each inch of reduced draft, the barge loses about 16.7 short tons of capacity.
- ◆ When harbor channels are at less than authorized depths, S-Class container vessels lose 320 tons of cargo capacity per inch, Panamax bulk grain carriers lose 179 tons per inch, and Great Lakes ocean-bound vessels lose 115 tons per inch.

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

- ◆ U.S. exporters compete on the basis of world prices.
- ◆ Temporary closures² of channels due to low water conditions, 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 increase.
- ◆ 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.

- ◆ Railroads and highways are facing congestion, constrained capacity, 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.

Want to Know More? Try These Publications:

¹Studies on rail competition

Salin, Delmy. April 2008. "U.S. Grain and Soybean Exports to Mexico—a Modal Share Transportation Analysis." USDA Agricultural Marketing Service, Transportation Services Division.

"A Modal Comparison of Domestic Freight Transportation Effects on the General Public." November 2007. 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." Presented at Transportation Research Forum, Fort Worth, Texas, March 16-19, 2008.

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

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

Vachal, Kimberly, John Bitzan, Tamara VanWechel, and Dan Vinje. 2006. "Differential Effects of Rail Deregulation in the U.S. Grain Industry." Presented at the International Association of Agricultural Economists, Gold Coast, Australia, August 12-18, 2006.

Koo, Won W., Denver D. Tolliver, and John D. Bitzen. 1993. "Railroad Pricing in Captive Markets: An Empirical Study of North Dakota Grain Rates." *Logistics and Transportation Review*: 29, pp 123-137.

Burton, Mark L. 1993. "Railroad Deregulation, Carrier Behavior, and Shipper Response: A Disaggregated Analysis." *Journal of Regulatory Economics*: 5, 417-434.

Thompson, S.R., R.J. Hauser, and B.A. Coughlin. 1990. "The Competitiveness of Rail Rates for Export-Bound Grain." *Logistics Transportation Review*: 26, pp. 35-52.

MacDonald, James M. 1987. "Competition and Rail Rates for the Shipment of Corn, Soybeans, and Wheat." *Rand Journal of Economics*: Vol. 18, No. 1, Spring 1987, pp. 151-163.

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, USDA payments increase

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

Review of the Current Impact of Mississippi River Transportation on Agricultural Markets, Hearing Before the Committee on Agriculture, House of Representatives, One Hundred Ninth Congress, First Session, October 26, 2005 Serial No. 109-18.

