

Mississippi River System and Grain Export Movements

ASBA Cargo Conference
Miami, FL
Sept 28-30, 2011

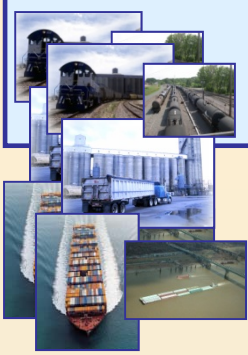
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U.S. Department of Agriculture,
Agricultural Marketing Service
Transportation and Marketing Programs
Transportation Services Division



Introduction



- **Overview**
- **Importance of Transportation**
- **Grain Modal Share**
- **Inland Waterways System**
- **Impact of Flooding on Mississippi River**
- **Ocean Freight Rates and Spread**
- **Outlook**

Overview

Forecast for FY 2012:

- U.S. agriculture is expected to contribute \$32 billion to U.S. balance of trade
- Exports forecast = \$137 billion, imports = \$105 billion
- Export forecast for grain & feed = \$39 billion
- Export forecast for oilseeds & products = \$28.3 billion

Source: Outlook for U.S. Agricultural Trade



Importance of Transportation



- **Move grains to market
ground can deteriorate**
- **Allows economies of scale**
- **Enhances competition**
- **Allows specialization**

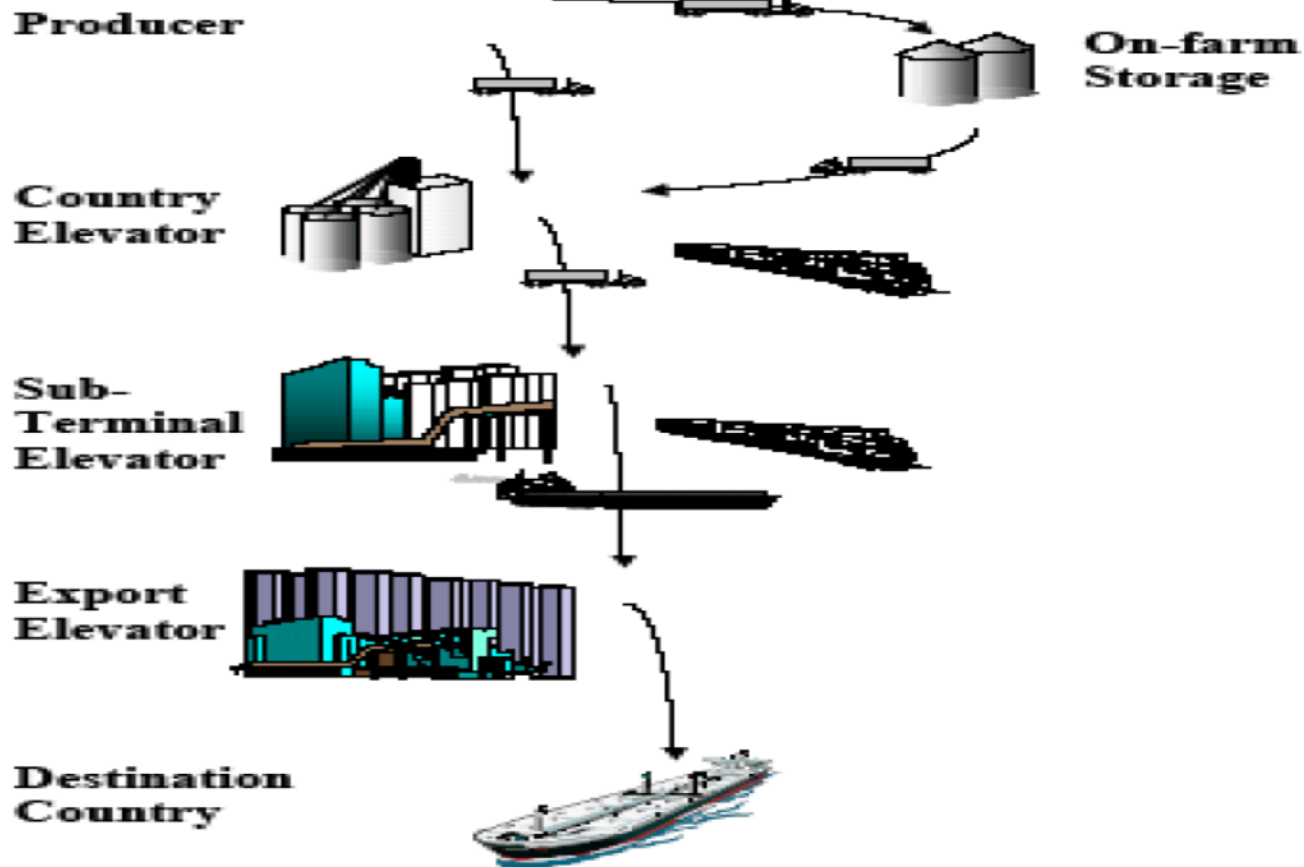
Grain Supply Chain



- **Trucks, trains, and barges compete against & complement one another**
- **Distance influences mode of transportation**
 - **Truck – short haul**
 - **Rail & barge – long haul**
- **Grain elevators – critical mass of product/creates economies of scale in shipping bulk grain**

Grain Supply Chain

Typical Modal Flow of Grain for Export



Alternatives to Inland Waterways

Trade Route Alternatives to UMR-IWW out of Upper Midwest

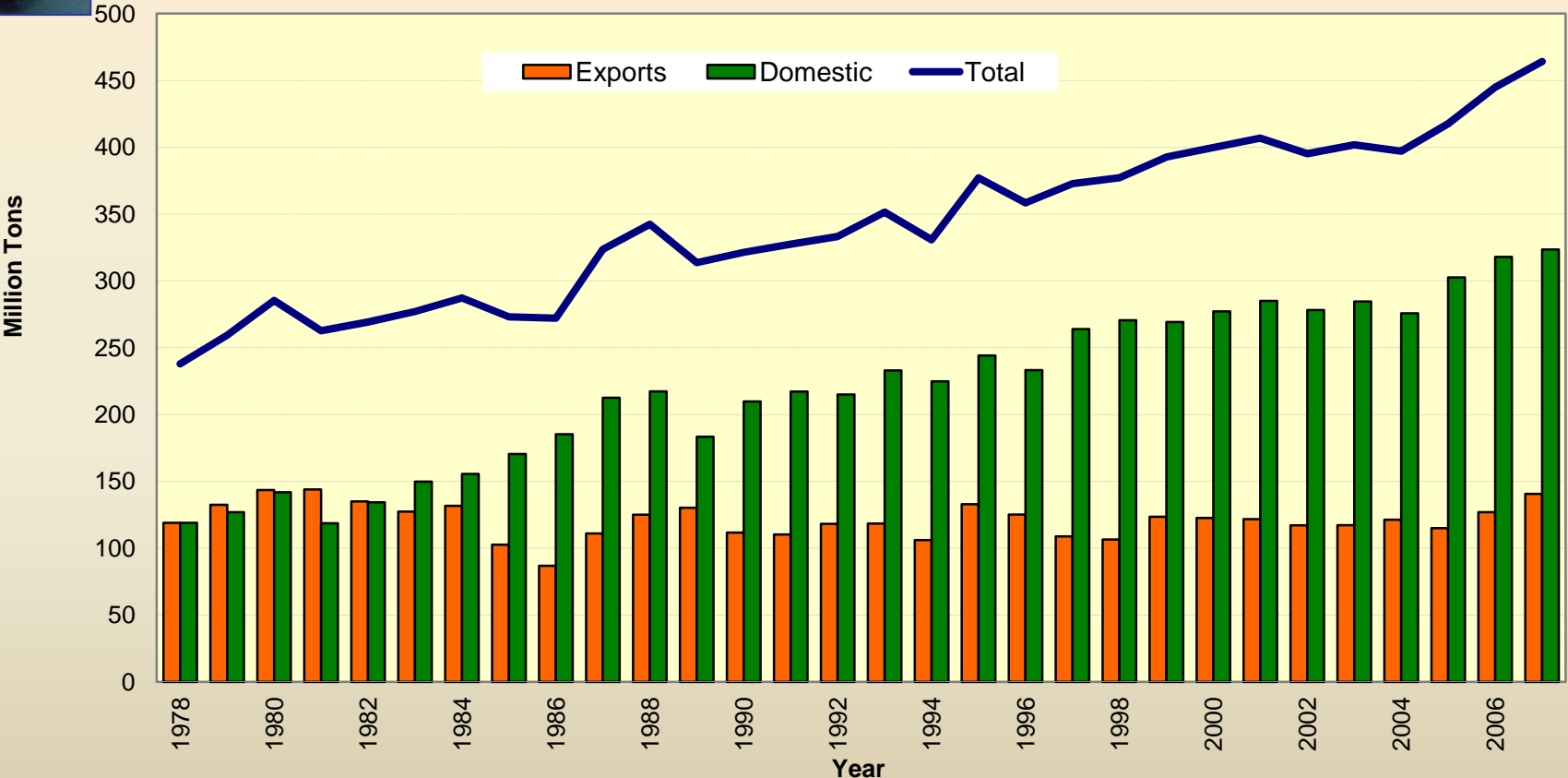
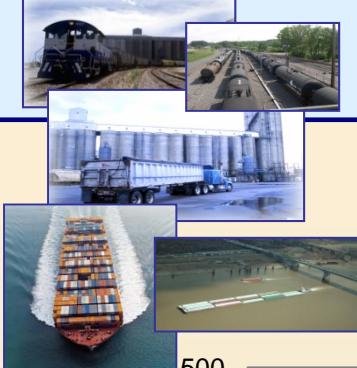


1 = Gulf ports. 2 = St. Lawrence Seaway. 3 = Pacific Northwest ports.
4 = Canada feed demand. 5 = Mexican feed demand.

Source: Congressional Research Service.

Grain Movements

Total Grain Movements to Domestic and Export Markets, 1978 - 2007

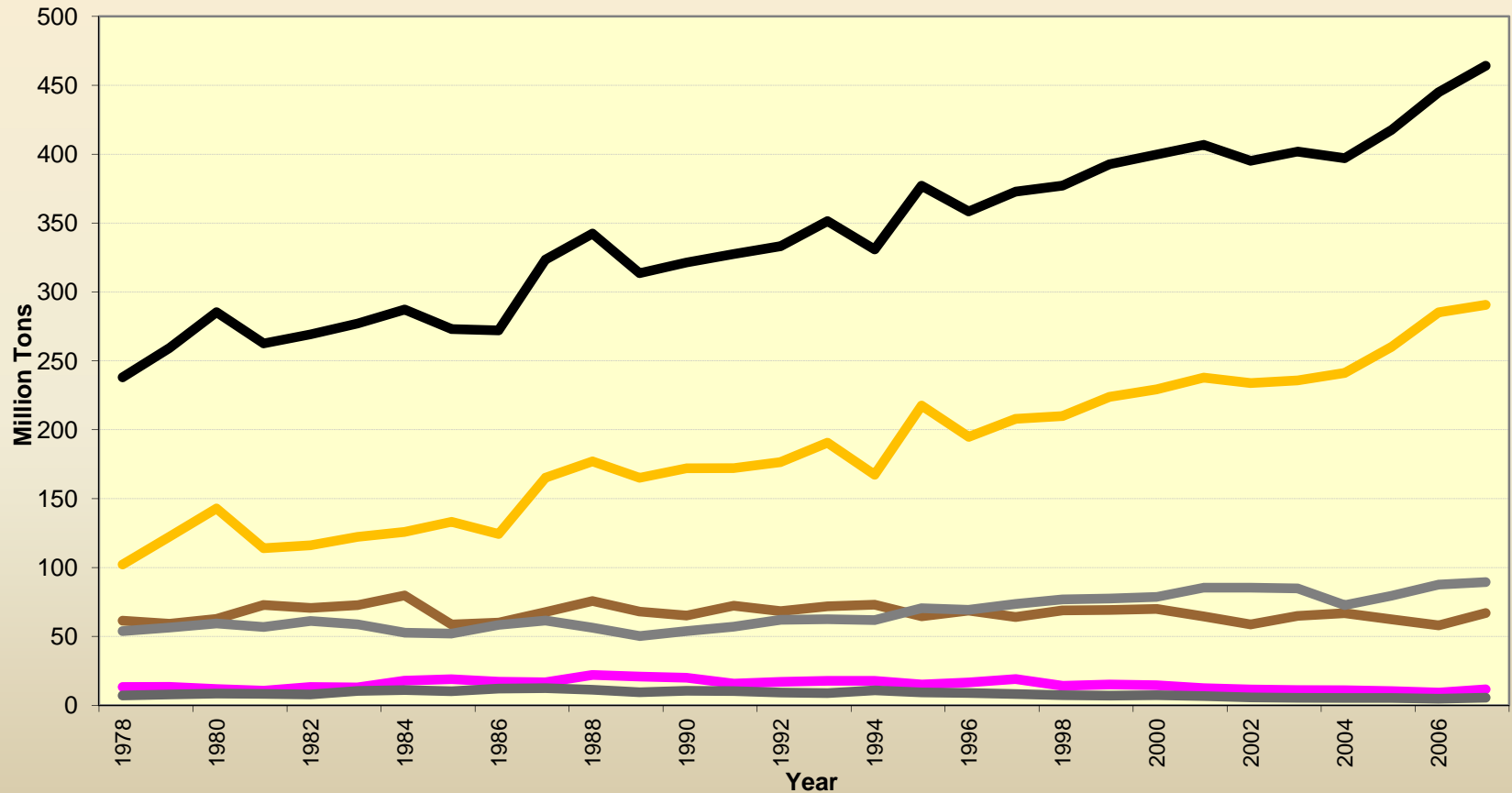


Source: USDA,AMS, Transportation of U.S. Grains, A Modal Share Analysis 1978-2007

Grain Movements

Total Grain Movements by types of Crop, 1978 - 2007

■ Corn
 ■ Wheat
 ■ Soybeans
 ■ Sorghum
 ■ Barley
 ■ Total



Source: USDA,AMS, Transportation of U.S. Grains, A Modal Share Analysis 1978-2007

U.S. Grain Export, 2010



U.S. exports:

- 25 % of its Grain
 - 45 % of wheat
 - 35 % of soybeans
 - 20 % of corn

Ports:

- Gulf – 61%
- PNW – 26%

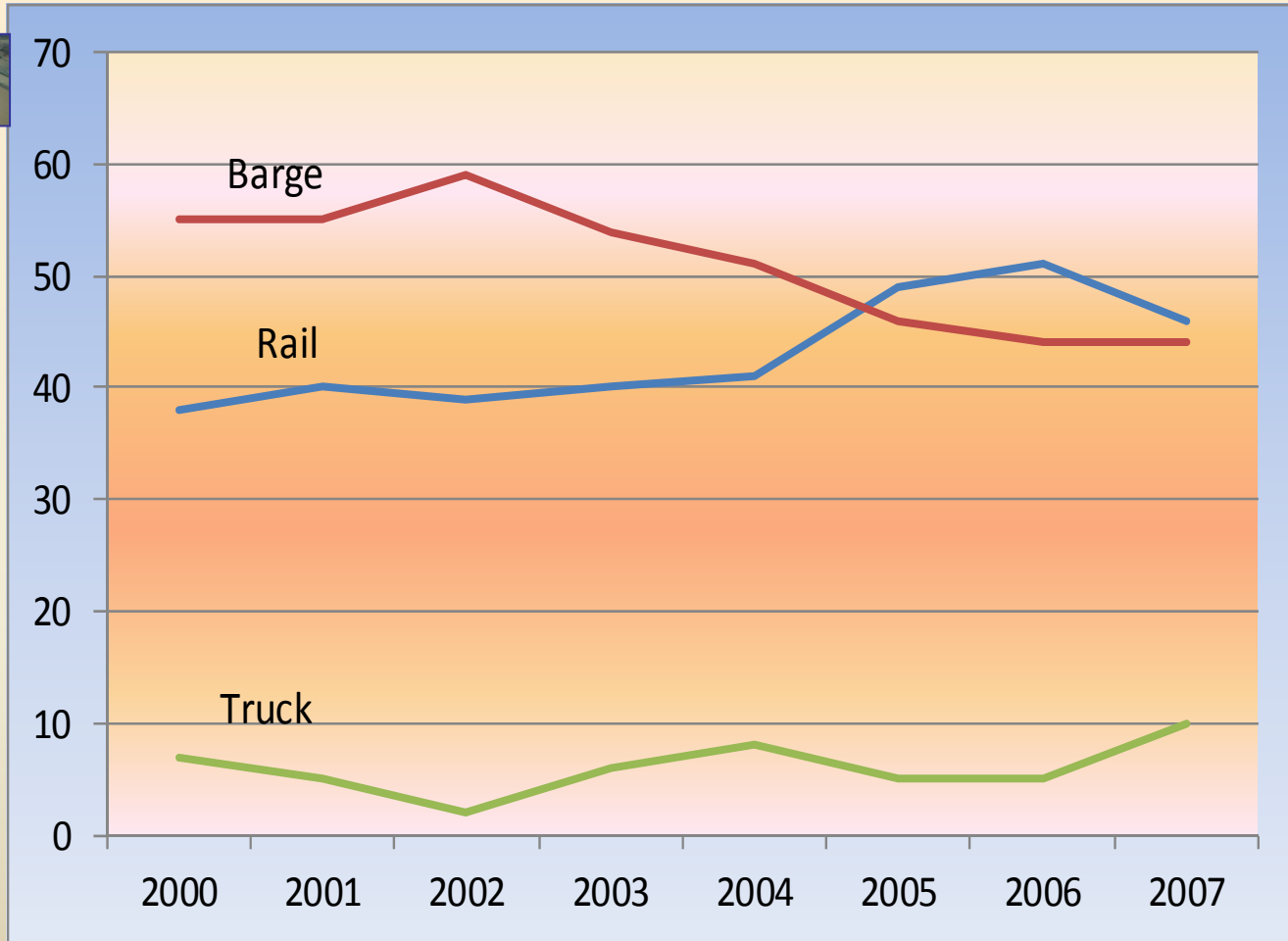
U.S. Total Grain Export Modal Share (%)




Year	Rail	Barge	Truck
2000	38	55	7
2001	40	55	5
2002	39	59	2
2003	40	54	6
2004	41	51	8
2005	49	46	5
2006	51	44	5
2007	46	44	10

Source: USDA,AMS, Transportation of U.S. Grains, A Modal Share Analysis 1978-2007

U.S. Total Grain Export Modal Share (%)



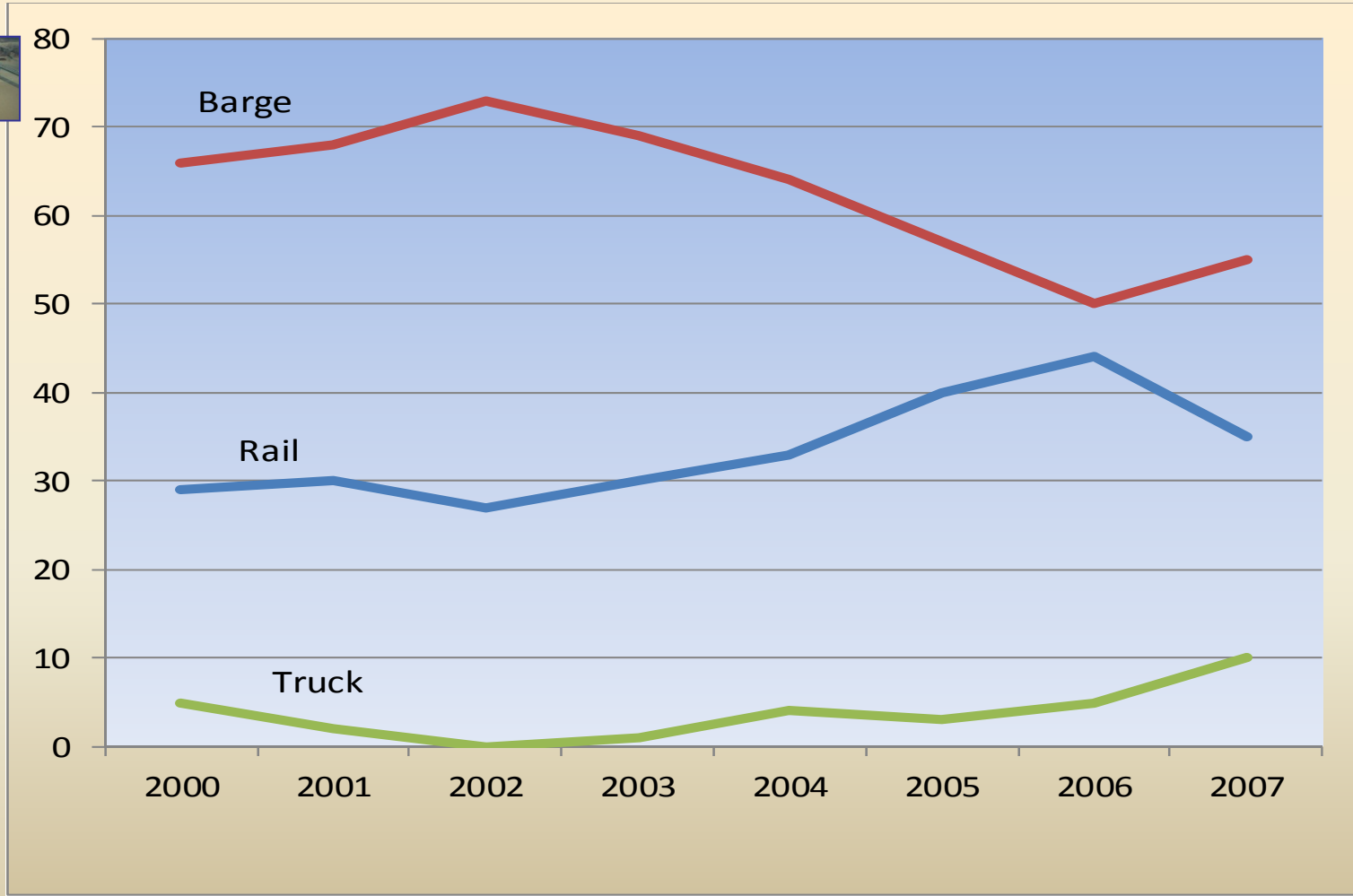
U.S. Corn Export Modal Share (%)



Year	Rail	Barge	Truck
2000	29	66	5
2001	30	68	2
2002	27	73	0
2003	30	69	1
2004	33	64	4
2005	40	57	3
2006	44	50	5
2007	35	55	10

Source: USDA, AMS, Transportation of U.S. Grains, A Modal Share Analysis 1978-2007

U.S. Corn Export Modal Share (%)



Source: USDA,AMS, Transportation of U.S. Grains, A Modal Share Analysis 1978-2007

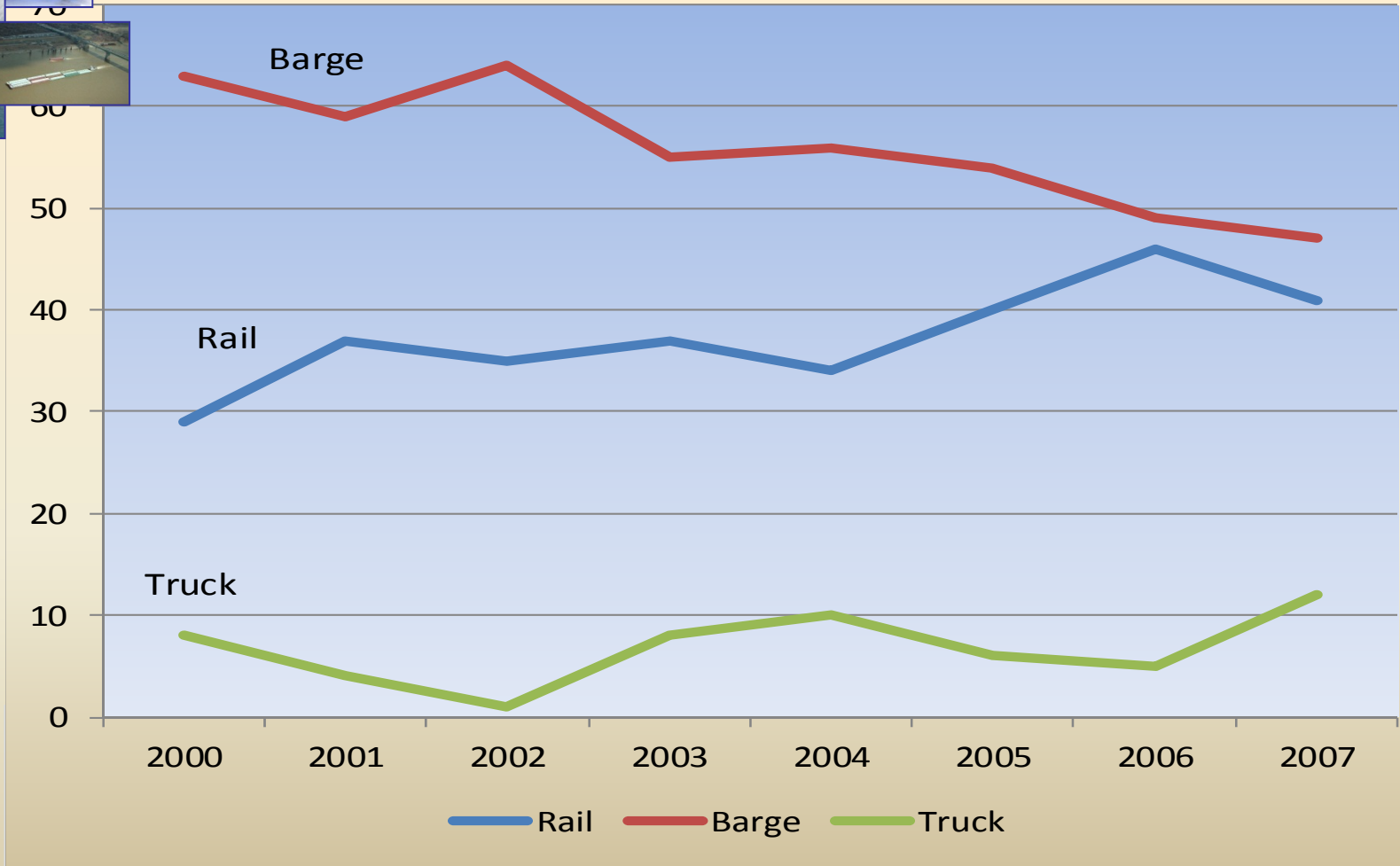
U.S. Soybean Export Modal Share (%)



Year	Rail	Barge	Truck
2000	29	63	8
2001	37	59	4
2002	35	64	1
2003	37	55	8
2004	34	56	10
2005	40	54	6
2006	46	49	5
2007	41	47	12


Source: USDA,AMS, Transportation of U.S. Grains, A Modal Share Analysis 1978-2007

U.S. Soybean Export Modal Share (%)



Source: USDA,AMS, Transportation of U.S. Grains, A Modal Share Analysis 1978-2007

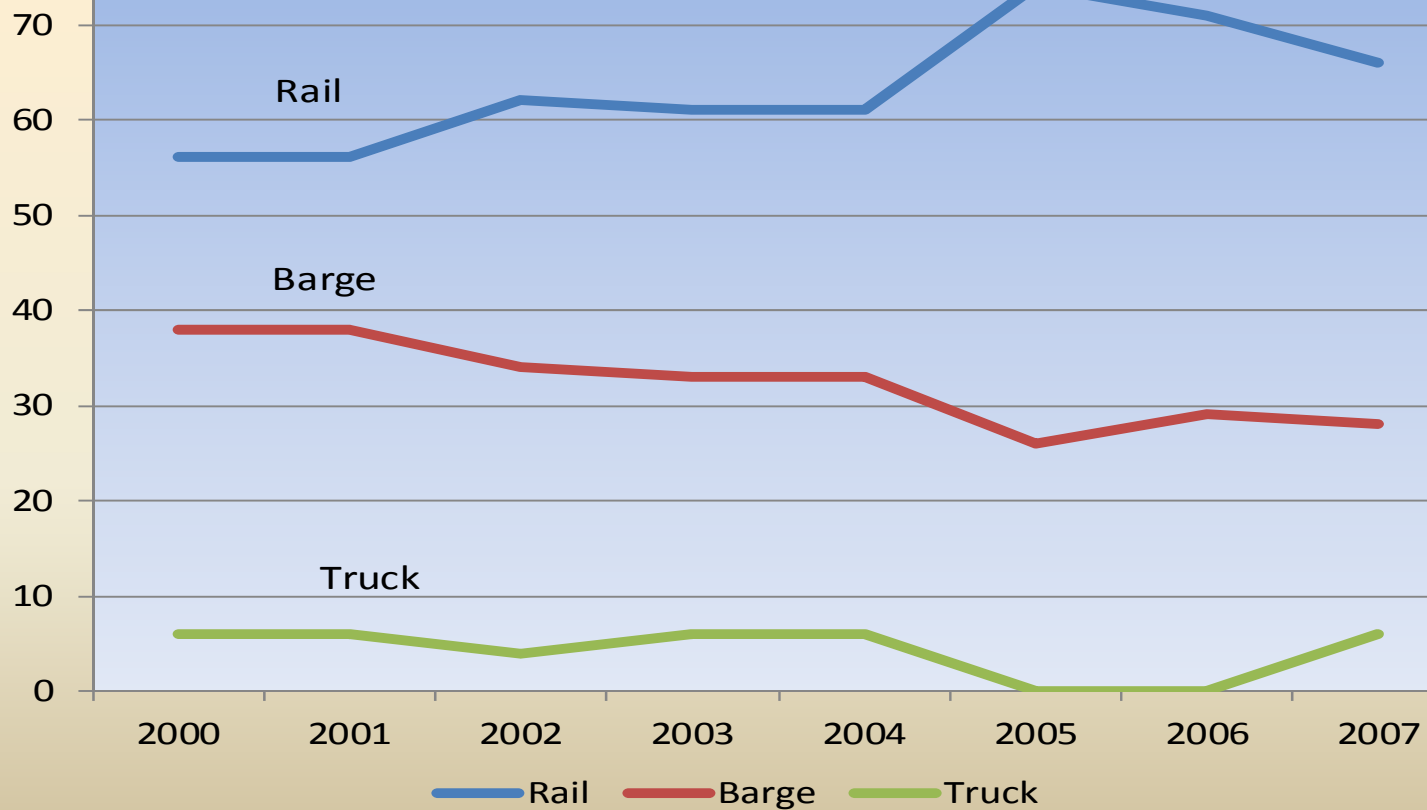
U.S. Wheat Export Modal Share (%)



Year	Rail	Barge	Truck
2000	56	38	6
2001	56	38	6
2002	62	34	4
2003	61	33	6
2004	61	33	6
2005	74	26	0
2006	71	29	0
2007	66	28	6

Source: USDA,AMS, Transportation of U.S. Grains, A Modal Share Analysis 1978-200

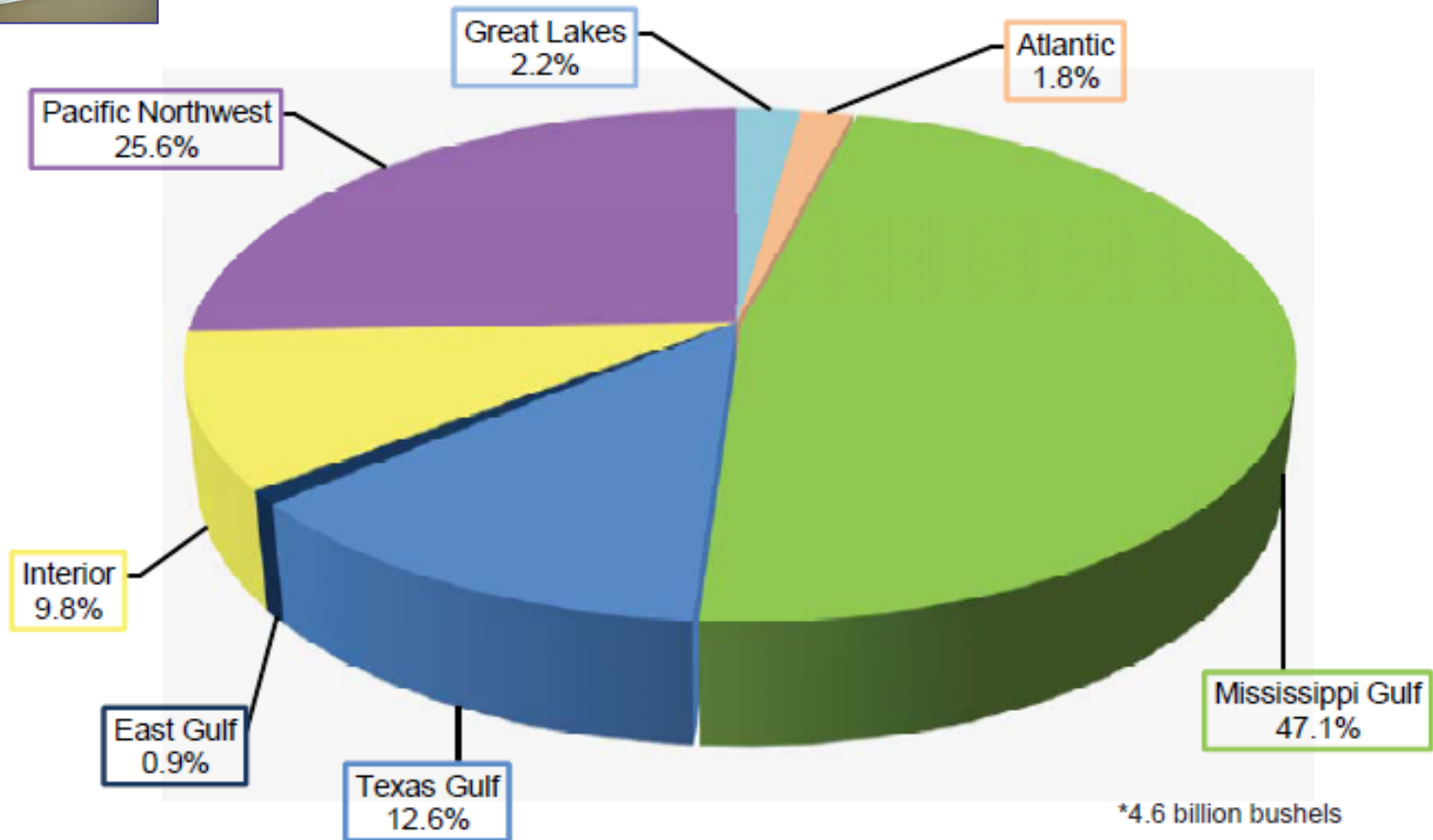
U.S. Wheat Export Modal Share (%)



Source: USDA, AMS, Transportation of U.S. Grains, A Modal Share Analysis 1978-2007

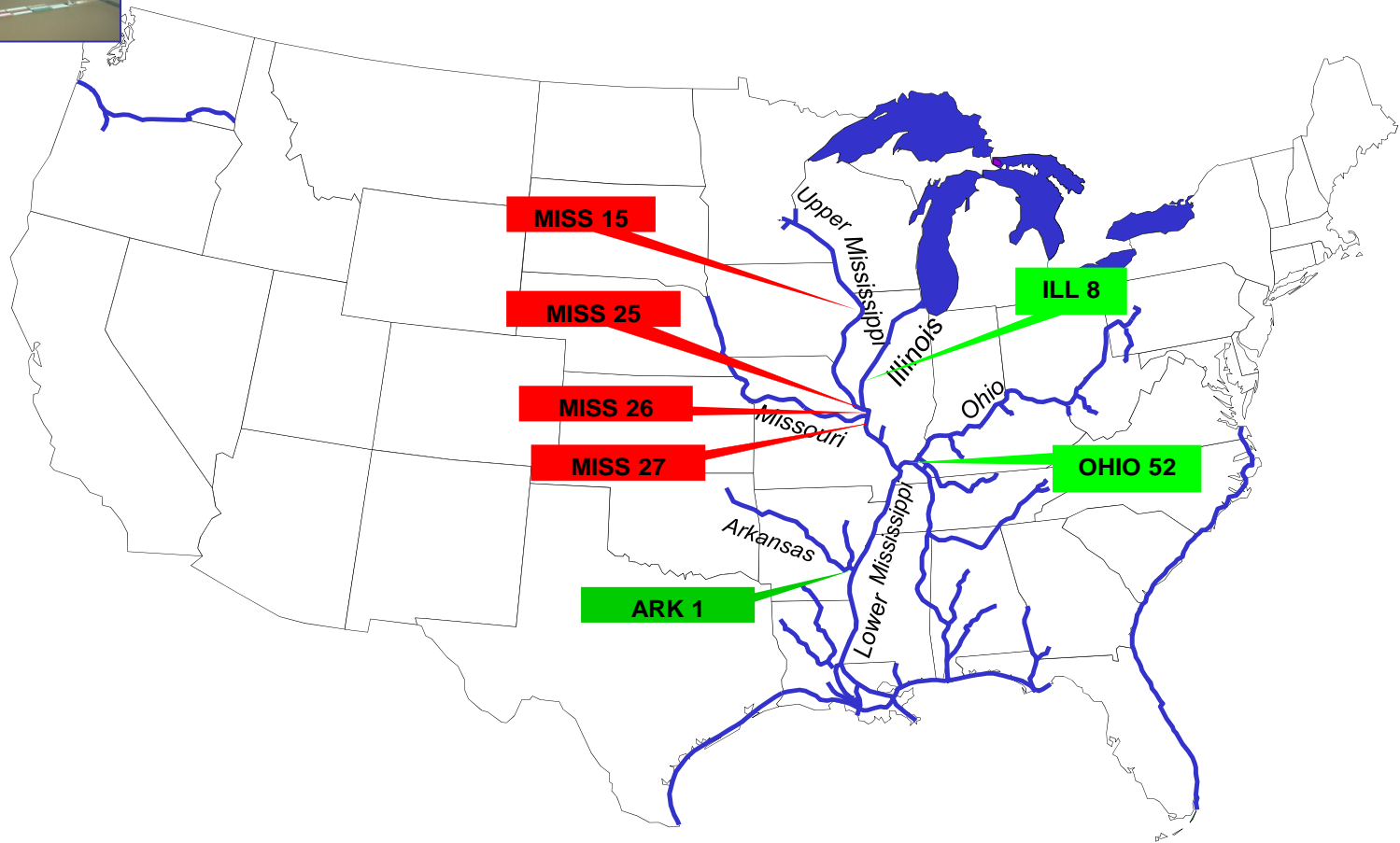
Grain Export Ports

U.S. Grain Inspected and/or Weighed for Export by Region and Port Area, 2010, % of Total Bushels*



Source: USDA Market News, Grain Inspected and/or Weighed for Export by Region and Port Area, January 10, 2011

Mississippi River System: Barge Transportation





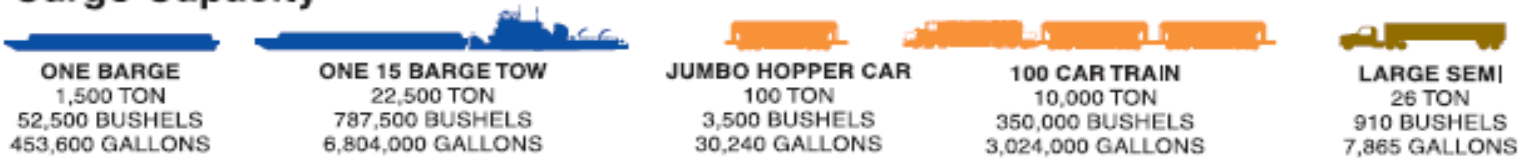
Barge Transportation



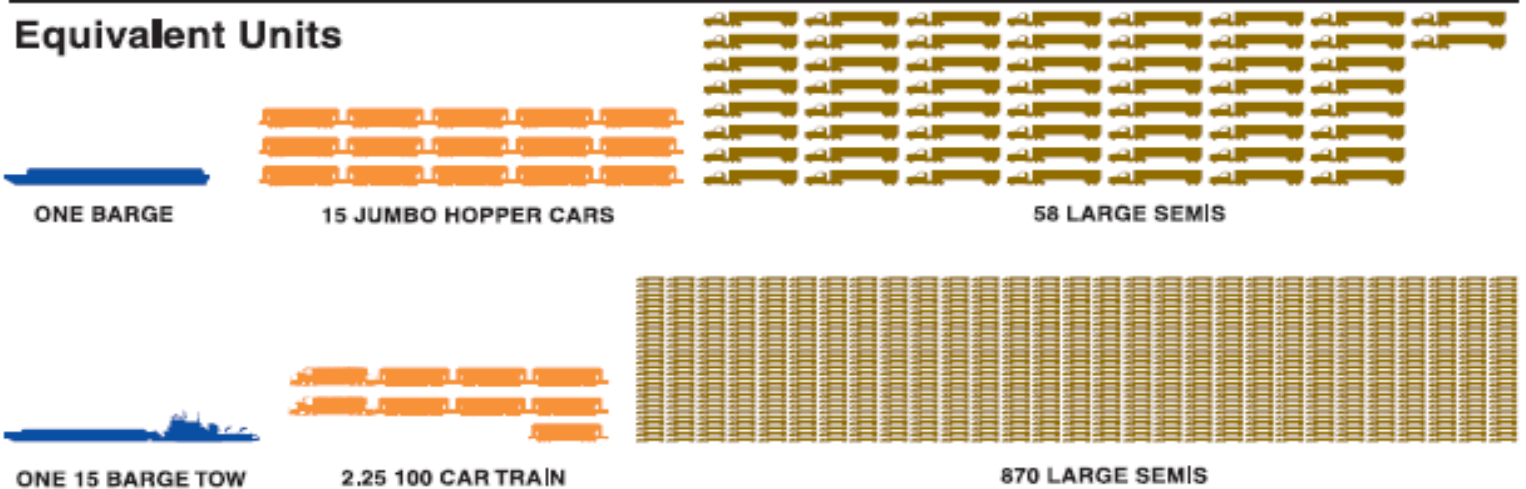
Source: Iowa Department of Transportation - 803 Lincoln Way - Ames, IA 50010 - 515-289-1272

Compare...

Cargo Capacity



Equivalent Units



Equivalent Lengths



Barge Transportation



Advantages of Barge:

- Cheaper for long-haul shipping
- Moves larger volume
- Reduces greenhouse gas emissions
- Reduces highway congestion

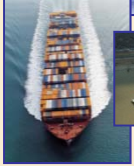
Barge Transportation

- Some export grain enters below Mississippi River Locks 27, Ohio River Locks & Dam 52, & Arkansas Lock and Dam 1
- In 2010—29,287 grain barges unloaded in New Orleans
- 21,844 downbound grain barges passed through Locks 27, 52, and 1 (34.8 million tons of grain)
- A difference of 7,443 barges (13.2 million tons)



2011 Flooding

- Runoff from a record snowpack and major rainfall caused widespread flooding on Mississippi, Illinois, Missouri & Arkansas Rivers.
- Barge transportation limited near flood-saturated levees- No wake zones slowed or stopped traffic- For several weeks, daylight only movements in some areas.
- Build up of sediments in navigation channels, causing draft & width restrictions.



2011 Flooding



- Record flooding in lower Mississippi River-Natchez, MS was 62 feet in May, 4.5 feet above previous record from 1927.
- By mid-August 2011, no flooding problems except long stretches of the Missouri River remained flooded, continued a situation that began in early June

2011 Flooding



Impact of Flooding on Grain Deliveries to New Orleans (overall, by Mid-August)

- 15,889 grain barges unloaded in New Orleans, compared to 18,331 barges last year—down 13%
- 21,726 grain railcars delivered to New Orleans, compared to 9,476 last year— up 129%

2011 Flooding



2011 Flood Controls:

- Birds Point-New Madrid Floodway-Near where Ohio flows into Mississippi River---**Levee exploded to open floodway**
- Morganza Spillway-North of Baton Rouge
- Bonnet Carre Spillway-North of New Orleans---**Gates opened**
- Measures mitigates effect of flooding on traffic movements on UMR

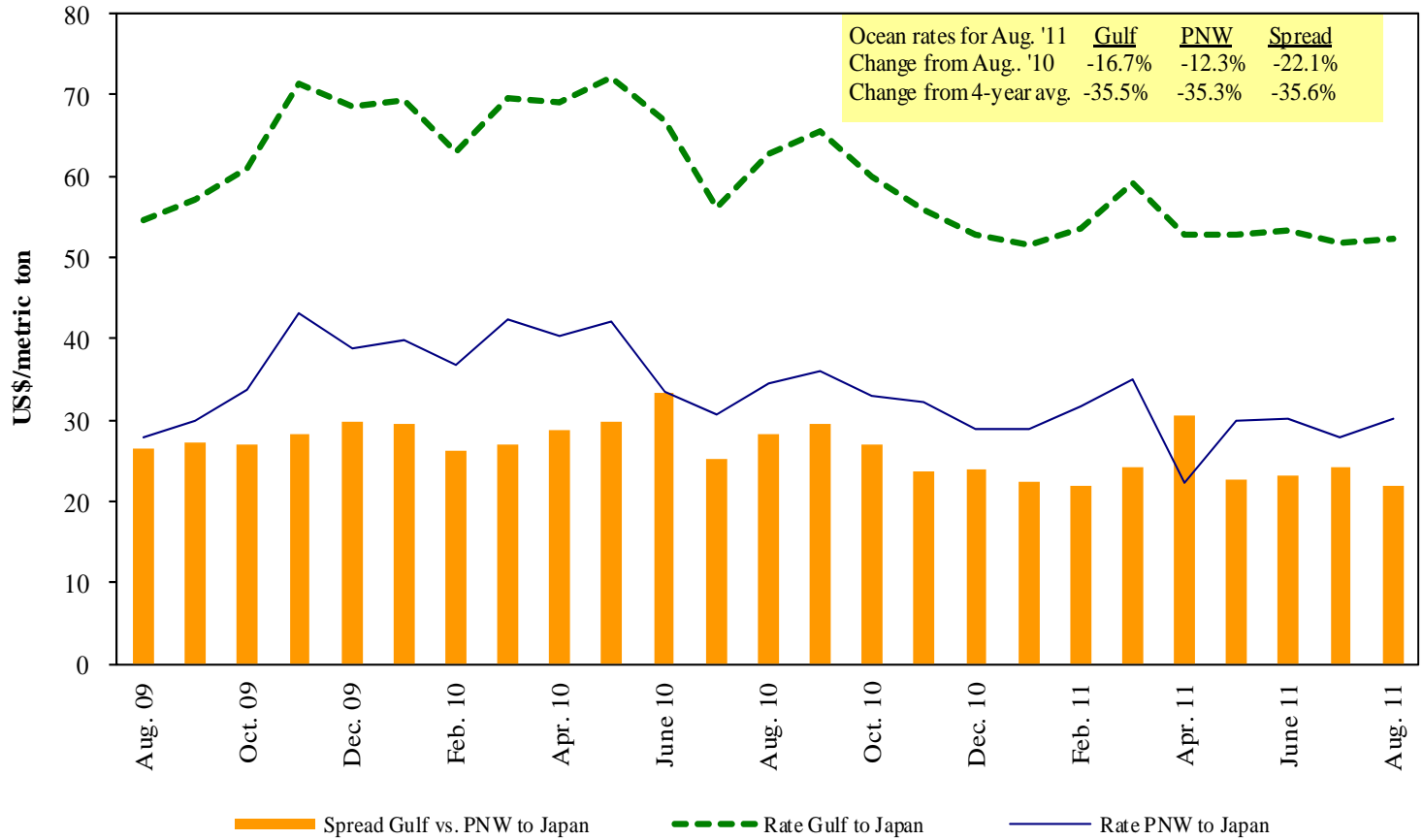
2011 Flooding



Ocean Freight Rates



Grain Vessel Rates, U.S. to Japan



Source: O'Neil Commodity Consulting

Ocean Freight Rates



- The spread in ocean freight rates influences the choice of export port
- Ocean freight rates are currently relatively low
- Lower ocean freight rate could make shipping out of the U.S. Gulf very competitive

Outlook

- Mississippi River System continues to be vital to U.S. grain export movements
- Panama Canal expansion?
- Funding?



Grain Transportation Report



Highlights of the week



Agricultural
Marketing
Service

Sept. 16, 2010

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WEEKLY HIGHLIGHTS

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[Corn Harvest Ahead of Normal Pace; Requires Earlier Than Normal Transport Needs](#)

As of September 12, the corn harvest is ahead of the normal pace for this time of year, with 11 percent of the corn harvested nationwide compared to the average of 6 percent. In four States, half or more of the corn has been harvested: Tennessee (72 percent), North Carolina (67 percent), Kentucky (54 percent), and Texas (50 percent, but Texas is behind its normal pace of 66 percent harvested). Illinois has 18 percent of its corn harvested, three times its average pace. Indiana corn is 13 percent harvested, significantly ahead of its 2 percent average. Kansas corn is 28 percent harvested, double the average pace. This is significant news for planning transportation needs as movements of this year's corn will begin earlier than normal, and are significantly ahead of last year's rain-delayed harvest.

[Grain Transportation Demand Expected to be Strong](#)

Grain transportation demand for the record 2010/11 grain crop is expected to be strong. The September World Agricultural Supply and Demand Estimates forecasts grain exports (corn, soybeans, and wheat) will increase 12 percent from last year and will be approximately the same as 2007/08, when grain exports were unusually high due to crop failures in other countries. Domestic use will be down 1 percent from last year, but will be 8 percent greater than during 2007/08.

[Increased Shipments to Asia and South America Continue to Drive Wheat Inspections](#)

For the week ending September 9, total wheat inspections (0.813 mmt) were up 29 percent from the previous week—the highest since October 2, 2008—with increased shipments to Asia, South America, and Mexico. Texas Gulf wheat inspections increased 76 percent from the previous week to .333 mmt, the highest since July 17, 2008. **Total inspections** of grain (corn, wheat, and soybeans) from all major U.S. export regions, at 1.85 million metric tons (mmt), decreased by 1 percent from the previous week, but were 5 percent above last year. Corn inspections increased slightly as Mississippi Gulf inspections remained strong. Despite the 54 percent drop in soybean inspections, the 4-week average for weekly grain inspections overall continued above last year and the 3-year average.

[Revisions to the GTR Tariff Rail Rate Table](#)

Table 7, **Tariff Rail Rates for Unit and Shuttle Train Shipments**, within the Grain Transportation Report has been revised beginning this week. Data already collected for the previous table will be preserved and available upon request. The revised table publishes rates for 38 carefully chosen origin-destination regions compared to only 28 in the previous table. More than 20 percent of wheat, corn, and soybean movements are represented by the newly chosen origin-destination regions. For more detail on the changes, please see this week's feature article.

[Panama Canal Lock Maintenance Scheduled](#)

The West Sidewall Culvert of the Gatun Lock is scheduled for repair and maintenance work during September 20–30. The estimated transit capacity of the Canal due to the closure is 29–33 vessels compared to normal transit capacity of 38–40 vessels per day. At this time, no major delays are anticipated.

Snapshots by Sector

Rail

U.S. railroads originated 23,998 **carloads of grain** during the week ending September 4, up 10 percent from last week, 16 percent from last year, and 1 percent from the 3-year average.

During the week ending September 11, average September non-shuttle **secondary railcar bids/offers** were \$600 above tariff, down \$150 from last week. Average shuttle rates were \$100 below tariff, down \$813 from last week.

Ocean

During the week ending September 9, 42 **ocean-going grain vessels** were loaded in the Gulf, up 14 percent from last year. Fifty-six vessels are expected to be loaded in the Gulf within the next 10 days, up 27 percent from last year.

During the week ending September 10, the cost of shipping grain from the Gulf to Japan averaged \$68 per mt, up 5 percent from the previous week. The rate from the Pacific Northwest to Japan was \$40 per mt, up 14 percent from the previous week.

Barge

During the week ending Sep 11, **barge grain movements** totaled 495,318 tons, 0.33 percent lower than the previous week but 59 percent higher than the same period last year.

Grain Transportation Report



Grain transportation analysis and news

- Inland waterways
- Rail service
- Grain transportation demand and flows
- Export activity
- Ocean shipping

Feature Article/Calendar

Grain Transportation Update and Fall Outlook

Grain transportation demand during the fall harvest season and throughout 2010/11 marketing year is expected to be strong, but manageable. Record grain crops combined with strong exports could present intermittent logistical challenges, but may be tempered by the expected adequate capacity of the transportation infrastructure. The reduced grain production and export prospects of the major producing countries of the Former Soviet Union (FSU-12) have increased the demand for U.S. grains. The current projected U.S. exports, however, are not expected to surpass the 2007/08 grain exports—a recent comparable year of strong U.S. grain exports.

Capacity on the U.S. rail network is expected to be sufficient to handle the additional grain traffic because intermodal, auto, and construction freight is likely to remain below the strong 2007 levels. The barge industry is also facing slower traffic on the Mississippi River due to lower demand for non-grain raw materials. Ocean-going grain vessels should be in ample supply, barring any port congestion issues around the world. In 2007, transportation costs increased during the surge in grain exports and U.S. grain export inspections at various port regions increased significantly; Recent inspections data indicates that the capacity of export grain elevators has not been fully utilized since 2007.

Record U.S. Grain Crop, Higher Exports in 2010/11

According to the August 12 USDA World Agricultural Supply and Demand Estimates (WASDE), production of U.S. major grains (corn, soybeans, and wheat) in 2010/11 is expected to reach a record 19.06 billion bushels (bbu), 2 percent higher than the estimated 2009/10 grain production. Exports are projected to reach 4.7 bbu, 8 percent higher than the previous year, but 4 percent lower than in 2007/08—a comparable year of strong U.S. grain exports. The increase in exports is mainly due to higher projected wheat and soybean exports

	Corn	Soybeans	Wheat	Total	Y/Y	2010 vs. 2007
<i>2010/11 (Projected)</i>						
Production	13,365	3,433	2,265	19,063	2%	7%
Exports	2,050	1,435	1,200	4,685	8%	-4%
Domestic use	11,440	1,808	1,186	14,434	0.2%	9%
<i>2009/10 (Estimated)</i>						
Production	13,110	3,359	2,246	18,715	7%	
Exports	1,975	1,470	881	4,326	4%	
Domestic use	11,390	1,833	1,137	14,410	9%	
<i>2007/08</i>						
Production	12,092	2,967	2,499	17,558	-1%	
Exports	1,849	1,279	1,015	4,143	-15%	
Domestic use	10,207	1,768	1,260	13,235	-0.1%	
<i>2007/08</i>						
Production	13,038	2,677	2,051	17,766		
Exports	2,437	1,159	1,263	4,859		
Domestic use	10,300	1,897	1,051	13,248		

2010 Port Capacity is Mixed

In 2007, due to a shortfall in Australian wheat crop, the United States exported 1.26 bbu of wheat in 2007—63 million bushels more than is projected for 2010/11. Exports of corn and soybeans were also strong that year. Analysis of weekly average grain export inspections through the 5 major grain exporting ports indicates that the 2010 year-to-date average grain export inspections vary widely relative to the August-December shipments in 2007 (see table 2). For example, the PNW 2010 grain export capacity is at 97 percent of the peak in the 2007 shipping period, partly due to the strong Chinese demand for U.S. soybeans. The U.S. Gulf, Great Lakes and the Atlantic ports indicate that export capacity, or the pace of weekly exports could increase if the grain shipping needs were similar to the 2007 pace.

Table 2. Average Weekly Grain Export Inspections, million bushels

Year		Miss. River Gulf	Texas Gulf	PNW	Great Lakes	Atlantic
2010	Year-to-Date	36.4	7.6	21.1	0.5	1.5
2007	August - December	45.5	10.7	21.8	5.4	2.4
2010 as % of 2007		80%	71%	97%	9%	63%

Ocean Freight Rates Are Relatively Low

Ocean freight rates are relatively low compared to this period in 2007 as vessel supply continues to outpace its demand. As of August 13, the average ocean freight rate for shipping bulk grain from the U.S. Gulf to Japan was \$61.00 per metric ton (mt)—down 33 percent compared to August 2007. The rate for shipping from the Pacific Northwest to Japan was \$33.50 per mt—down 45 percent from the same period in 2007. In addition to ease in port congestion around the world, global dry bulk fleet continues to grow. World dry bulk fleet is expected to grow by 16 percent or 1,100 ships this year—an average of 21 new ships per week (see [GTR, dated 7/22/10](#)). However, vessel demand is expected to grow by a modest 634 ships. Ocean grain vessels should be ample and ocean freight rates should continue to be moderate if the pace of the new vessel deliveries continue and port congestion around the world continue to ease.

U.S. Grain Transportation – The Weekly Grain Transportation Report



Thank you.

- **Questions?**