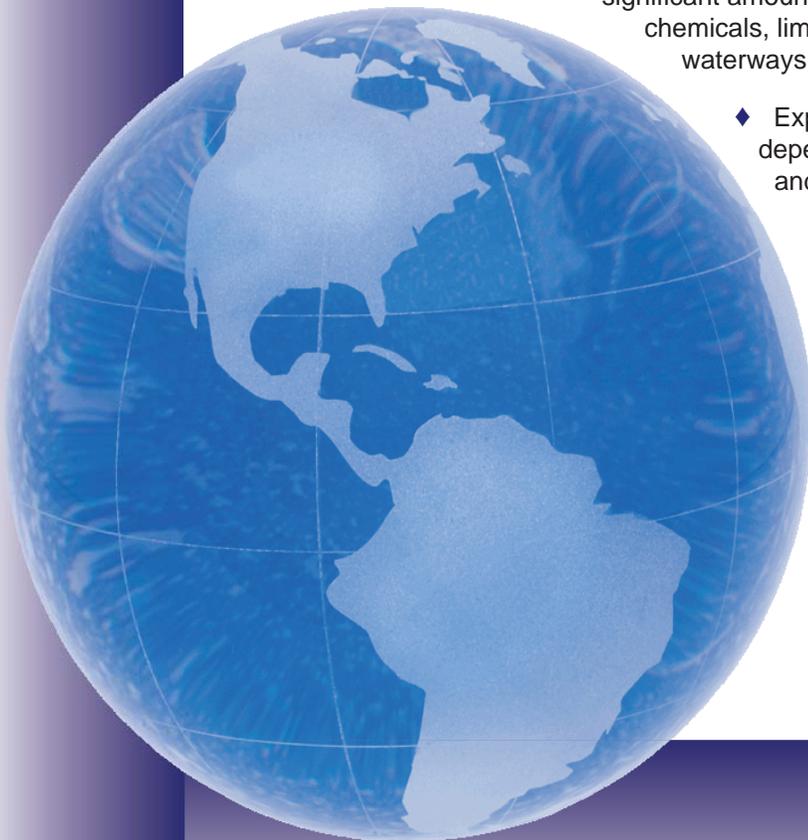


# A Reliable Waterway System Is Important to Agriculture

## Do You Know Why?

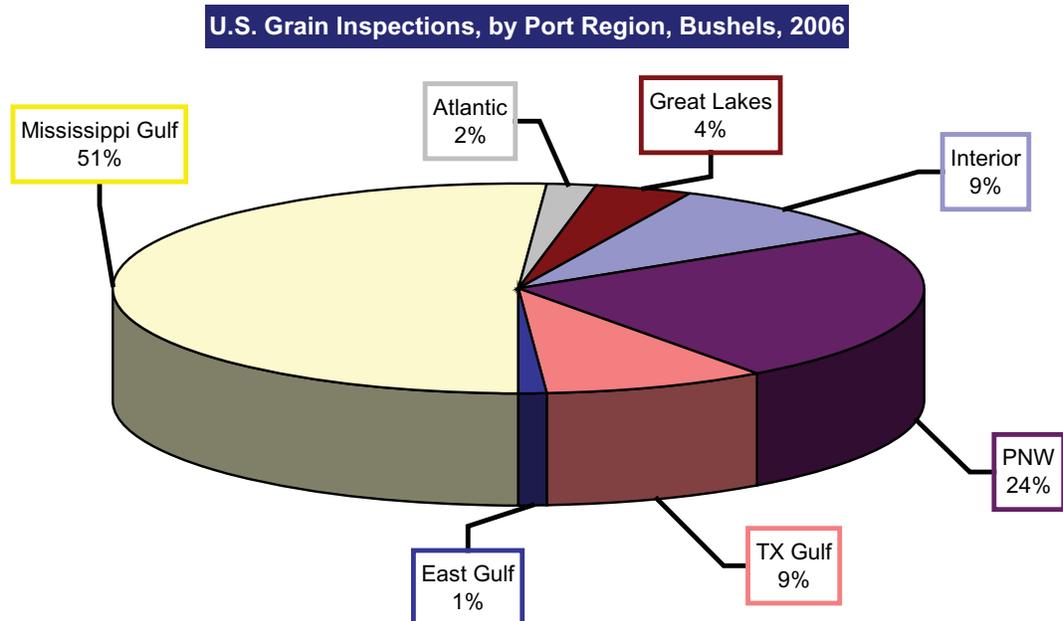
### Big Picture Overview

- ◆ U.S. agriculture is expected to contribute \$15.5 billion to the U.S. balance of trade in FY 2008 (November 30, 2007, *USDA FAS Quarterly Agricultural Export Forecast*).
- ◆ Agricultural exports are forecast to reach a record \$91 billion.
- ◆ Agricultural imports are forecast to reach a record \$75.5 billion.
- ◆ For fiscal year 2007, U.S. agricultural exports reached \$81.9 billion with growth and new sales across all major product groups.
- ◆ Fiscal 2007 agricultural imports were \$70 billion.
- ◆ In addition to agricultural, forest, fish, and seafood products, significant amounts of critical farm inputs such as petroleum, chemicals, lime, and steel are transported via ports and waterways in bulk vessels, barges, and containers.
- ◆ 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 fee on the value of the cargo.
- ◆ HMT revenues and accrued interest were \$1.32 billion in FY 2006, and the Harbor Maintenance Trust Fund balance grew to \$3.54 billion on January 31, 2007, as revenue continues to exceed authorized spending by \$400 million per year.



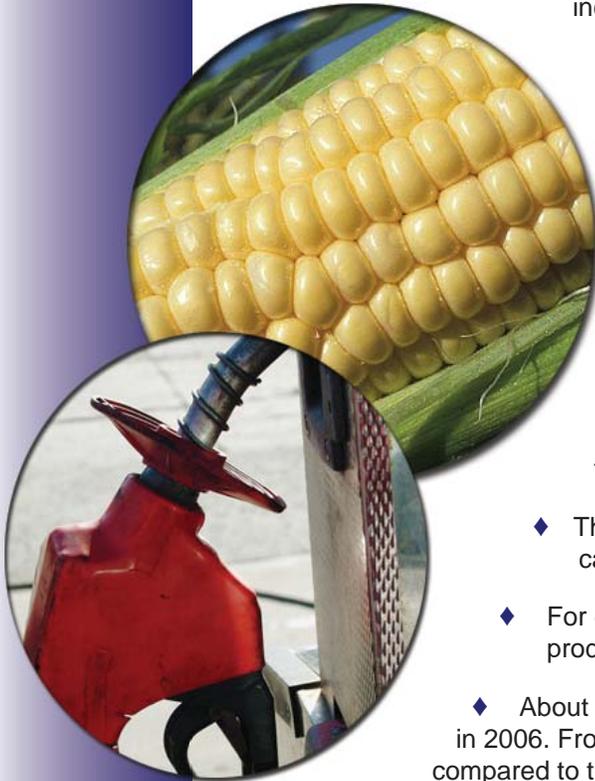
## Grain Exports

- ◆ The United States exports approximately one-quarter of the grain it produces, including nearly 50 percent of the wheat, 35 percent of the soybeans, and 20 percent of the corn.
- ◆ Approximately 51 percent of total grain exports departed from the Mississippi Gulf in 2006. The Mississippi Gulf normally handles or inspects over 2 billion bushels of grain annually (*USDA GIPSA*).
- ◆ The Pacific Northwest (PNW) ports accounted for 24 percent of U.S. grain exports in 2006. The PNW handled over 1 billion bushels of grain in 2006.
- ◆ The December 11, 2007, *USDA World Agricultural Supply and Demand Estimates* projection for 2007/08 U.S. exports includes:
  - Feed grains—70.3 million metric tons (77.5 million short tons)
  - Corn—2.45 billion bushels (68.6 million short tons)
  - Soybeans—995 million bushels (29.85 million short tons)
  - Wheat—1.175 billion bushels (35.25 million short tons)
  - Soybean meal—8.4 million short tons
  - Rice—107 million hundredweight (5.45 million short tons)
  - Sorghum—275 million bushels (7.7 million short tons)
  - Soybean oil—1.65 billion pounds (825,000 short tons)



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

- ◆ U.S. ethanol production is projected to reach 6.5 billion gallons in 2007. U.S. capacity will reach 12.9 billion gallons when 83 plants under construction or expansion are completed. (*Renewable Fuels Association*).
- ◆ Barges move an estimated 10 percent of ethanol. Main terminals include Chicago, IL, New Orleans, LA, Houston, TX, and Albany, NY.
- ◆ 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.
- ◆ A large number of ethanol plants are planned near the inland waterway system, several are under construction, and several are operational.
- ◆ Eagle Marine Terminals is building the 16.6 million-gallon ethanol Gateway Terminal on the Mississippi at Sauget, IL, to be completed by June 2008; construction of a 5<sup>th</sup> tank to hold an additional 480,000 gallons is expected to be completed by the third quarter of 2008.
- ◆ The terminal will be capable of loading 1.26 million-gallon barges, 95-car unit trains, and trucks.
- ◆ For every gallon of corn ethanol, about 6.34 pounds of DDGS are produced.
- ◆ About 10 percent of DDGS are exported, totaling 1.25 million metric tons in 2006. From January to May 2007, DDGS exports increased 60 percent compared to the same period last year, to approximately 729,000 metric tons.
- ◆ Increased ethanol production means increased corn acreage, and transportation of fertilizer to grow the corn.
- ◆ Corn planted area is estimated at 92.9 million acres (June 29, 2007, *USDA NASS Acreage*), up 19 percent from 2006.
- ◆ Corn uses about 240 pounds of fertilizer per planted acre. Corn has high nitrogen fertilizer requirements.
- ◆ Total U.S. consumption of fertilizer and plant nutrients in the fertilizer year ending June 30, 2006, was 53.9 million short tons including 12 million short tons of nitrogen (*AAPFCO TFI Commercial Fertilizers 2006*).
- ◆ In calendar year 2006 the United States imported 34.5 million short tons of fertilizer, including 17.7 million short tons of nitrogen and 9.9 million short tons of potassium, and 6.9 million short tons of phosphate.
- ◆ From January to May 2007, nitrogen imports increased 11.7 percent, compared to 2006. (*USDA ERS Foreign Agricultural Trade of the United States*).



## Barge and Rail Competition

- ◆ In calendar year 2006, 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—28.6 million short tons
- Oilseeds—soybeans, flaxseed, and others—8.1 million short tons
- All chemical fertilizers—7.5 million short tons
- Animal feed, grain mill products, processed grain—5.8 million short tons
- Wheat—1.6 million short tons
- Rye, barley, rice, sorghum, and oats—0.78 million short tons

- ◆ 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, 1978-2004*, showed that:

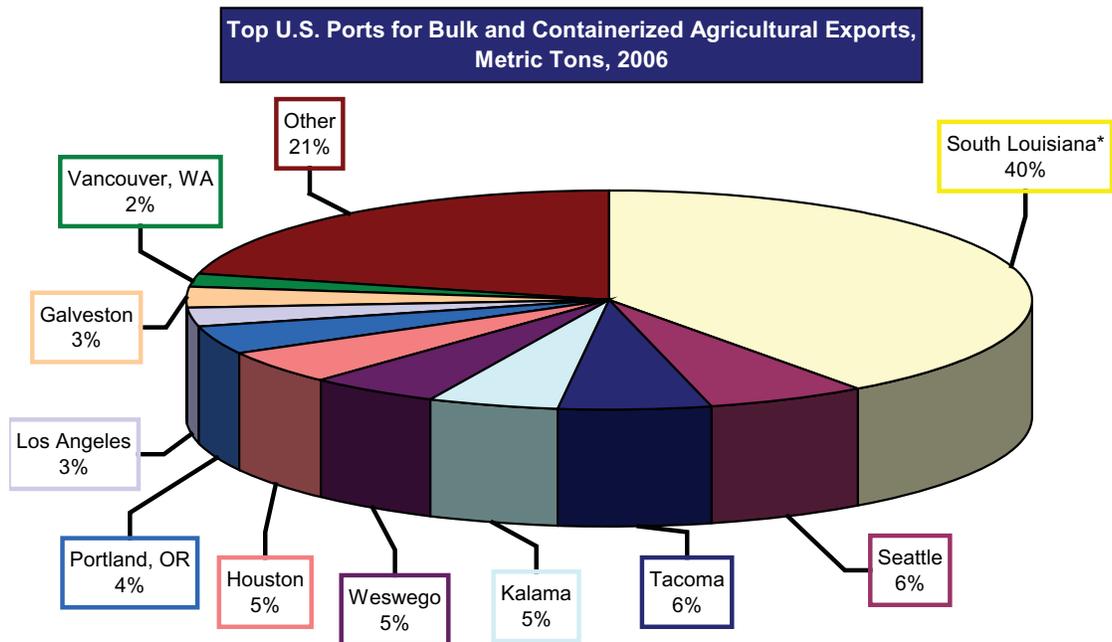
- Barges moved 64 percent of corn to ports and 2 percent of corn to processors, feed lots, and dairies in 2004. Rail shares were 33 percent for exports and 32 percent for domestic moves.
- Barges moved 56 percent of soybeans to ports and 4 percent of soybeans to processors in 2004. Rail shares were 34 percent for exports and 16 percent for domestic moves.
- Barges moved 35 percent of wheat to ports and 2 percent of wheat to processors. Rail shares were 65 percent for exports and 55 percent for domestic moves.
- Barges moved 17 percent of sorghum to ports. Rail shares were 37 percent for exports and 8 percent for domestic moves.

- ◆ Studies<sup>1</sup> 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 terms of tonnage, the Los Angeles and Long Beach port complex accounted for 29 percent of containerized waterborne agricultural exports in 2006 (*Journal of Commerce PIERS*).
- ◆ During 2006, containers were used to transport 3 percent of total U.S. grain exported, and 5 percent of total U.S. grain exported to Asia.
- ◆ In 2006, U.S. bulk and containerized waterborne agricultural exports totaled nearly 135 million metric tons.
- ◆ The top 5 U.S. ports for bulk and containerized agricultural exports were, South Louisiana\*, Seattle, Tacoma, Kalama, and Westwego.

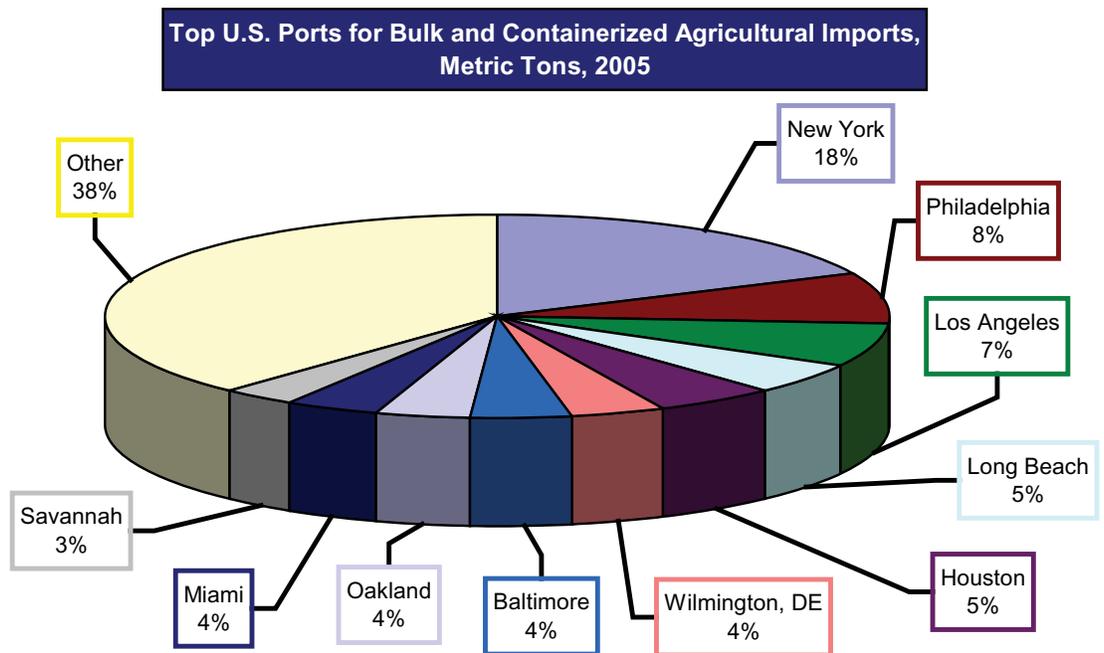


\*South Louisiana data includes movements through the Port of New Orleans

## Top U.S. Ports for Agricultural Imports

- ◆ In terms of tonnage, the New York/New Jersey port complex was used to move 24 percent of containerized agricultural imports in 2005 (*Journal of Commerce PIERS*).
- ◆ In 2005, U.S. bulk and containerized waterborne agricultural imports totaled more than 33 million metric tons.

- ◆ The top 5 U.S. ports for bulk and containerized agricultural imports were, New York/New Jersey, Philadelphia, Los Angeles, Long Beach, and Houston.



### 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 (summer 2005, fall 2006, etc.) there have been several extended periods when river levels were low and impeded grain barge movements. When river levels are low, barges must be loaded lighter than normal.
- ◆ 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<sup>2</sup> of channels due to low water conditions, groundings, natural disasters, manmade 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. "Farm producers are price takers not price makers"<sup>3</sup>.
- ◆ 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 port and waterway depths, and locks and dam infrastructure are maintained by the U.S. Army Corps of Engineers in partnership with U.S. Coast Guard, and NOAA, which moderate the effects of congestion, provide resiliency, and enhance recovery after transportation disruptions.

### Want to Know More? Try These Publications:

#### <sup>1</sup>Studies on rail competition

*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.

#### <sup>2</sup>Temporary closures

*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.

#### <sup>3</sup>Higher transportation costs, lower cash bids, USDA payments increase

Whiteside, Terry. June 8, 2007 "Rail Overview: A Spirit of Hope and A Story of Survival" Agriculture Transportation Coalition, 2007 Annual Meeting Presentations.

*REVIEW 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.

