The Importance of Transportation to Agriculture

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Analysis and market reports:
- U.S. grain
- Brazil & Mexico grain analysis
- Modal share analysis
- Commodity and port profiles
- Rail studies
- Study of Rural Transportation Issues

STB filings
Cooperative research agreements
Data

www.ams.usda.gov/services/transportation-analysis
Agriculture is Largest Sector User of Freight

Commodity Shipment, 2012
Percentage measured by tons

- Other Commodities: 69%
- Agricultural Products: 22%
- Coal: 9%
What Agriculture Moves

Agricultural Products Shipment:
Percentage measured by tons

- Prepared Foodstuff, Fats and Oils: 21%
- Cereal Grains (includes seed): 19%
- Logs and Wood Products: 13%
- Animal Feed and Products: 10%
- Other Agricultural Products: 9%
- Fertilizers: 8%
- Pulp, Paper: 5%
- Milled Grain and Bakery Products: 5%
- Others: 11%
Agricultural Freight, Ton-Miles

Commodity Shipment, 2012
Percentage measured by ton-miles

- Coal: 22%
- Other Commodities: 46%
- Agricultural Products: 32%

Agricultural Products Shipment:
Percentage measured by ton-miles

- Prepared Foodstuff, Fats and Oils: 22%
- Cereal Grains (includes Feed): 20%
- Other Agricultural Products: 11%
- Pulp, Paper: 9%
- Fertilizers: 7%
- Animal Feed and Products: 7%
- Milled Grain and Bakery Products: 6%
- Others: 12%
Corn production, ethanol plants, export ports, grain consuming animal units, and the transportation system, 2013

2016 GRAIN EXPORTS

Source: USDA-GIPSA-FGIS

Mississippi River - 49%
Texas Gulf - 10%
PNW - 27%
Interior - 10%
Other - 4%

2016 CORN EXPORTS

Mississippi River - 59%
Texas Gulf - 3%
PNW - 22%
Interior - 14%
Other - 2%

2016 SOYBEANS EXPORTS

Mississippi River - 59%
Texas Gulf - 2%
PNW - 24%
Interior - 8%
Other - 7%

2016 WHEAT EXPORTS

Mississippi River - 50%
Texas Gulf - 24%
PNW - 14%
Interior - 6%
Other - 6%
## Modal Share

(in percent, 2009-13 average)

<table>
<thead>
<tr>
<th>Mode</th>
<th>Exports</th>
<th>Domestic</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rail</td>
<td>45</td>
<td>23</td>
<td>29</td>
</tr>
<tr>
<td>Barge</td>
<td>45</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>Truck</td>
<td>10</td>
<td>76</td>
<td>58</td>
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</tbody>
</table>

Source: *Transportation of U.S. Grains: A Modal Share Analysis, June 2015, Transportation & Marketing Programs/AMS/USDA*
Truck Flows: Agriculture vs. Total Freight

Source: U.S. DOT, Bureau of Transportation Statistics and Federal Highway Administration, FAF version 4.2.
Barge Flows: Agriculture vs. Total Freight

Source: U.S. Department of Transportation. The map uses U.S. Army Corps of Engineers 2012 waterborne commerce data.
Rail Flows: Agriculture vs. Total Freight

Source: U.S. Department of Transportation. The map uses data from the 2013 Carload Waybill Sample.
Trucking & Agriculture

- Trucks carry about 75% of the tonnage of agricultural, food, forest, alcohols, and fertilizer products.
- The flexibility trucking offers is important to agriculture (planting and harvest seasons).
- Shipment distances have increased with consolidation of railroads, farms, and facilities.
- FAST Act:
  - Provides $6.3 billion over 5 years for States to invest in freight projects on the national highway freight network.
  - Establishes National Highway Freight Program.
Grain Truck Rates
($/mile per truckload)

3rd Quarter 2016 % Change from:

<table>
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<tr>
<th>Distance</th>
<th>25 mi</th>
<th>100 mi</th>
<th>200 mi</th>
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<tbody>
<tr>
<td>Last Quarter</td>
<td>-2.4</td>
<td>-2.1</td>
<td>11.6</td>
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<tr>
<td>Last Year</td>
<td>-7.1</td>
<td>29.4</td>
<td>20.2</td>
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</tbody>
</table>

Source: GTOR (AMS)
Petroleum and related products, 29%
Coal, 22%
Crude, 18%
Chemicals, 9%
Manufactured Goods, 5%
Equipment, 1%
Food & Farm, 16%

Source: U.S. Army Corps of Engineers
Lock Closures Study

- Examined separately the potential impact of 2 lock closures (Miss L&D 25 and La Grange Lock)

- Lock closures would:
  - Reduce economic activity, jobs, and labor income
  - Depress corn and soybean prices in adjacent States
  - Shift exports from the Gulf to PNW
  - Increase rail rates
Quarterly spot barge rates from St. Louis, MO, to New Orleans, LA. 1994-2015

Source: USDA-AMS-TMP-TSD
Importance of Rail for U.S. Agriculture

• Railroads move about 29% of all U.S. grain and 45% of export grain movements

• Ag shippers are concerned with many issues, such as:
  o Service
  o High rates
  o Switching limitations/restricted interchange
  o Effectiveness of the rate challenge process

• Record investments by rail - $28 billion in 2014 and $30 billion in 2015
Rail Commodity Shares

2013

- Containers: 40.90%
- Coal: 17.54%
- Chemicals: 6.16%
- Trailers: 4.40%
- Grain: 4.14%
- Motor Vehicles & Equipment: 3.70%
- Crushed Stone, Sand & Gravel: 3.39%
- Petroleum Products: 3.02%
- Other: 16.75%

2016

- Containers: 45.69%
- Coal: 12.83%
- Chemicals: 6.41%
- Trailers: 3.53%
- Grain: 4.84%
- Motor Vehicles & Equipment: 4.10%
- Crushed Stone, Sand & Gravel: 3.69%
- Petroleum Products: 2.68%
- Other: 16.22%

Source: AAR Weekly Carloading Report
Trends in real rail rates and input costs, 1989-2013

Ocean Shipping

• About 75% of U.S. ag exports are shipped by ocean (28% in containers)

• The Gulf and Pacific Northwest are major ports for U.S. grains

• About 7% of U.S. grain exports are in containers

• Container Ships - Increasing ship size, carrier alliances and consolidation

• Container and bulk vessel market characterized by low rates and over-capacity
Ocean Shipping Issues

• Federal Maritime Commission report (July 2015):
  o Port congestion increasing with larger vessels
  o Investment needed for ports
  o Chassis management needs improvement
  o Driver turn times need improvement; independent contractor or employee classification in dispute
• DOT annual port performance freight statistics report on top 25 ports.
• Upcoming labor negotiations on all coasts 2016-2019
Ocean freight rates for bulk grain from U.S. to Japan

Source: Baltic Exchange, Inc. / Drewry Shipping Consultants Ltd
<www.drewry.co.uk>/O'Neil Commodity Consulting
Container freight rates for U.S. West Coast (LA) to Shanghai, China

Source: Drewry Maritime Research
Wrap-Up / Conclusions

• TSD is a resource on ag transportation (data and research)

• Freight transportation is important to U.S. agriculture’s competitiveness

• Agriculture is a major user of the U.S. transportation system, relying on multiple modes

• Agricultural freight in U.S. is increasing

• Agriculture needs workable solutions (e.g., reasonable rates, access, reduced port congestion and ship size issues)
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