



# Appendix: Containerized Exports via the Inland Waterway System: An Opportunity for Agriculture?

Prepared For:



and



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## I. APPENDIX: IMPACT OF FULLY LOADED CONTAINERS

The original “Containerized Exports via the Inland Waterway System: An Opportunity for Agriculture?” report prepared for the Soy Transportation Coalition and Illinois Soybean Association, dated October 2018, assumed containers were loaded and drayed to rail depots or inland waterway upriver terminals. In this analysis, containers were assumed loaded to maximum road weights. For purposes of this appendix, the transportation comparisons for intermodal versus all water routing from originating ports of St Louis and Memphis with final destination port Shanghai are shown. The original report showed the transportation alternatives as below:

**Exhibit 1: Bulk, Intermodal, Container on Vessel Transportation Comparison “ROAD WEIGHT LIMITS”**

Origin	Bulk Barge	Container to West Coast	APH Service
Memphis, TN	\$ 75.69	\$ 174.58	\$ 104.86
St. Louis, MO	\$ 79.80	\$ 195.87	\$ 108.88

The chart below shows the container weight assumptions used in “road” or “rail” weight limits.

**Exhibit 2: Comparison of Rail Weights to Road Weights, Metric Tons**

Metric Tons	Rail		Road	
	TEU Max Cargo	FEU Max Cargo	TEU Max Cargo	FEU Max Cargo
<b>Corn</b>	21.8	-	17.3	-
<b>Soybean</b>	21.8	-	17.3	-
<b>Soybean Meal</b>	-	26.8	-	18.4
<b>DDGS</b>	-	16.3	-	16.3

TEU Tare Weight 2.23 Metric Tons

FEU Tare Weight 3.70 Metric Tons

Adjusting Intermodal and APH weights to maximum container weights “Rail Weight Limits” results in a decrease in cost per metric ton for both intermodal and container on vessel movements (see Exhibit 3).

### Exhibit 3: Bulk, Intermodal, Container on Vessel Transportation Comparison “RAIL WEIGHT LIMITS”

Logistics and Mode Option	Handling and Transloading	Freight	Subtotal	Ocean Freight	Total Fully Loaded	Total Road Weight	Change
Barge Memphis to New Orleans to China	\$ 18.97	\$ 20.86	\$ 39.83	\$ 35.86	\$ 75.69	\$ 75.69	\$ 0.00
Barge St. Louis to New Orleans to China	\$ 18.97	\$ 24.97	\$ 43.94	\$ 35.86	\$ 79.80	\$ 79.80	\$ 0.00
Intermodal Memphis to Los Angeles to China	\$ 63.04	\$ 50.29	\$ 113.33	\$ 12.11	\$ 125.43	\$ 174.58	\$ (49.15)
Intermodal St. Louis to Los Angeles to China	\$ 63.04	\$ 65.19	\$ 128.23	\$ 12.11	\$ 140.33	\$ 195.87	\$ (55.54)
Liner Vessel Memphis to Plaquemines to China	\$ 59.30	\$ 5.78	\$ 65.07	\$ 19.29	\$ 84.36	\$ 104.86	\$ (20.50)
Liner Vessel St. Louis to Plaquemines to China	\$ 59.30	\$ 8.49	\$ 67.78	\$ 19.29	\$ 87.07	\$ 108.88	\$ (21.81)

Note: Intermodal assumes \$11.59 per metric ton drayage into port.

Using maximum rail weights for containers reduces intermodal costs from Memphis by \$49.15 per metric ton to \$125.43 per metric ton and from St. Louis by \$55.54 per metric ton to \$140.33 per metric ton.

The transportation cost for intermodal includes drayage from the rail depot to the ocean terminal for export. However, in some cases the container shipments are direct rail to the export dock, and in these cases drayage at the export port would be unnecessary. If rail to the dock was utilized, the intermodal cost for drayage (\$11.59 per metric ton) would be eliminated and the intermodal cost would drop to \$113.84 per metric ton from Memphis and \$128.84 per metric ton from St. Louis (see Exhibit 4).

### Exhibit 4: Bulk, Intermodal, Container on Vessel Transportation Comparison “RAIL WEIGHT LIMITS” with Rail to Dock in Export Terminal

Logistics and Mode Option	Handling and Transloading	Freight	Subtotal	Ocean Freight	Total Fully Loaded	Total Road Weight	Change
Barge Memphis to New Orleans to China	\$ 18.97	\$ 20.86	\$ 39.83	\$ 35.86	\$ 75.69	\$ 75.69	\$ 0.00
Barge St. Louis to New Orleans to China	\$ 18.97	\$ 24.97	\$ 43.94	\$ 35.86	\$ 79.80	\$ 79.80	\$ 0.00
Intermodal Memphis to Los Angeles to China	\$ 51.45	\$ 50.29	\$ 101.74	\$ 12.11	\$ 113.84	\$ 158.10	\$ (44.26)
Intermodal St. Louis to Los Angeles to China	\$ 51.45	\$ 65.19	\$ 116.64	\$ 12.11	\$ 128.74	\$ 179.39	\$ (50.64)
Liner Vessel Memphis to Plaquemines to China	\$ 59.30	\$ 5.78	\$ 65.07	\$ 19.29	\$ 84.36	\$ 104.86	\$ (20.50)
Liner Vessel St. Louis to Plaquemines to China	\$ 59.30	\$ 8.49	\$ 67.78	\$ 19.29	\$ 87.07	\$ 108.88	\$ (21.81)

Note: Intermodal assumes rail-to-dock with no drayage.

**Overall Comments:**

1. The rates represented include all transportation cost components from the farm, to the elevator for containerization, all lift costs and all transportation leg costs to the final destination port in Shanghai.
2. Transportation costs can vary due to several reasons. Rail rates are based on a sample of contracts. Rates can be negotiated with different terms and price opportunities.

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