The following trends are driving global trade expansion:

1. Growing population
2. Rapid urbanisation resulting in higher per capita consumption
3. Increasing food consumption per capita with rising incomes
4. Dietary shift to protein and fat rich diets
5. Growing use of biofuel

Growing Grain Demand
Global soybean imports are dominated by China

Source: FAPRI
Asia is the growth leader in corn as well

Corn Imports

Source: FAPRI
MENA and Asia drive growth in wheat imports

Wheat Imports

Source: FAPRI
Southern Hemisphere captures soybean/soy product growth

Argentina Exports

+ 18 mmt

2011/12
2021/22

Corn
Wheat
Soybeans
Soymeal

Brazil Exports

+ 12 mmt

2011/12
2021/22

Corn
Wheat
Soybeans
Soymeal

Source: FAPRI
Black Sea captures global wheat growth

Black Sea Exports
+ 7 mmt

Source: FAPRI
US captures primarily corn but seizes soybean/soy product growth as well

United States Exports

+ 24 mmt

Source: FAPRI
In summary…global trade increases 60 mmt from 2011/12 to 2021/22

Destination Import
- China: 61%
- MENA: 17%
- Others: 22%

Origin Export
- United States: 38%
- Brazil: 30%
- Argentina: 20%

Commodity Increases
- Soy: 41%
- Corn: 32%
- Wheat: 27%

Source: FAPRI
US system is unique, with natural waterway resources

- 40,000 km of navigable rivers
- Mississippi River and tributaries funnel in excess of 65 mmt of grain exports
- New Orleans is the largest single global grain port
- Columbia River provides a low cost alternative in the PNW

Source: AOPOA
And an expansive rail system

- US railroads have over 300,000 km of track
- Serve all major grain points with primary supply to PNW and Texas Gulf
- Best in the world for productivity and efficiency
But the end of the useful life is near...more infrastructure investment is needed

- Inland waterways need $50 billion in investments between 2010 and 2015
  - Average life of lock is 50 years. Currently 54% are 50+; 36% are 70+
  - Annual funding below cost of maintenance
    - U.S. Army Corps of Engineers estimates $13 billion needed to maintain current level of service. Funding level expected to be $7 billion

- Average size of vessel increased by 9% in the last five years
  - Federal funding for navigation channel upgrades half of what is collected through Harbor Maintenance Trust fund
    - 2011 revenue: $1.5 billion.
    - 2012 budget allocated: $759 million

Source: American Society of Civil Engineers
Private investment in terminal expansions has begun
Brazil has a shortage in infrastructure...both rail and waterway

Current Major Corridors
1. ALL/Rondonópolis – Santos TGG
2. ALL – Paranguá – SFS
3. ALL – Rio Grande
4. Vale South – Vitória
5. Vale North – Sao Luís
6. Porto Velho – Itacoatiara Waterway
7. Transnordestina
8. Tietê-Paraná Waterway
It too is in need of investment!
But government is getting more deeply involved

Law & Regulation Timeline

1993
- Act 8.630 Ports Law

1995
- President Cardoso decides to privatize Brazil’s railroads

1997
- Railroads Concession Contracts with Private Companies

2008
- Act 6.620 – Ports and Terminals Rules

2011
- President Dilma creates EPL – Government Logistics Planning Company
- Railroads Regulation for Users, Trackage Rights, Safety and Production Goals

2012
- Act 12.619 - Regulation for Truck Drivers Profession
- Government announces Logistics Investments Plan

2013
- Act 12.815 – Ports Law

Railroads
- In 2011, this act aimed to regulate trackage rights, users rights and safety and operation performance indexes
- Also established rules for investments by users or other 3rd parties
- In 2012, an investment program was launched for construction of new railroads in a PPP model, with BNDES funding
- These new railroads will have their capacities negotiated to users or logistics operators

Trucks
- In 2012, new truck drivers labor rules impacted on freight prices increases

Ports
- Terminals under Public lease contracts are limited to a maximum of 25 years term, renewable once for same period
- Bid offers will be selected by cheapest tariff or lowest handling time
- Private terminals can handle owned or 3rd party products
- Ports Authority Council has a consultant role
Brazil export corridors and government investments plan – Long term Projects

Group 1 – Contract expected by July, 2013.

Group 2 – Contract expected by Sept., 2013.

PPP Ferrovias

1. Ferroanel – North
2. Ferroanel – South
3. Porto de Santos Access
4. Lucas do Rio Verde – Uruaçu
5. Uruaçu – Corinto Campos
6. Rio de Janeiro – Campos - Açú- Vitória
7. Belo Horizonte – Salvador
8. Salvador – Recife
9. Estrela d’Oeste – Panorama – Maracaju
10. Maracaju – Mafra
12. Açailândia – Vila do Conde
As we know, comparisons are interesting...

<table>
<thead>
<tr>
<th>Country</th>
<th>Railroad Extension (1000Km)</th>
<th>Country Area (1000km²)</th>
<th>Rail Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>300</td>
<td>9400</td>
<td>32.0</td>
</tr>
<tr>
<td>Brazil</td>
<td>30</td>
<td>8500</td>
<td>3.5</td>
</tr>
<tr>
<td>Argentina</td>
<td>36</td>
<td>2766</td>
<td>12.9</td>
</tr>
</tbody>
</table>

Source: GEIPOT/Anuário Estatístico dos Transportes-2000
Cost differences can significant...

- Rio Verde to Santos
- 3210 km
- 6-7 day transit
- 2.25 Reals per USD
- Min price - $66
- Max Price - $74
- Flow interruptions can cost another $20-25/mt
Central North Dakota to Portland, OR
- Via Rail
- 4-5 day transit
- 2411 km
- Min price -$51
- Max Price - $56

Minneapolis to New Orleans
- Via Barge
- 25-30 day transit
- 2600 km
- Min price -$22
- Max Price - $37
Argentina, probably the most efficient grain flow system. Politics… well, maybe less efficient!

- Parana River system allows deep draft vessels “Like bringing a vessel to the heart of Iowa.”
- Leaders in scale and efficiency
- Ports primarily served by short haul trucks

<table>
<thead>
<tr>
<th>TRANSPORT</th>
<th>Share</th>
<th>Avg. Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRUCK</td>
<td>84,0%</td>
<td>260 KM</td>
</tr>
<tr>
<td>RAILROAD</td>
<td>14,5%</td>
<td>430 KM</td>
</tr>
<tr>
<td>BARGE</td>
<td>1,5%</td>
<td>500 KM</td>
</tr>
</tbody>
</table>
Russia/Eastern Europe depends on the Black Sea
Black Sea ports are a natural service point to bridge the Black Sea crop growing region to the MENA markets.

- Geographic advantaged to MENA markets
- Natural fit
  - Wheat flow
  - Handy size vessels a common for both the origin and destination ports
- Challenging political environment
- But...investments being made
Observations

- Demand growth requires significant investment,
  - Terminals
  - Roads/Bridges
  - Rail
  - Waterway /Locks/Dams

- US system and approach creates a near term advantage but constrained governmental infrastructure budgets can change that quickly.

- Others origins are adapting to find ways for public/private infrastructure investments.