



United States Department of Agriculture



Agricultural Marketing Service

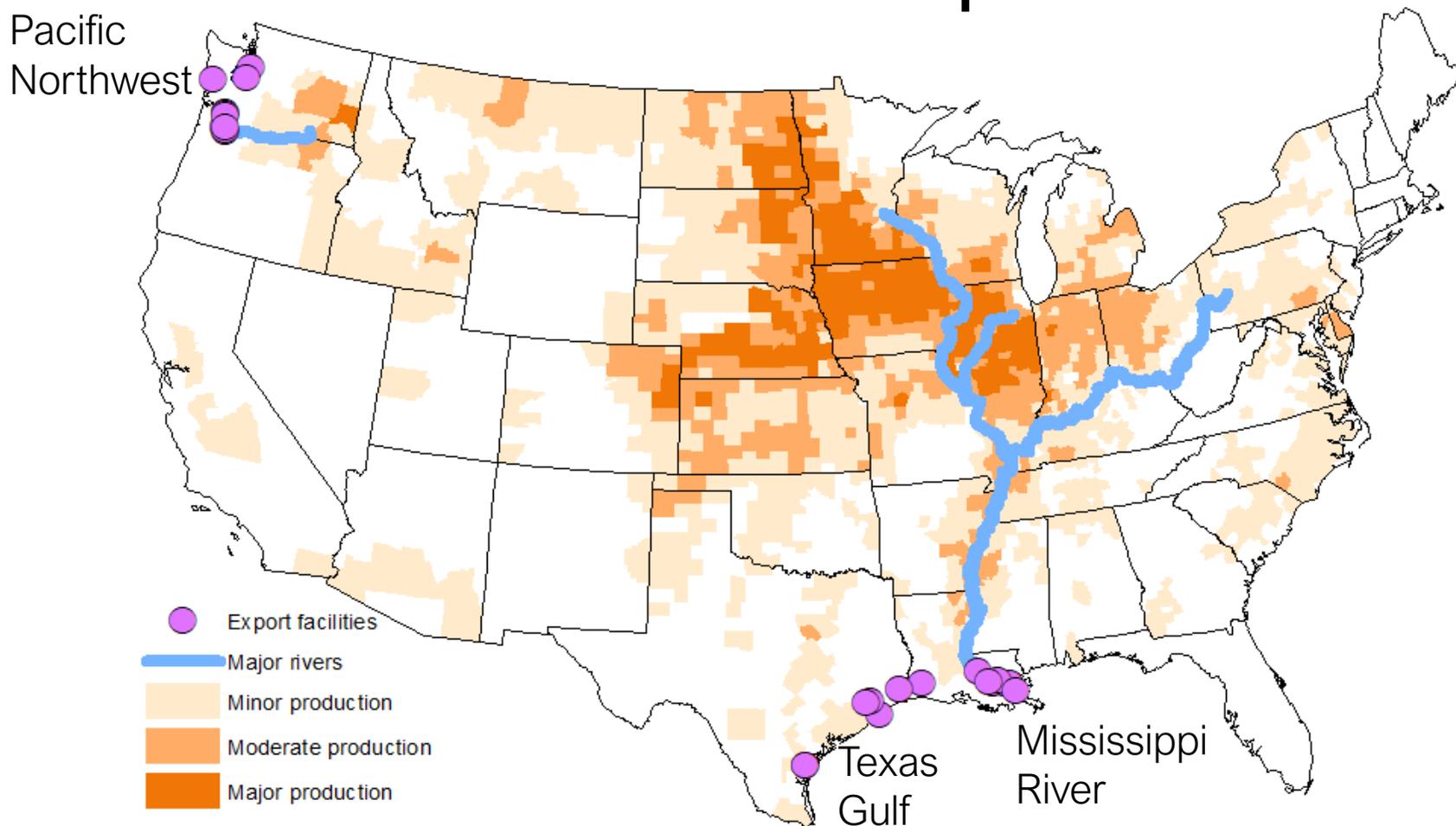
Grain Transportation by Inland Waterway

Waterways Conference, Inc. Symposium
Pittsburgh, PA
November 7, 2019

Kelly Nelson

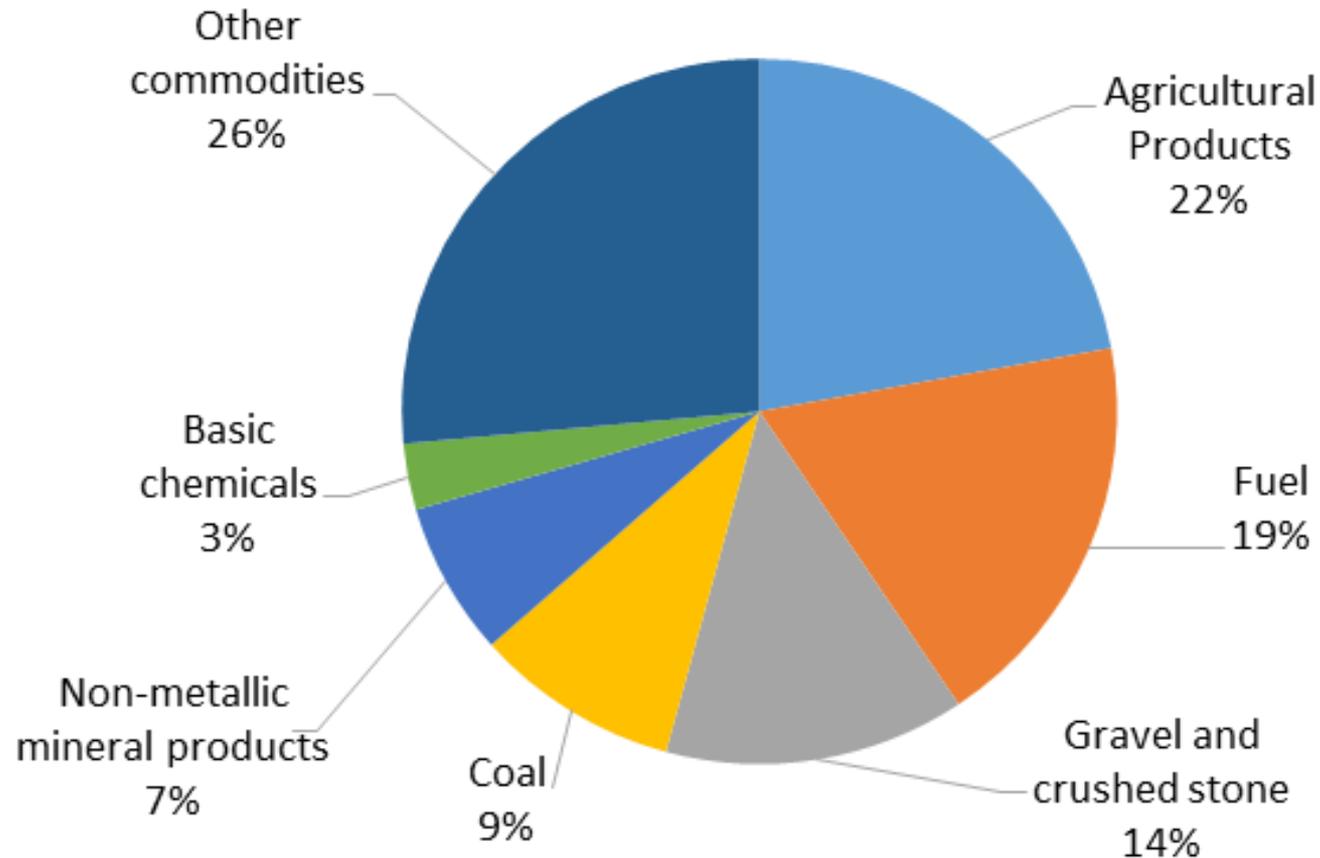
Transportation Services Division

Distance From Heartland to Ports Means a Need For Transportation



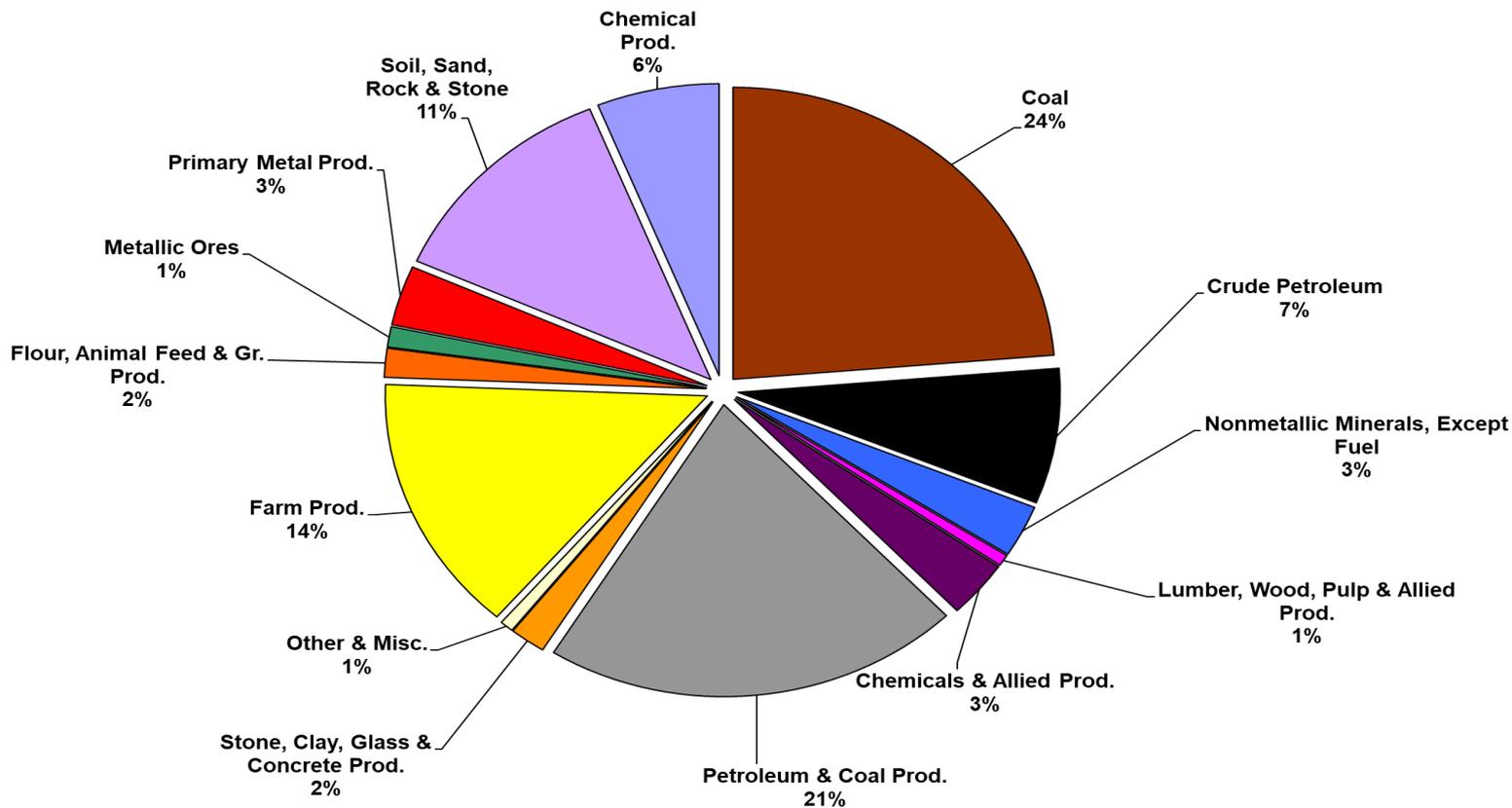
Agriculture Is Key to Transportation

Top Freight Commodities (Tonnage Basis)

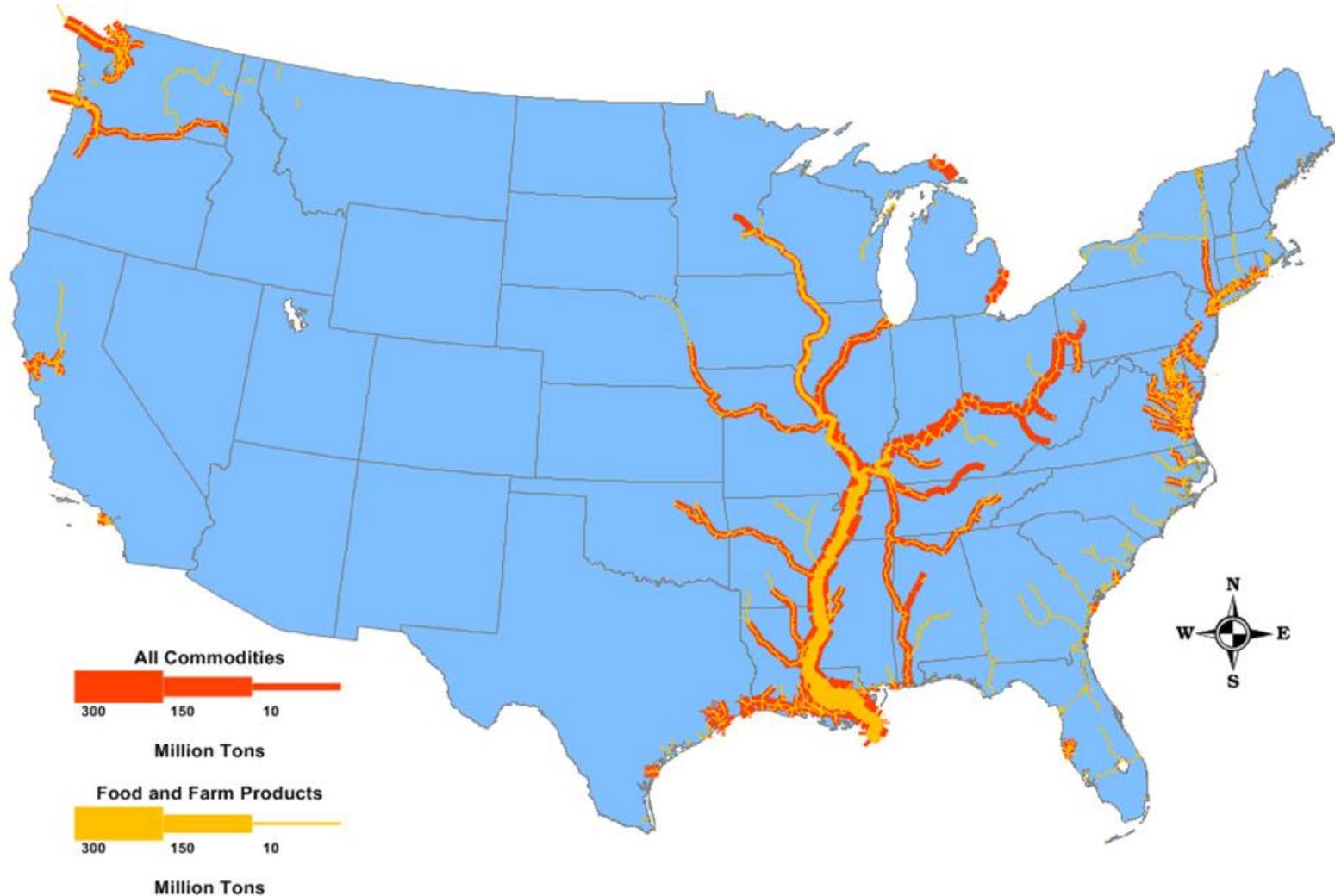


Source: AMS analysis of U.S. Department of Transportation, Bureau of Transportation Statistics and U.S. Census Bureau's *Commodity Flow Survey*. Figures show 2012 data.

Inland Waterways Commerce

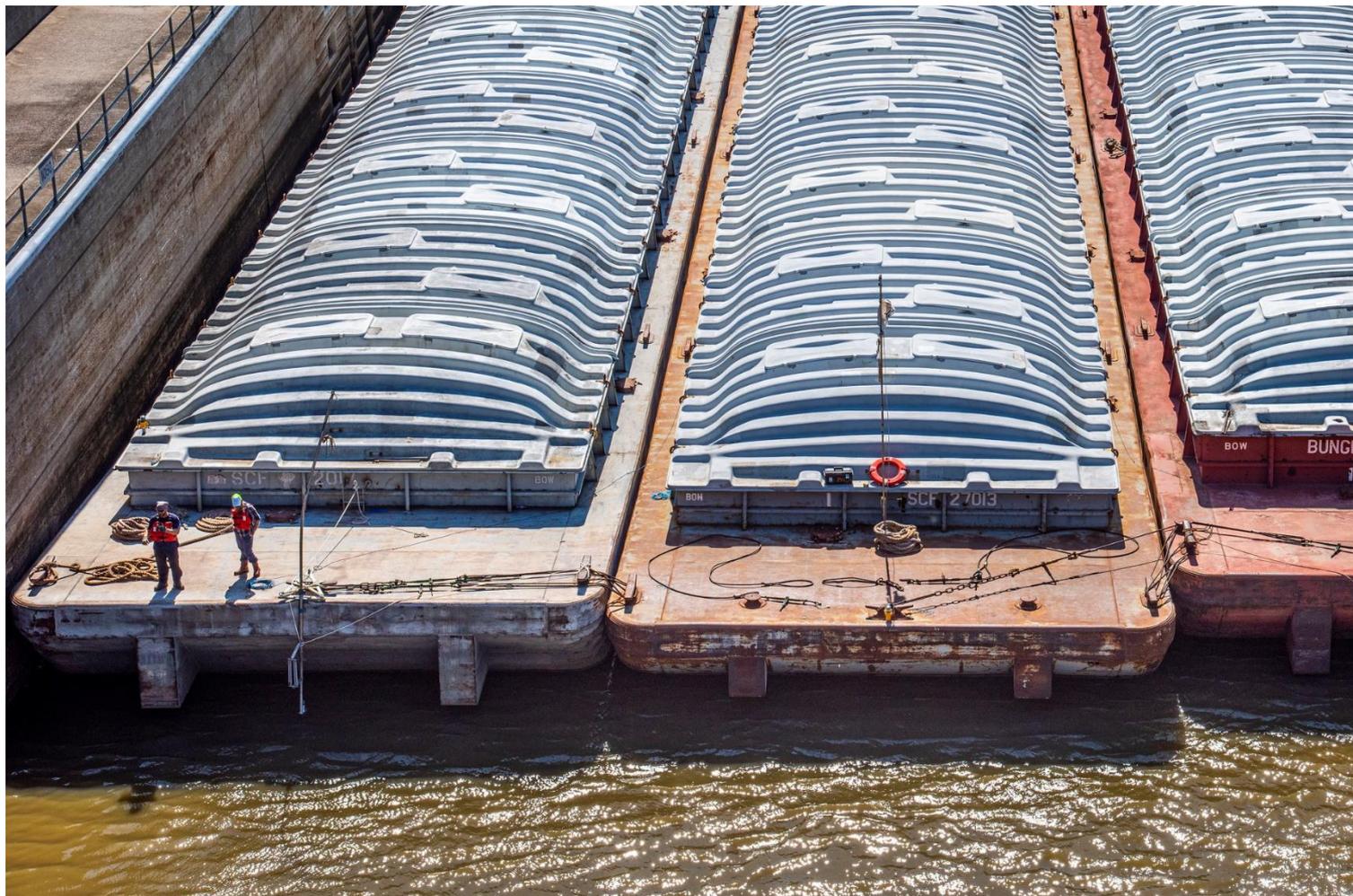


Waterway: Ag vs. Total Flows



Source: U.S. Department of Transportation. The map uses U.S. Army Corps of Engineers 2012 waterborne commerce data.

Why Use Barge?



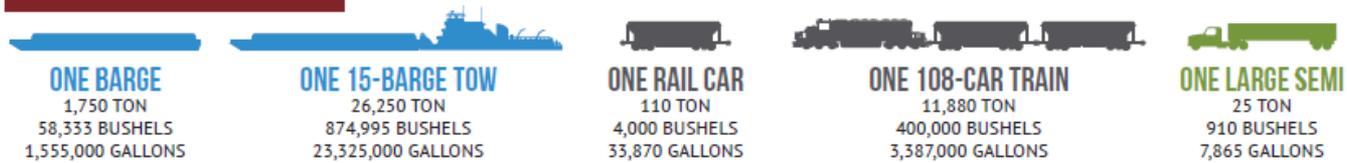
Why Use Barge?



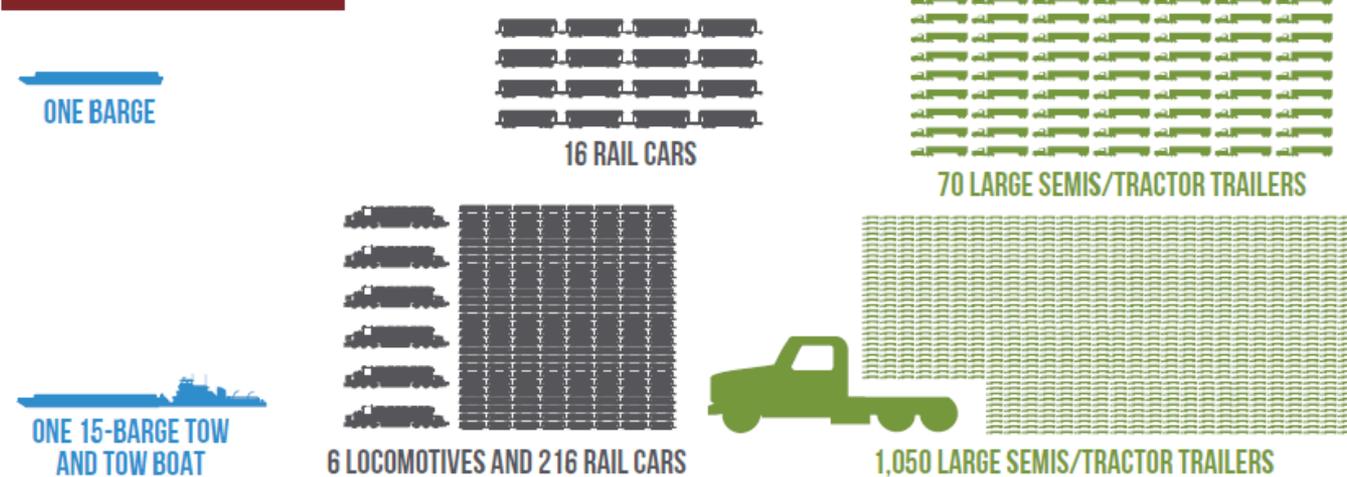
Source: Iowa Department of Transportation | 800 Lincoln Way | Ames, IA | www.iowadot.gov

COMPARE ...

CARGO CAPACITY



EQUIVALENT UNITS



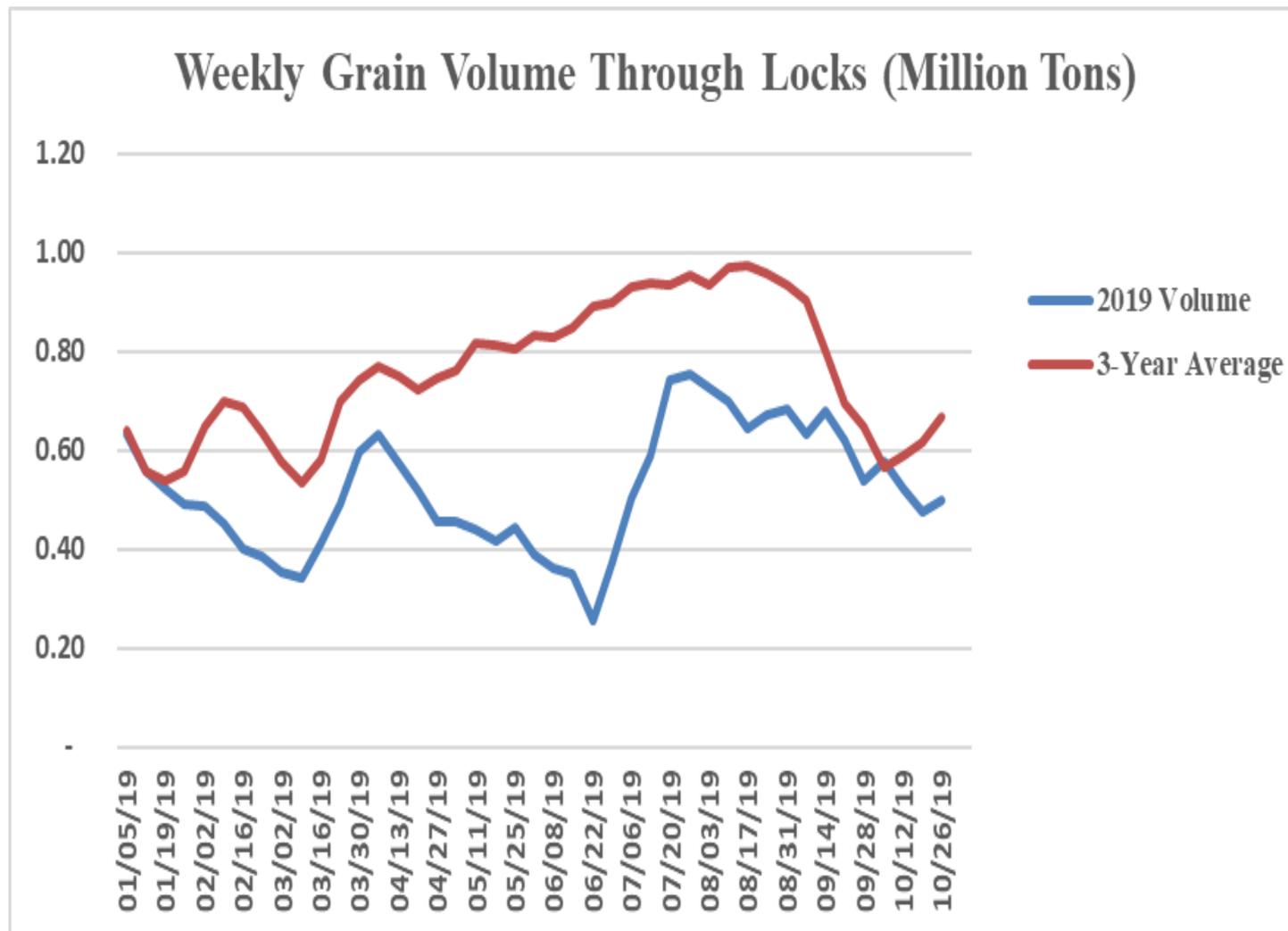
EQUIVALENT LENGTHS



Why Use Barge?

- Shippers save \$7 billion to \$9 billion annually by using barge instead of rail
- Cost savings add to basis (price received by farmers)
- Environmentally friendly: 587 ton-miles per gallon by barge compared to 406 ton-miles per gallon by rail or 132 ton-miles per gallon by truck represents significant reduction of polluting emissions

Grain Barge Traffic in 2019

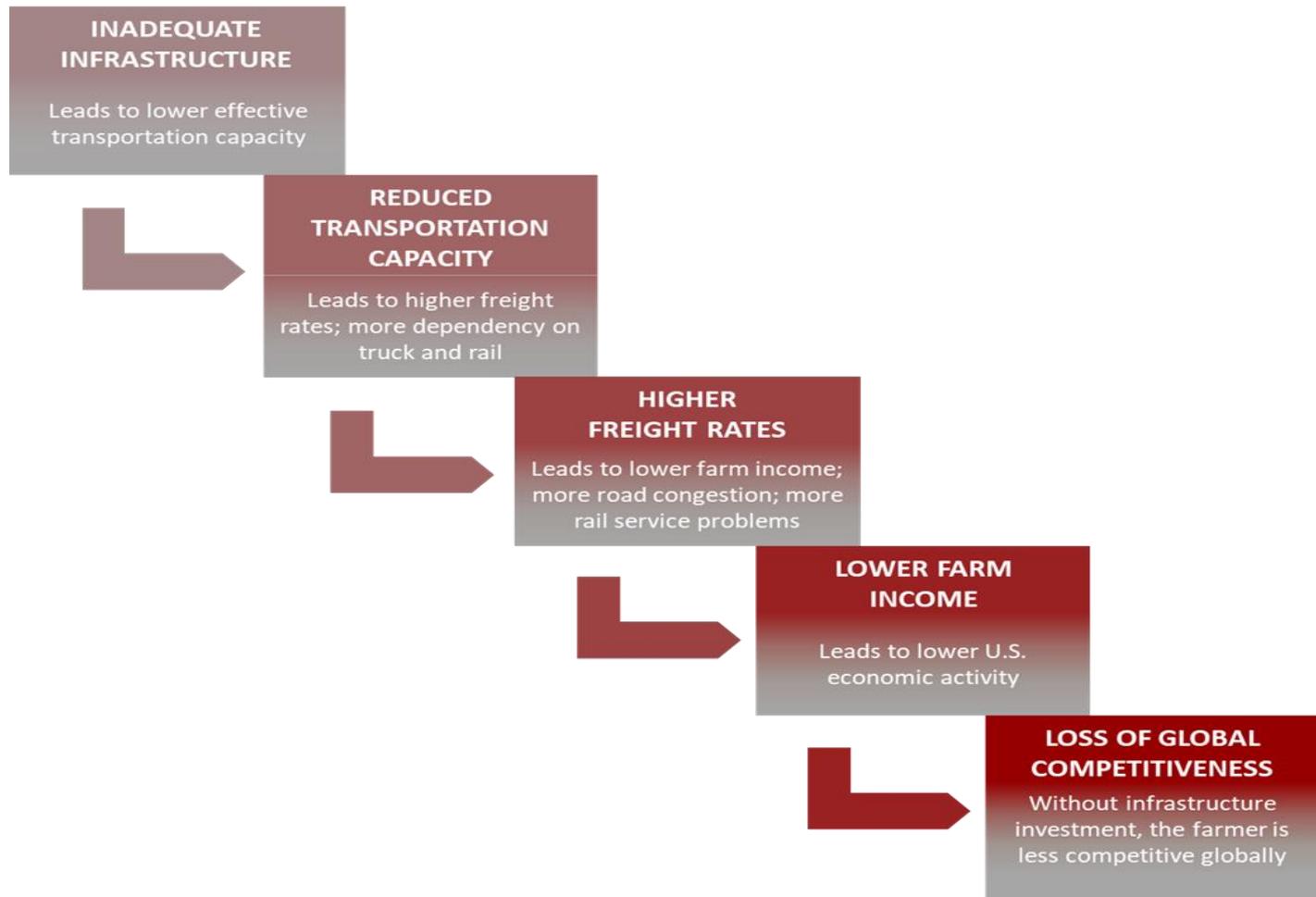


Source: US Army Corps of Engineers and USDA-AMS.

What happened in 2019?

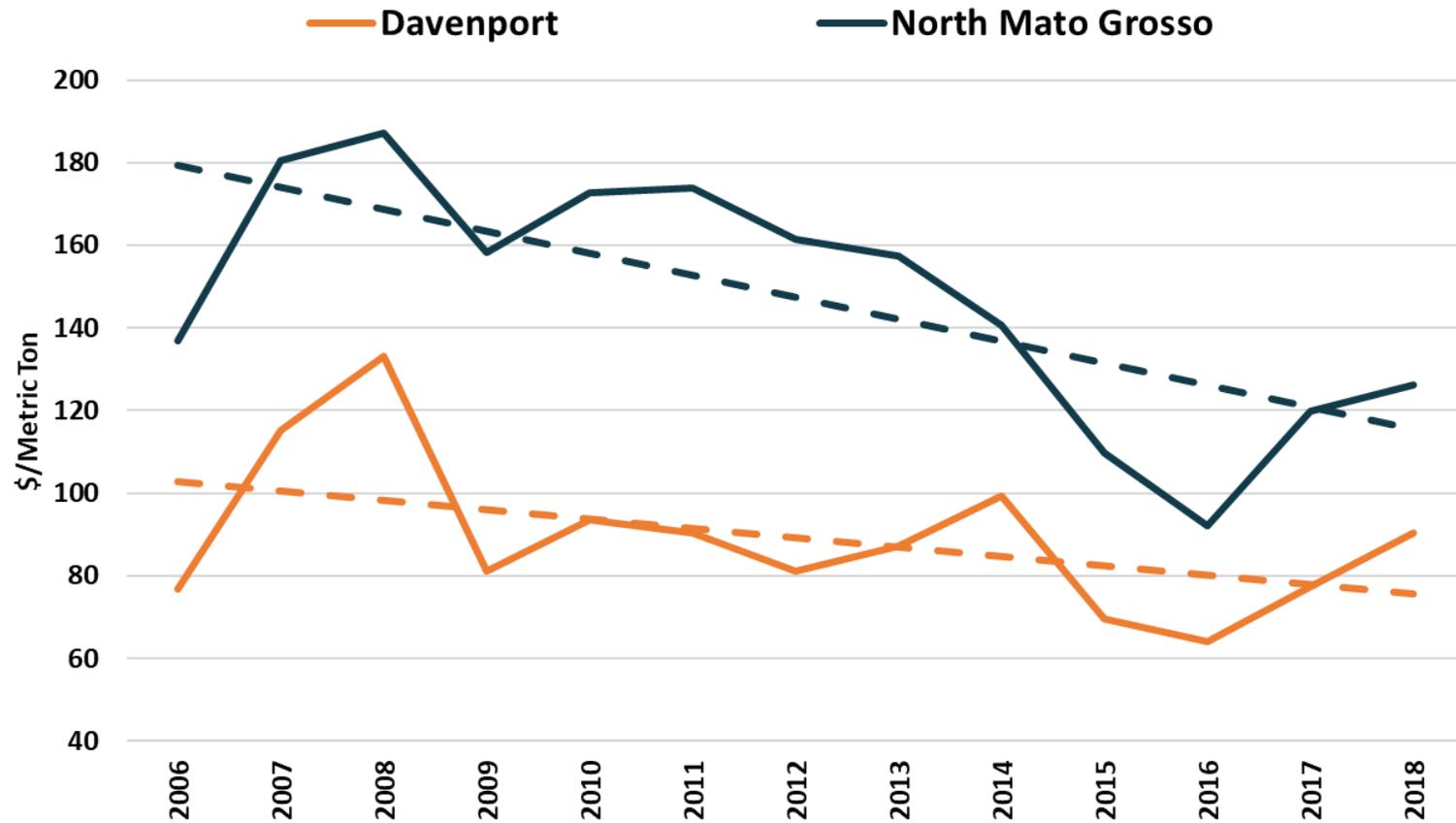
- Poor weather resulted in delayed planting...
- ...but even more damaging to waterborne commerce was the associated flooding and, later, shoaling.
- Lock maintenance and unplanned outages resulted in even more delays.
- The international trade situation lowered international demand for U.S. agricultural products.

Concerns Over Infrastructure



U.S. Competitiveness Declining

Soybean Transportation Costs to China



Source: USDA-AMS, IEG Vantage, Agribusiness Consulting.

Increase Capacity Through Investment?



Three Scenarios

- AMS Transportation Services Division partnered with IEG Vantage to evaluate three possible funding regimes
- Status Quo Investment: annual funding of \$225 million for construction and \$665 million for operations and maintenance (2016 president's budget)
- Increased Investment: About \$6 billion additional funds for multiple construction and development projects
- Decreased Investment: a 1-percent decrease per year in USACE funding

Status Quo Investment Scenario

- Work is done by combined efforts, 55 percent by USACE and 45 percent by private contractors.
- Waterways investment directly contributes to an increase of 6,000 jobs and \$732 million in GDP by 2029.
- By 2045, this becomes 7,400 jobs and \$1 billion in GDP.

Decreased Investment

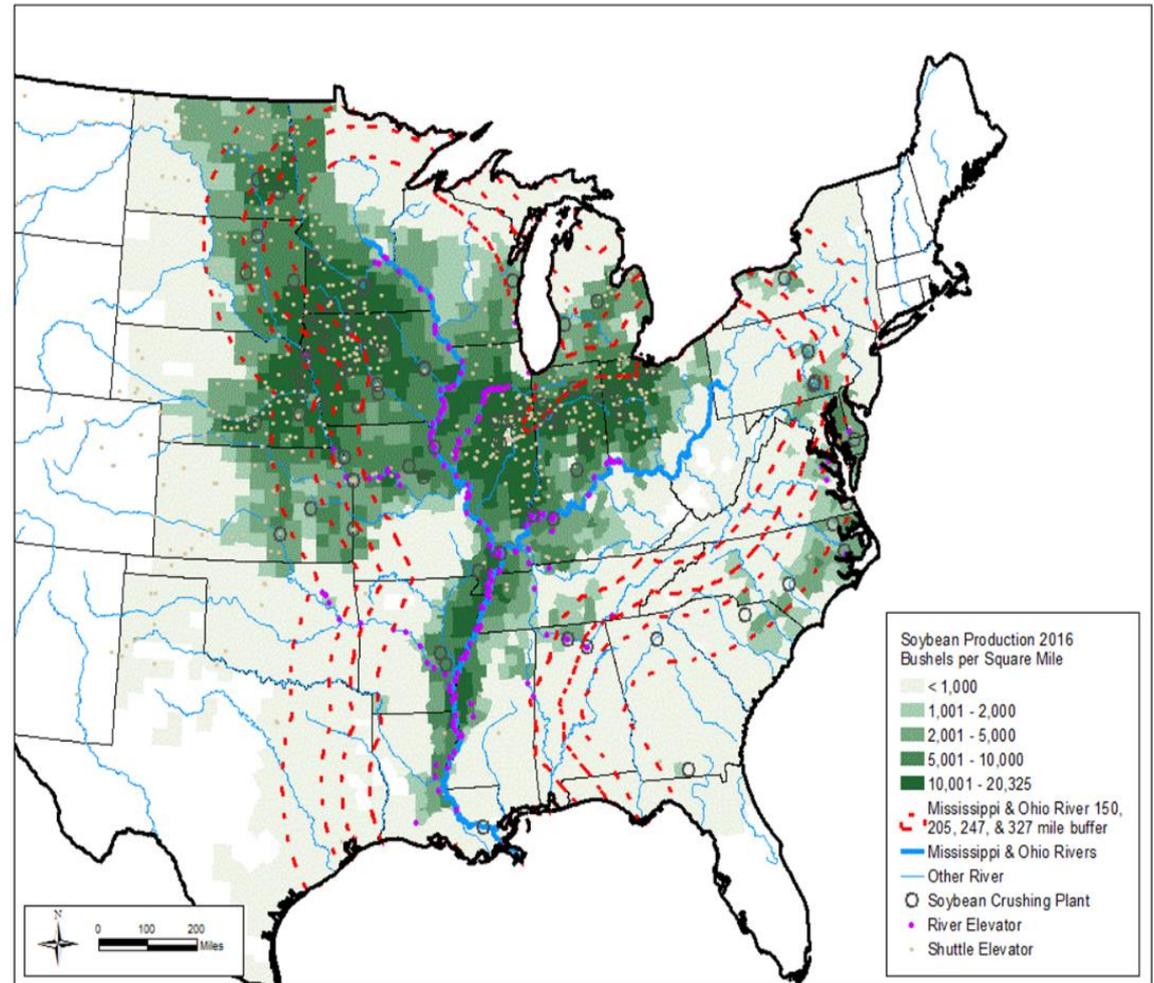
- Funding goes exclusively to maintenance and not new construction.
- Work is done nearly exclusively by USACE, with only 20 percent done by contractors.
- Investment results in an increase of 3,300 jobs and \$493 million in GDP by 2029.
- By 2045, this becomes 2,600 additional jobs and a \$421 million increase in GDP.

Increased Investment

- Major initiatives: increasing lock size, deepening lower Mississippi to 50 feet, improving lock reliability
- Increased lock size reduces lockage time by one half.
- Deeper drafts would allow more reliability and increase maximum ship loads from 66,000 metric tons to 78,000.
- More reliable locks would reduce unexpected delays.

Increased Investment

- Deeper port areas would increase basis by 13 cents per bushel at 205 miles away.
- The river draw expands to 247 miles from the river.



Increased Investment

- More funding is directed toward new construction projects while maintenance work continues.
- About 70 percent of projects are done through contracts with the private sector.
- By 2029, investment directly creates 10,500 jobs and \$1.1 billion in GDP.
- In 2045, investment results in 7,900 additional jobs and \$900 million greater GDP.

Increased Investment

Direct contributions are large, but what about total contribution? By 2045...

- The investment results in a total contribution of 20,000 additional jobs and \$2.3 billion in GDP.
- Overall, the economic impact of the waterways is 452,300 jobs and \$62.3 billion in GDP.
- Cumulative GDP impact of increased vs. status quo: \$258 billion vs \$185 billion.



Thank You

Contact Information

Kelly Nelson

Economist

202.690.0992

Kelly.Nelson@usda.gov

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

Website: <https://www.ams.usda.gov/services/transportation-analysis>