Midwest Agriculture's Ties to the Global Economy Session III: Agricultural Trade's Exposure to Deteriorating Infrastructure

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Illinois Soybean Association
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Transportation, Trade, Supply Chain and Logistics

- Soybean industry: A case study in addressing deteriorating infrastructure issues
- Soybean Trade Transportation Modes
 - Inland
 - > Trucks and Roads
 - Rail and Railways
 - ➤ Barge and Waterways
 - International
 - Bulk
 - Container
- Identifying Challenges Responsive Solutions









Transportation Initiative

Ensure soybeans and soy products reach intended destinations efficiently.





http://tradecorridors.org/images/memberupdates/2931-010-17%20cagtc%20whitepaper_6-28-17a.pdf

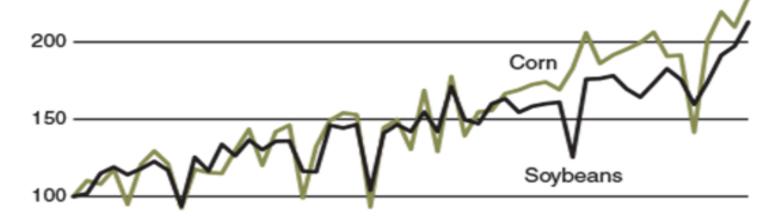






Steadily Increasing Production Yields

1. Corn and soybean yield indexes for Seventh District states



Source: Author's calculations based on data from the U.S. Department of Agriculture, National Agricultural Statistics Service.

https://www.chicagofed.org/publications/agletter/2015-2019/november-2016



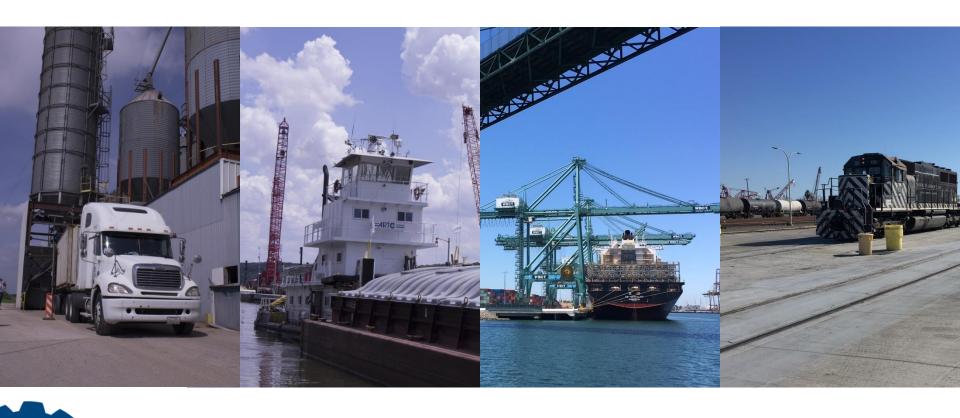




Soybeans Added \$6.1 Billion to Illinois Economy



Multiple Modes of Transport















Where Does The Money Come From









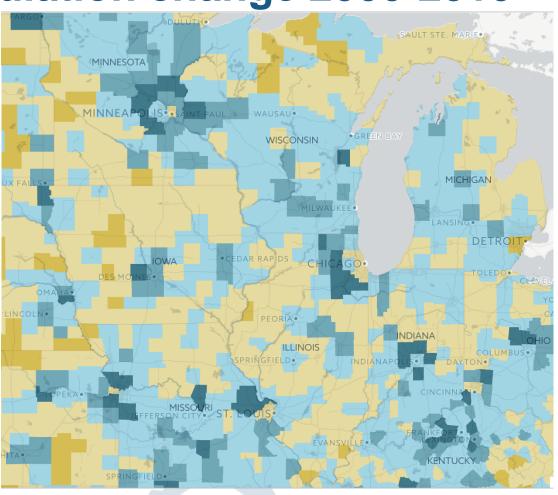




County Population change 2000-2010

Change in population since 2000

- Over 20% increase
- 10% to 20%
- 0% to 10%
- 0% to -10%
- -10% to -20%
- Over 20% decline









Michigan Bridge Inventor

	Type of Bridge ³	Number of Bridges	Area of All Bridges (sq. meters)	Daily Crossings or All Bri	18	11,608 21,714	554,7
	Rural Interstate	391	25		27	66,385	l l
	Rural arterial	627	7,167,427		44		
	Rural minor arterial	358,853	5,492	563		13,074	
	Rural			r04	299	54,380	,,758
	391	381,456	3,	128,504	12	2"	44,819
Rural Interstate	627	289,31	43	4,403,881	7	,-00	155,133
Rural Inco				1,099,318	517	216,707	2,540,862
Rural arteria	θορ		3,789	7'044'2		22,920	465,312
Rural minor art	erial 2076		129,464	1,539,340	54	75,180	1,001,938
Rural mine	uector .		530,887		85	48,485	1,012,870
rojor (50110	238	530,00	3,468,654	39	17,825	182,359
Vie .	JOK CO.	3,142	313,959	2,966,048	58	21,974	248,492
Ruralmi	Rural local road	1,086	6,299,975	92,496,816	1,299	581,287	7,053,254
A Company of the Comp		CERVE BA				and the second second second second second	



11,035



436,152

IOWA

Type of Work	Number of Bridges	Cost to Repair (in millions)	Daily Crossings	Area of Bridges (sq. meters)	
Bridge replacement	7,744	\$1.3	1,499,380	1,246,554	
Widening & rehabilitation	111	\$1.0	135,984	34,490	
Rehabilitation	1,323	\$0.2	740,106	351,103	
Deck rehabilitation/replacement	59	\$1.0	65,275	29,925	
Other structural work	5,636	\$4.5	2,453,748	1,404,446	

INDIANA

Type of Work	Number of Bridges	Cost to Repair (in millions)	Daily Crossings	Area of Bridges (sq. meters)	
Bridge replacement	1,552	\$1,712.8	1,837,227	213,135	
Widening & rehabilitation	68	\$63.1	764,749	38,485	
Rehabilitation	1,533	\$2,546.1	8,769,639	883,210	
Deck rehabilitation/replacement	146	\$423.4	1,110,287	114,208	
Other structural work	723	\$94.3	3,237,230	270,955	

WISCONSIN

Type of Work	Number of Bridges	Cost to Repair (in millions)	Daily Crossings	Area of Bridges (sq. meters)	
Bridge replacement	2,016	\$1,523.7	11,857,568	988,920	
Widening & rehabilitation	0	\$0	0	0	
Rehabilitation	1	\$0.1	214	202	
Deck rehabilitation/replacement	15	\$0.3	13,830	2,983	
Other structural work	6	\$0.1	1,382	628	

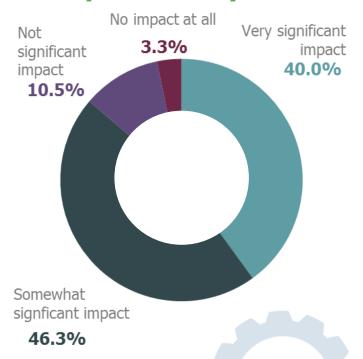






Over 86% of producers believe Illinois' infrastructure has a significant impact on their profitability

How significant an impact do you believe Illinois' overall infrastructure (highways, railways, waterways) has on your operation's overall profitability?

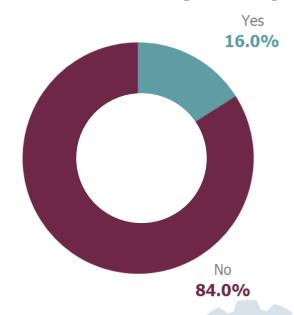






Few producers have taken action to address transportation challenges they face

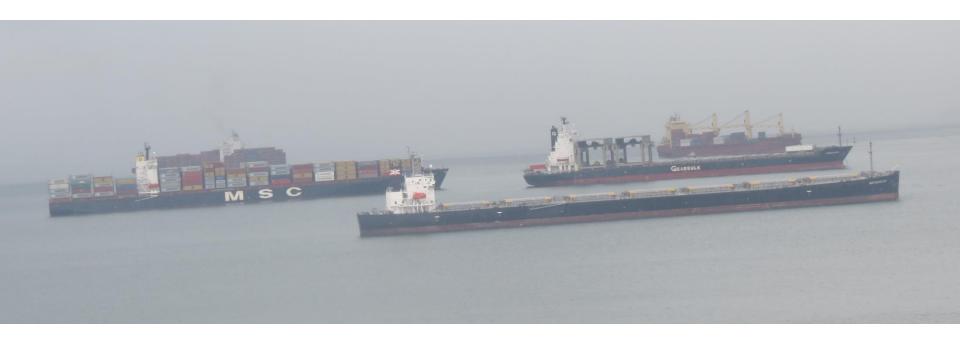
Have you approached any entity (government, local public planning authorities, trade associations, agriculture organizations, elevators etc.) to express your challenges?







Illinois Soybean Exports Critical



~\$3 Billion in 2016





Transportation and Logistics in the Supply Chain



Deteriorating transportation infrastructure harms soybean and agribusiness competitiveness.





Transportation Volumes Seen Growing

TABLE 1. WEIGHT OF FREIGHT BY MODE

(million tons)

Mode	2015	2045	Change
Truck	11,513	16,529	+ 44%
Pipeline	3,303	4,554	+ 38%
Rail	1,694	2,094	+ 24%
Water	835	1,156	+ 38%
Multiple Modes and Mail	398	646	+ 62%
No Domestic Mode*	273	297	+ 9%
Air	7	24	+ 234%
Total	18,056	25,331	+ 40%

Source: U.S. Department of Transportation, Bureau of Transportation Statistics and Federal Highway Administration, Freight Analysis Framework, version 4.1, 2016.

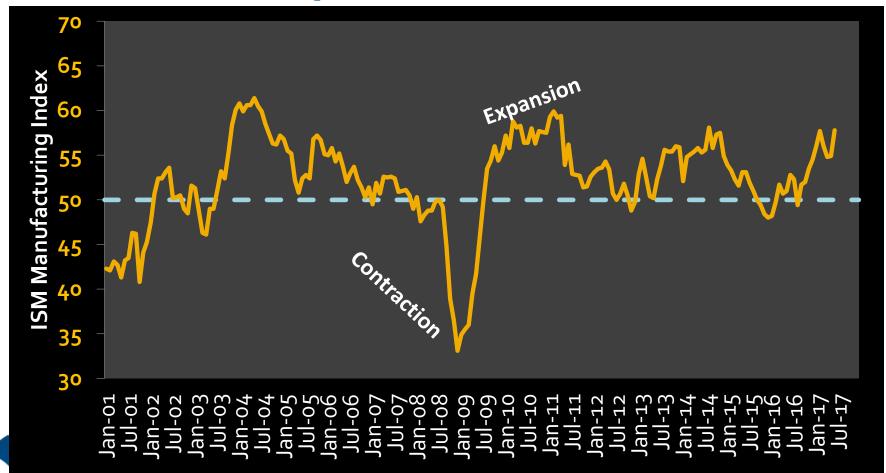








Economic Growth Impacts Transportation Demand



Source: Institute for Supply Management (ISM) Report on Business



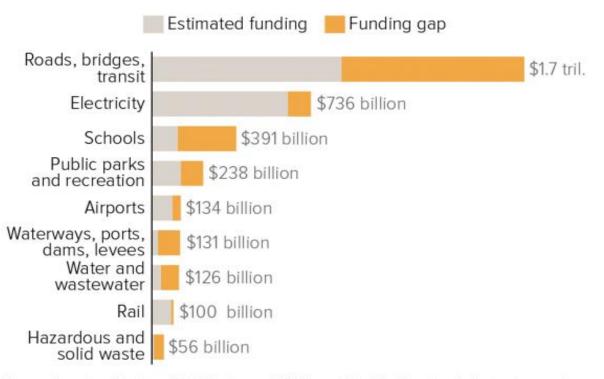




Nationally Infrastructure Spending Is Not Keeping Pace with Population and Economic Growth

Public Infrastructure Has Been Neglected

Infrastructure needs, funded and unfunded, 2013-2020



Source: American Society of Civil Engineers 2013 Report Card for American Infrastructure and Failure to Act series, published 2011-2013

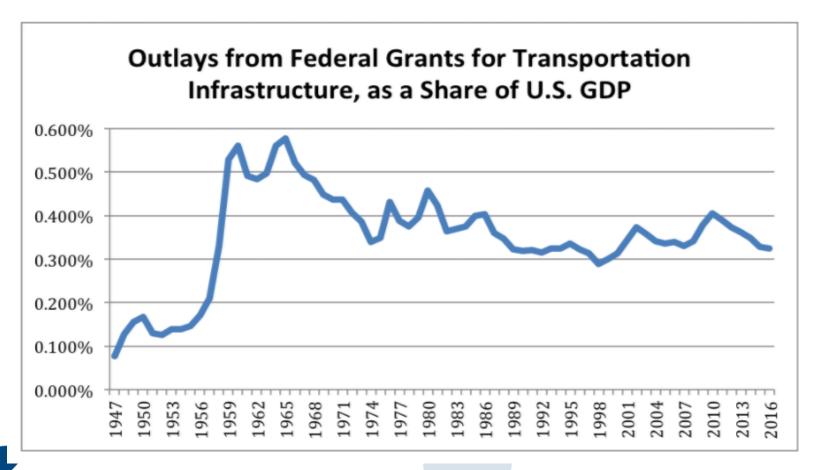








Decline in Federal Transportation Spending as a Share of GDP



Eno Transportation Institute



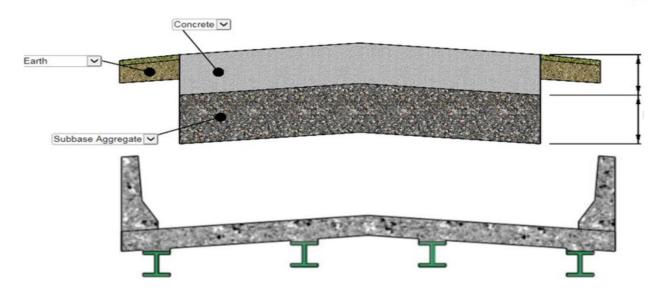




A Tool for State and County Engineers

Calculate Life Cycle Costs

Input data using a Cross Section Builder for Roadways or Bridges



Use up to date cost data from current contractor bids from all over the State of Illinois

Assumed Prices & Contingency \$/sq yd of Concrete Pavement

68.26

\$/Ton of Aggregate

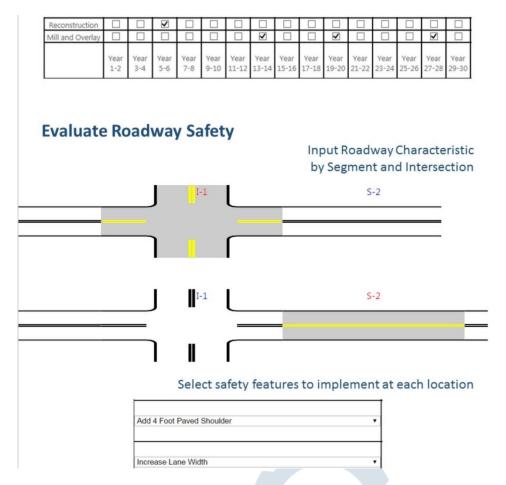
34.63







Comparing Apples and Oranges - Life Cycle Costs using Benefit Cost Ratios







Let's look at the Waterway Mode: Benefits of Inland Waterway Transportation



>\$9.2 billion in annual transportation transaction cost savings



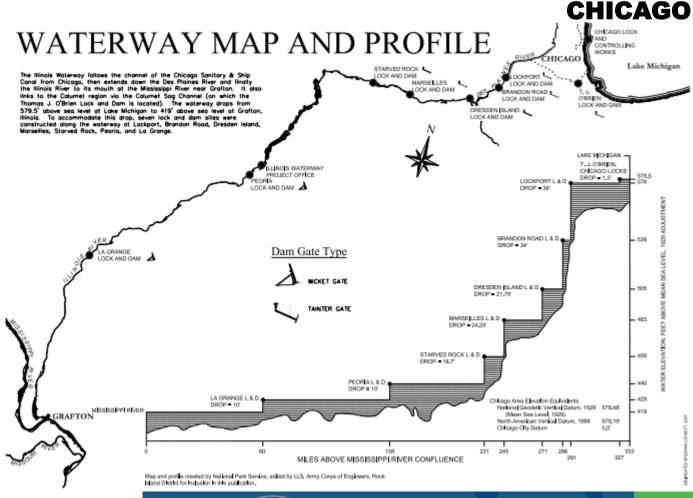








Illinois Waterway: Waterway to the World



Lake Michigan to the Mississippi River:

- Illinois River
- Des Plaines River
- Chicago River
- Chicago Ship Canal
- Cal- Sag Channel

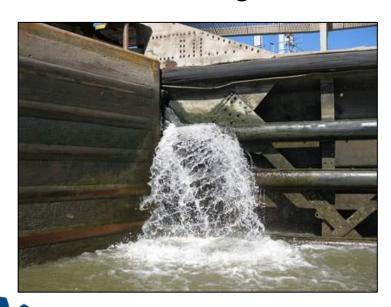
ST. LOUIS





U.S. Army Corps of Engineers

Upgrading each of the deficient locks and dams to a defined state of good repair will cost an expected \$600 million in total, notwithstanding costs to maintain levees and channels.



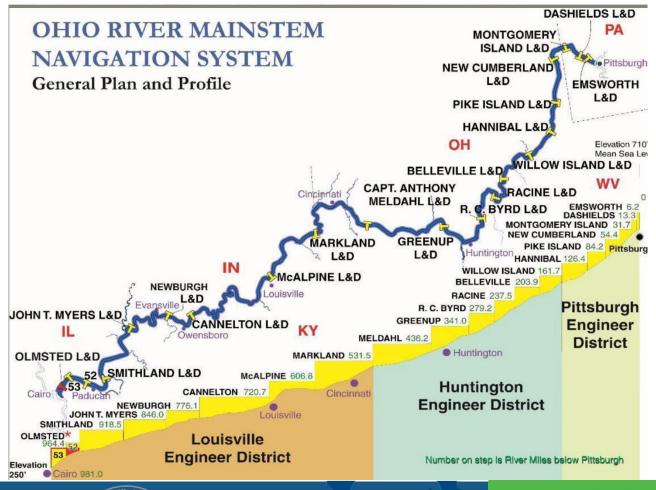








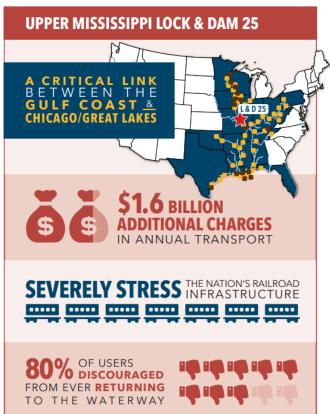
Ohio River Mainstem Modernization







Lock Closures on the Inland Waterway



The Impacts of **Unscheduled Lock Outages**

The National Waterways Foundation The U.S. Maritime Administration

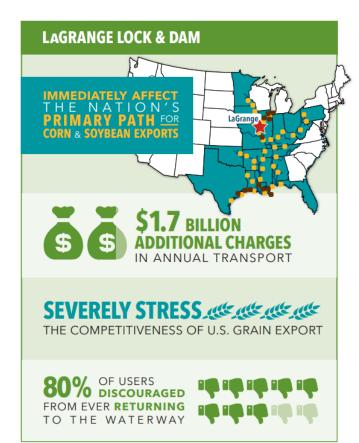
November 2017

Mark Burton Larry Bray

The University of Tennessee

Craig Philip Janey Camp

Vanderbilt University



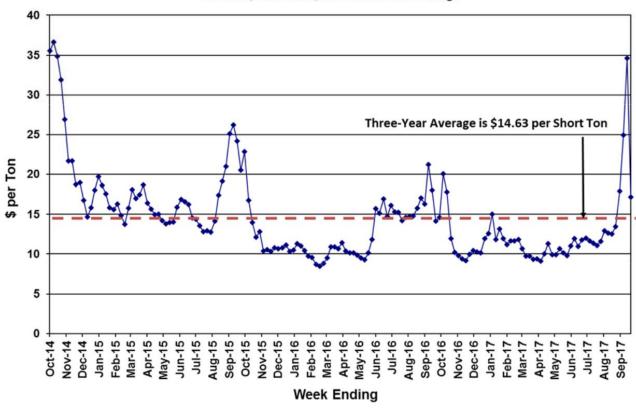






Grain Barge Freight Rates (through Oct 2017)

→ Peoria, St. Louis, and Quad Cities Avg.







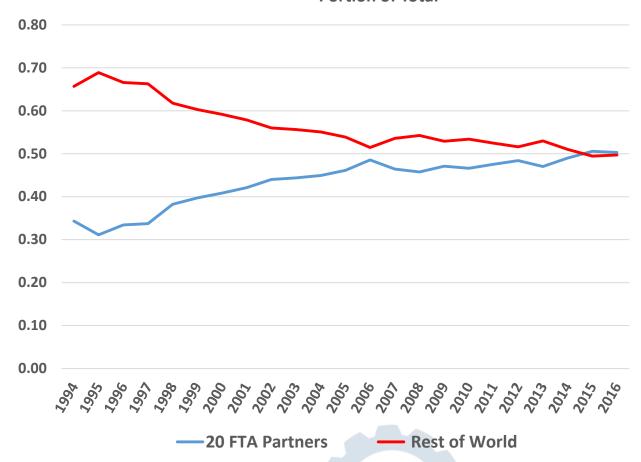




Greater Concentration of Global Trade

U.S. Ag Exports to FTA and Non-FTA Countries (Excluding China)

Portion of Total









Most US Free Trade Agreements have led to net increases in Ag Exports

FTA	Date Entered	Year Before	2016	Growth	
FIA	into Force	Agreement	2010	Giown	
		Million Dollars		Percent	
Canada FTA/NAFTA	1/1/89	2,019	20,242	+903	
Mexico - NAFTA	1/1/94	3,618	17,850	+393	
Jordan	1/1/02	122	273	+124	
Singapore	1/1/04	266	738	+177	
Chile	1/1/04	144	848	+489	
Australia	1/1/05	410	1,292	+215	
El Salvador -CAFTA	3/1/06	239	560	+134	
Honduras - CAFTA	4/1/06	249	649	+161	
Nicaragua - CAFTA	4/1/06	125	218	+74	
Guatemala - CAFTA	7/1/06	455	1,081	+138	
Morocco	1/1/06	164	425	+159	
Bahrain	8/1/06	15	65	+333	
Dominican Rep.	3/1/07	629	1,175	+87	
Costa Rica - CAFTA	1/1/09	608	701	+15	
Oman	1/1/09	77	65	-16	
Peru	2/1/09	424	1,146	+170	
South Korea	3/15/12	6,976	6,202	-11	
Colombia	5/12/12	868	2,377	+174	
Panama	10/31/12	206	670	+225	









Greater Concentration of Farmland Ownership Farmland Partners – 8638 acres - \$55.3 million



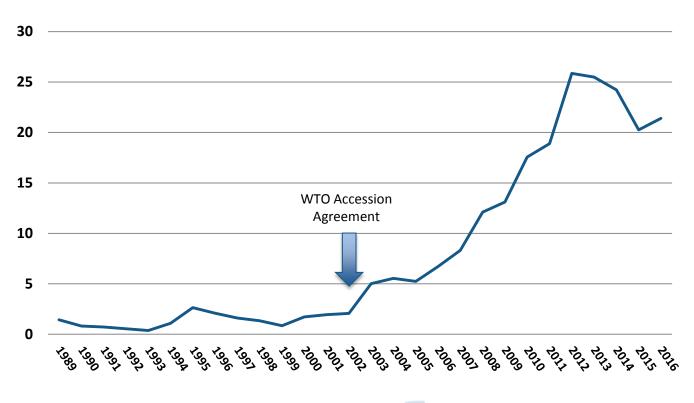
http://agfax.com/2016/12/13/farmland-illinois-auction-fetches-55-3-million-for-8638-acres/2016/12/13/farmland-illinois-auction-fetches-55-3-million-for-8638-acres/2016/12/13/farmland-illinois-auction-fetches-55-3-million-for-8638-acres/2016/12/13/farmland-illinois-auction-fetches-55-3-million-for-8638-acres/2016/12/13/farmland-illinois-auction-fetches-55-3-million-for-8638-acres/2016/12/13/farmland-illinois-auction-fetches-55-3-million-for-8638-acres/2016/12/13/farmland-illinois-auction-fetches-55-3-million-for-8638-acres/2016/12/13/farmland-illinois-auction-fetches-55-3-million-for-8638-acres/2016/12/13/farmland-illinois-auction-fetches-55-3-million-for-8638-acres/2016/12/13/farmland-illinois-auction-fetches-55-3-million-for-8638-acres/2016/12/13/farmland-illinois-auction-fetches-55-3-million-for-8638-acres/2016/12/13/farmland-illinois-auction-fetches-55-3-million-fetches-55-





China Imports of US Agricultural Exports

Billions of US Dollars

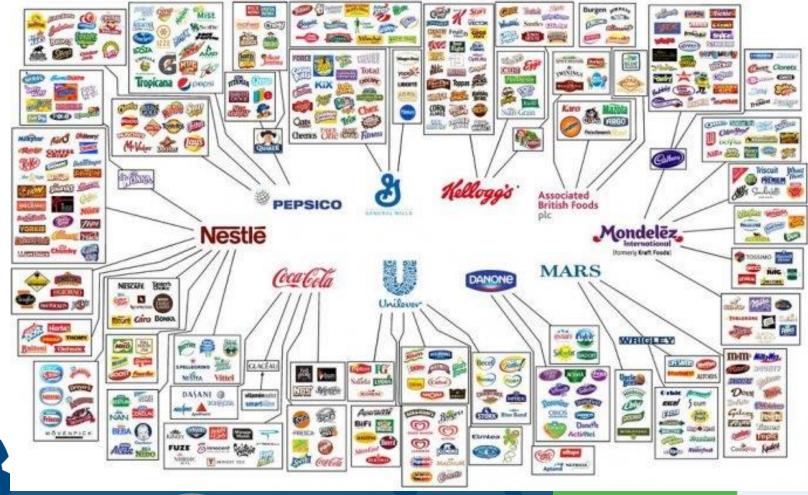








Greater Concentration for the Customer?



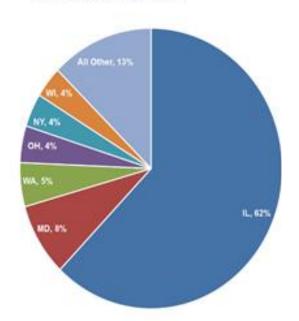




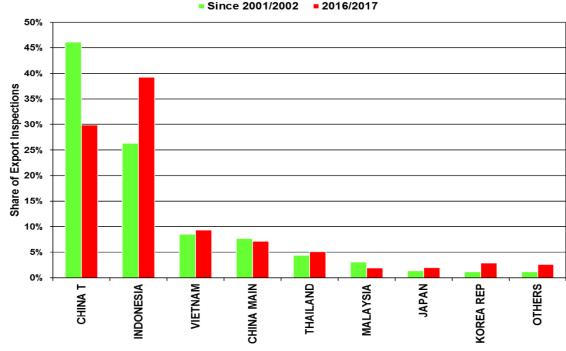


Container Markets for Agriculture Origins & Destination

Share of Container Export Inspections of Grains and Soybeans by State Since 2001



Share of Illinois Container Soybeans Export Inspections by Destination Country



Note: Through May 31, 2017







Conventional Container on Barge









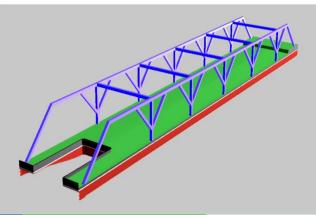




Future Business Development

















Federal Transportation Funding Opportunities















Present Administration's \$1 Trillion Infrastructure Modernization Effort

REBUILD AMERICA'S Infrastructure

BY THE NUMBERS



















How is Agriculture Addressing Transport Issues?

Approaching near-term tactical and longer-term strategic

- Focusing on foreseeable needs
- Capitalizing on a range of stakeholders' efforts
- Measuring to manage

Planning in rolling 5-year increments









Finding Solutions - See for Yourself Farmers / Agribusiness & Media Tours









ISA Facilitating Transportation Solutions

- Raising awareness
- Engagement with officials
- Exploring increase in use of containers
- Fostering support for major maintenance work through alternate financing
 - Promote biodiesel use









TO RECAP: Transportation, Trade, Supply Chain and Logistics Solutions

- Proactive approaches address issues
 - A seat at the table
 - Build the table
 - Leverage relationships
- Soy offers a case study
 - Moving via numerous transport modes
 - Domestic inland surface transport
 - International bulk and unitized
- Application of commercial methodologies
 - Improved enterprise responses
 - Focused on solutions







Thank You! Discussion / Questions?

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