A Reliable Waterway System is Important to Agriculture

Do You Know Why?

Big Picture Overview

♦ U.S. agriculture is expected to contribute $32 billion to the U.S. balance of trade in fiscal 2012 (USDA ERS/FAS Outlook for U.S. Agricultural Trade, August 31, 2011).

♦ Exports are forecast to reach $137 billion, while imports are forecast to reach $105 billion.

♦ Forestry and fishery products, and critical farm inputs such as fertilizer, feed, and fuel move on the waterway system as well.

♦ Secretary 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 2011 HMT revenues and investment interest are $1.495 billion. Requested transfers from the fund are $801 million, yielding a year-end balance of $6.341 billion.

♦ Approximately $74.1 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 appropriations included $75.8 million from the fund.

♦ In fiscal 2010, U.S.-flag vessels earned $382 million from nearly 2.3 million metric tons of U.S. humanitarian food aid under cargo preference law. Cargo preference helps maintain U.S. mariner and vessel availability.
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.

♦ Approximately 61 percent of grain inspected for export departed from the U.S. Gulf in calendar year 2010, more than 2.8 billion bushels (USDA GIPSA).

♦ Pacific Northwest (PNW) ports accounted for nearly 26 percent of U.S. grain inspected for export in 2010, or nearly 1.2 billion bushels.

♦ The September 12, 2011, USDA World Agricultural Supply and Demand Estimates projections for 2011/12 U.S. exports includes:
  - Feed grains—45 million metric tons (49.6 million short tons)
  - Corn—1.65 billion bushels (46.2 million short tons)
  - Soybeans—1.415 billion bushels (42.45 million short tons)
  - Wheat—1.025 billion bushels (30.75 million short tons)
  - Soybean meal—8.55 million short tons
  - Rice—93 million hundredweight (4.65 million short tons)
  - Sorghum—110 million bushels (3.08 million short tons)
  - Soybean oil—1.8 billion pounds (0.9 million short tons)

Source: USDA Market News, Grain Inspected and/or Weighed for Export by Region and Port Area, January 10, 2011
Ethanol, DDG, Corn Production, Fertilizer, and Barge Traffic

♦ U.S. ethanol production capacity at 197 operating refineries is nearly 14.2 billion gallons per year. An additional 246 million gallons of capacity will be available upon completion of 6 new construction and expansion projects (Renewable Fuels Association, August 8, 2011).

♦ Over 588.5 million gallons of ethanol were exported between January and July 2011, compared to nearly 403.5 million gallons in calendar year 2010 (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 4.4 million metric tons of DDG were exported between January and July 2011, compared to over 9 million metric tons in calendar year 2010 (Census Bureau, Department of Commerce).

According to the Renewable Fuels Association, the U.S. ethanol industry was on pace to export 28 percent of expected DDG production in 2010.

Increased ethanol production means increased corn acreage and transportation of fertilizer to grow the corn.

USDA projects a corn harvested area of 84.4 million acres, yielding 148.1 bushels per acre, with 5 billion bushels to be converted to ethanol and by-products in 2011/12 (September 12, 2011, USDA World Agricultural Supply and Demand Estimates).

Corn uses about 240 pounds of fertilizer per planted acre, as it has high nitrogen fertilizer requirements.

The United States imported nearly 24 million short tons of fertilizer between January and July 2011. This included over 10.5 million short tons of nitrogen, a 4 percent increase over the same period in 2010 (Census Bureau, U.S. Department of Commerce).
According to U.S. Army Corps of Engineers’ statistics, in calendar year 2010 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—23.8 million short tons
- Oilseeds—soybeans, flaxseed, and others—11.3 million short tons
- All chemical fertilizers—8.8 million short tons
- Processed grain and animal feed—5.8 million short tons
- Wheat—1.3 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

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 2010, 21,844 downbound grain barges passed through Locks 27, 52, and 1, with over 34.8 million short tons of grain.

In comparison, 29,287 grain barges were unloaded in the New Orleans region during the period, a difference of 7,443 barges, with an estimated 13.2 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.


- 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 studies 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.

![Top U.S. Ports Moving Waterborne Agricultural Exports, 2010](image)

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.
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 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 closures\(^2\) 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 increase\(^3\).

♦ 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 include the U.S. Coast Guard, which provides security and aids to navigation, and National Oceanic and Atmospheric Administration which provides maps, charts, weather information, and surveys after disruptions.
Want to Know More? Try These Publications:

1. Studies and reports on modal share and competition


2. Temporary closures


3. Higher transportation costs, lower cash bids


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.