

A Reliable Waterway System Is Important to Agriculture



Do You Know Why?

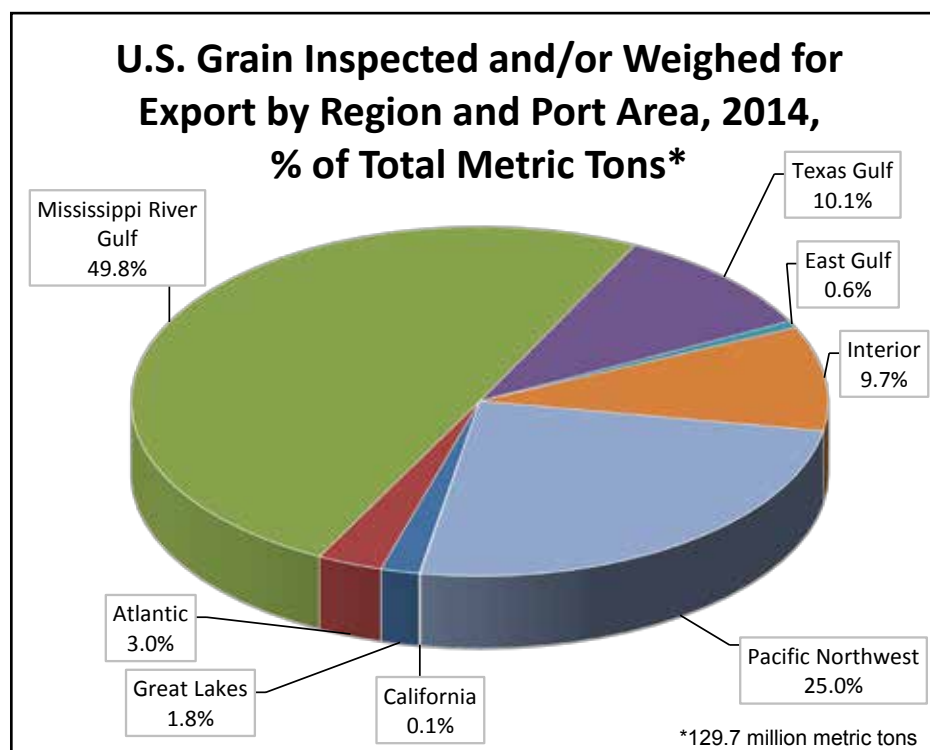
Big Picture Overview

- ◆ U.S. agriculture is expected to contribute \$16 billion to the U.S. balance of trade in fiscal 2016.
- ◆ Exports are forecast to reach \$138.5 billion, while imports are forecast to reach \$122.5 billion. (*USDA ERS/FAS Outlook for U.S. Agricultural Trade*, August 27, 2015).
- ◆ 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 calendar year 2014, 73 percent of U.S. agricultural exports (154 million metric tons) and 65 percent of imports (40 million metric tons) were waterborne. (*U.S. Census Bureau Trade Data and PIERS*).
- ◆ Exporters, importers, and domestic shippers depend on authorized port and waterway depths and widths, and locks and dam infrastructure.
- ◆ The Harbor Maintenance Tax (HMT) is a 0.125 percent ad valorem tax on the value of imports and certain domestic waterborne cargo deposited in the Harbor Maintenance Trust Fund (HMTF).
- ◆ Estimated fiscal 2016 HMT revenues and investment interest are \$1.9 billion, and requested appropriations from the HMTF are nearly \$1 billion, yielding an estimated year-end balance of \$9 billion. (*Budget of the United States Government, Fiscal Year 2016*).
- ◆ Commercial vessels engaged in waterborne transportation on the inland waterways system generate revenues and investment interest from a 29 cents per gallon tax on diesel fuel, which is deposited in the Inland Waterways Trust Fund (IWTF) to finance one half the Federal costs of authorized locks and dams projects.
- ◆ Estimated fiscal 2016 IWTF tax revenues and new user fees are \$220 million, and requested appropriations from the IWTF are \$46 million, yielding an estimated year-end balance of \$217 million. (*Budget of the United States Government, Fiscal Year 2016*)



Grain Exports

- ◆ The United States exports approximately one quarter of the grain it produces. On average, this includes nearly 45 percent of the wheat, 35 percent of the soybeans, and 20 percent of the corn. (*Grain Transportation Report*).
- ◆ Over 60 percent of grains inspected and/or weighed for export departed from Mississippi River, Texas, and East Gulf ports in calendar year 2014, over 78 million metric tons (*USDA GIPSA*).
- ◆ Pacific Northwest (PNW) ports accounted for 25 percent of grains inspected and/or weighed for export, over 32 million metric tons.
- ◆ The September 11, 2015, *USDA World Agricultural Supply and Demand Estimates* for 2015/16 U.S. exports includes:
 - Corn—1.9 billion bushels (47 million metric tons)
 - Soybeans—1.7 billion bushels (46.9 million metric tons)
 - Wheat—900 million bushels (24.5 million metric tons)
 - Soybean meal—11.7 million short tons (10.6 million metric tons)
 - Rice—97 million hundredweight (4.4 million metric tons)
 - Sorghum—430 million bushels (10.9 million metric tons)
 - Soybean oil—2 billion pounds (907,000 metric tons)

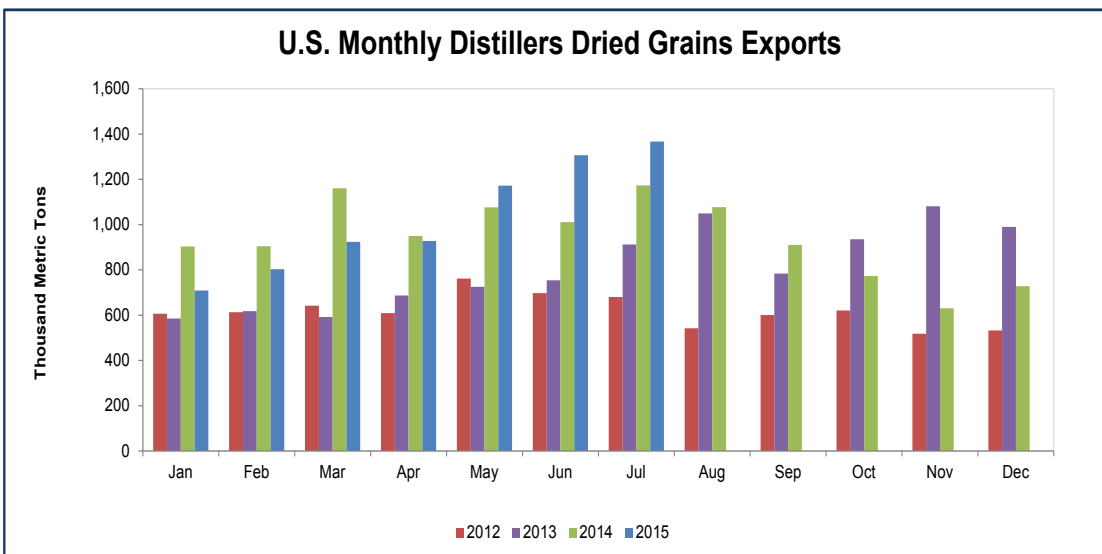


Source: USDA FGIS and USDA Market News, *Grain Inspected and/or Weighed for Export by Region and Port Area*, January 12, 2015



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

- ◆ U.S. ethanol production capacity at 198 operating refineries is over 15 billion gallons per year. (*Renewable Fuels Association, Biorefinery Locations, July 27, 2015*).
- ◆ Over 839 million gallons of ethanol were exported in calendar year 2014. (*U.S. Census Bureau Trade Data*).
- ◆ Major multimodal ethanol terminals include Albany, NY, Baltimore, MD, Chicago, IL, Houston, TX, Linden, Newark, and Sewaren, NJ, New Orleans, LA, Sauget, IL, Providence, RI, and Tampa, FL.
- ◆ 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 11.3 million metric tons of DDG were exported in calendar year 2014. (*U.S. Census Bureau Trade Data*).



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

- ◆ USDA estimates a corn harvested area of 81.1 million acres in 2015/16, yielding 158.8 bushels per acre, with 5.3 billion bushels, or 34 percent of the total corn supply, to be converted to ethanol and by-products including DDG. (September 11, 2015, *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 40.6 million metric tons of fertilizer in calendar year 2014. This included nearly 17.9 million metric tons of nitrogen. (*U.S. Census Bureau Trade Data*).



Barge and Rail Competition

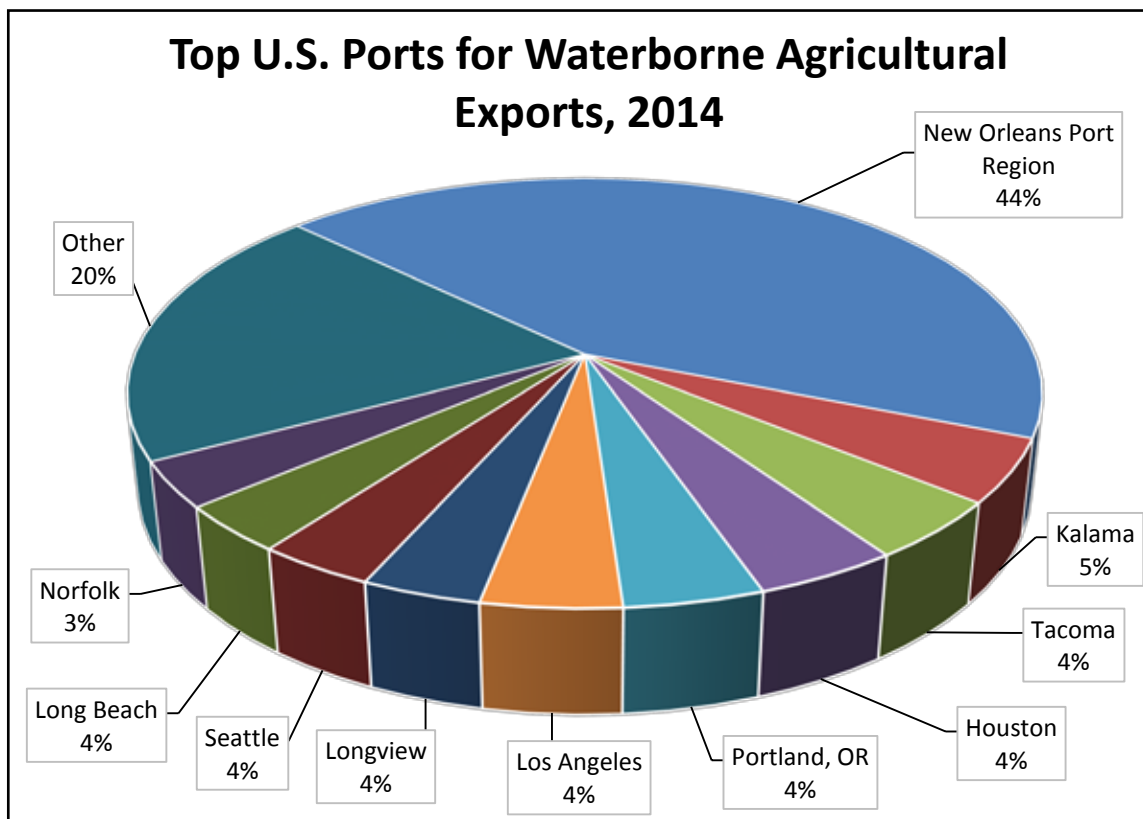
- ◆ In calendar year 2014, total food and farm product downbound barge tonnage passing through Mississippi Locks 27, Ohio Locks and Dam 52, and Arkansas Lock and Dam 1¹ was 40.6 million short tons (*U.S. Army Corps of Engineers, Locks Performance Monitoring System*).
- ◆ This included a total of 22,300 downbound grain barges with 35.5 million short tons of grain.
- ◆ A total of 35,500 grain barges were unloaded in the New Orleans region, showing that an additional 13,200 grain barges entered the river below these 3 locks (*U.S. Army Corps of Engineers and USDA GIPSA*).
- ◆ Railroads originate approximately 24 percent of U.S. grain shipments and sent over 416,000 carloads (46.2 million short tons) to ports in 2014 (*Grain Transportation Report*).
- ◆ 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's *Transportation of U.S. Grains, A Modal Share Analysis, 1978-2013 Update*, shows that barges moved 45 percent and railroads moved 35 percent of all grain exports in 2013.
- ◆ Barges moved 61 percent of corn, 42 percent of soybeans, 40 percent of wheat, and 26 percent of sorghum to export grain elevators.
- ◆ Additional studies have shown that without barge competition, agricultural shippers pay higher rail transportation costs, the farther they are from an inland waterway.

¹ Mississippi River Locks 27, also known as Chain of Rocks Locks, Granite City, IL, is the last lock for downbound barges on the Mississippi River. For purposes of measuring downbound tonnages on the Ohio River, the U.S. Army Corps of Engineers collects data at Locks and Dam 52, Brookport, IL, because it is strategically located on the Ohio River near the junction of the Tennessee and Cumberland Rivers. Locks and Dam 53, Grand Chain, IL, is technically the last lock on the Ohio River. Arkansas River Lock and Dam 1, also known as Norrell Lock, Tichnor, AR, is the last lock on the Arkansas River, but traffic must use the White River to connect with the Mississippi River. On the White River, Montgomery Point Lock and Dam, near Tichnor, AR, is used only during low water conditions.



Top U.S. Ports for Agricultural Exports

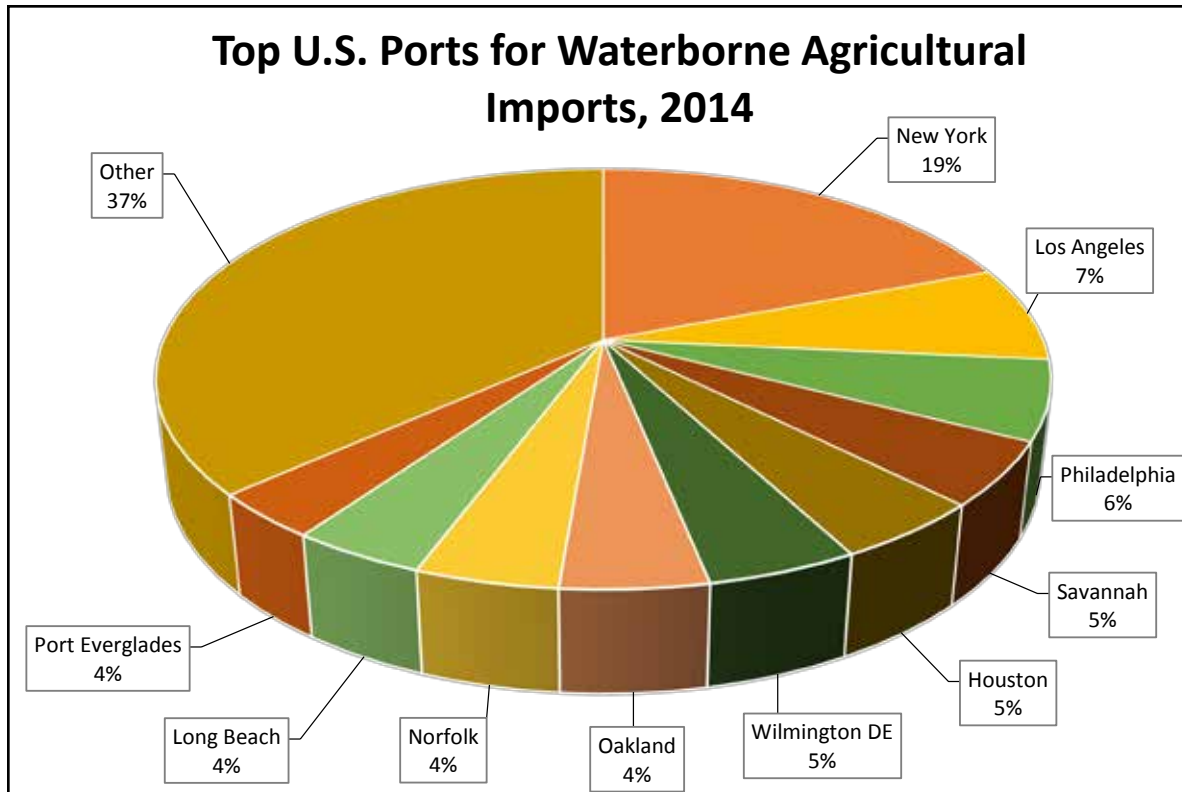
- ◆ In calendar year 2014, U.S. waterborne agricultural exports totaled 154 million metric tons and 23 percent were moved in containers (*PIERS*).
- ◆ During the same period, containers were used to transport 7 percent of total waterborne grain exports and 11 percent of U.S. grain exports to Asia.
- ◆ The top five U.S. ports for bulk and containerized agricultural exports were the New Orleans Port Region, Kalama, Tacoma, Houston, and Portland. In terms of containerized exports, the top five ports were Los Angeles, Long Beach, Oakland, Tacoma, and Savannah.



Source: PIERS

Top U.S. Ports for Agricultural Imports

- ◆ In calendar year 2014, U.S. bulk and containerized waterborne agricultural imports totaled 40 million metric tons, 70 percent were moved in containers (*PIERS*).
- ◆ The top five U.S. ports for bulk and containerized agricultural imports were New York, Los Angeles, Philadelphia, Savannah, and Houston. In terms of containerized imports, the top five ports were New York, Los Angeles, Oakland, Long Beach, and Houston.



Source: PIERS

Harbor Channel and Inland Waterway Draft Issues

- ◆ Inadequate channel depths and widths due to drought and sedimentation can lead to higher transportation costs, as barges and vessels may be loaded to less than capacity because of low water.
- ◆ The number of barges in a tow may be reduced to the available channel width, and one-way, or day time only traffic restrictions may be imposed.
- ◆ In these cases more barges and vessels, and additional time may be required to ship a given amount of commodities.
- ◆ There have been extended periods where low river levels and reduced channel widths impeded grain barge movements and access to shallow draft ports.
- ◆ 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.
- ◆ Low water on the Great Lakes and unfunded dredging requirements has increased the risk of vessel groundings, reduced vessel carrying capacity by at least 10 percent, and increased shipping costs by \$40 million a year. (2012-13 U.S. Army Corps of Engineers Water Basin Common Operating Picture)



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

- ◆ U.S. exporters compete on the basis of world prices.
- ◆ Temporary closures and restrictions on traffic in harbors and channels due to flooding, drought, sedimentation, groundings, natural disasters, man-made disasters, slowdowns, strikes, and lockouts can lead to congestion, 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.
- ◆ 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.
- ◆ The Corps works to maintain operable navigation channels through accelerated dredging, rock removal, river training structures to remove sediment, strategic management of water releases from reservoirs, routinely scheduled surveys, and close collaboration with channel users and the U.S. Coast Guard on river conditions.
- ◆ Important partners in a reliable waterway system include:
 - U.S. Coast Guard, which provides security, aids to navigation, and implements vessel traffic safety restrictions.
 - National Oceanic and Atmospheric Administration which provides nautical charts and maps, marine weather and river level information, surveys after disruptions, and marine debris removal.
 - Maritime Administration which promotes the development and maintenance of an adequate, well-balanced, United States merchant marine and marine highways.
 - Saint Lawrence Seaway Development Corporation which promotes use of the Seaway and 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:

Studies and reports on modal share, competition, and infrastructure investment

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Salin, Delmy L. and Agapi Somwaru. [Eroding U.S. Soybean Competitiveness and Market Shares: What Is the Road Ahead?](#) August 2014. U.S. Dept. of Agriculture, Agricultural Marketing Service. Web. <http://dx.doi.org/10.9752/147.08-2014>

“Proposed Public-Private Partnership Projects for U.S. Inland Waterways Infrastructure Financing, Operations, and Governance.” December 2013. The Horinko Group. (Prepared for the U.S. Soybean Export Council) Web. <http://www.soytransportation.org/newsroom/PrivatePartnershipsforInlandWaterways.pdf>

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