



# Opportunity for Illinois Soybeans to Benefit from Meat Shipments via Reefers



**June 2012**



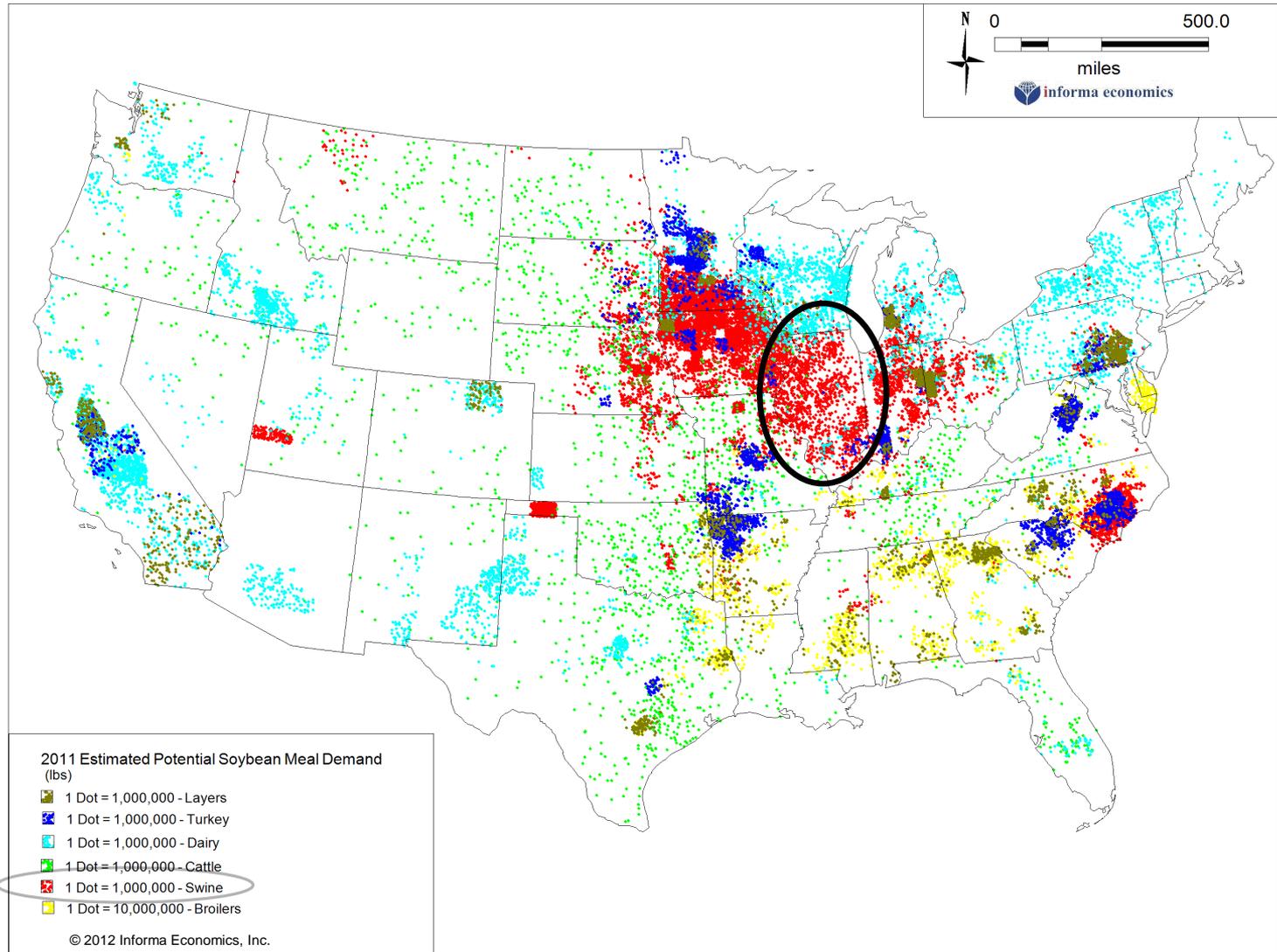
# Purpose of the Study

- To investigate the opportunities to improve Illinois' cold chain logistics in order to increase exports of soy-fed protein products.
- Informa will explore the current advantages that Illinois producers maintain in the protein value chain and uncover the potential opportunities to improve the cold chain logistics system.

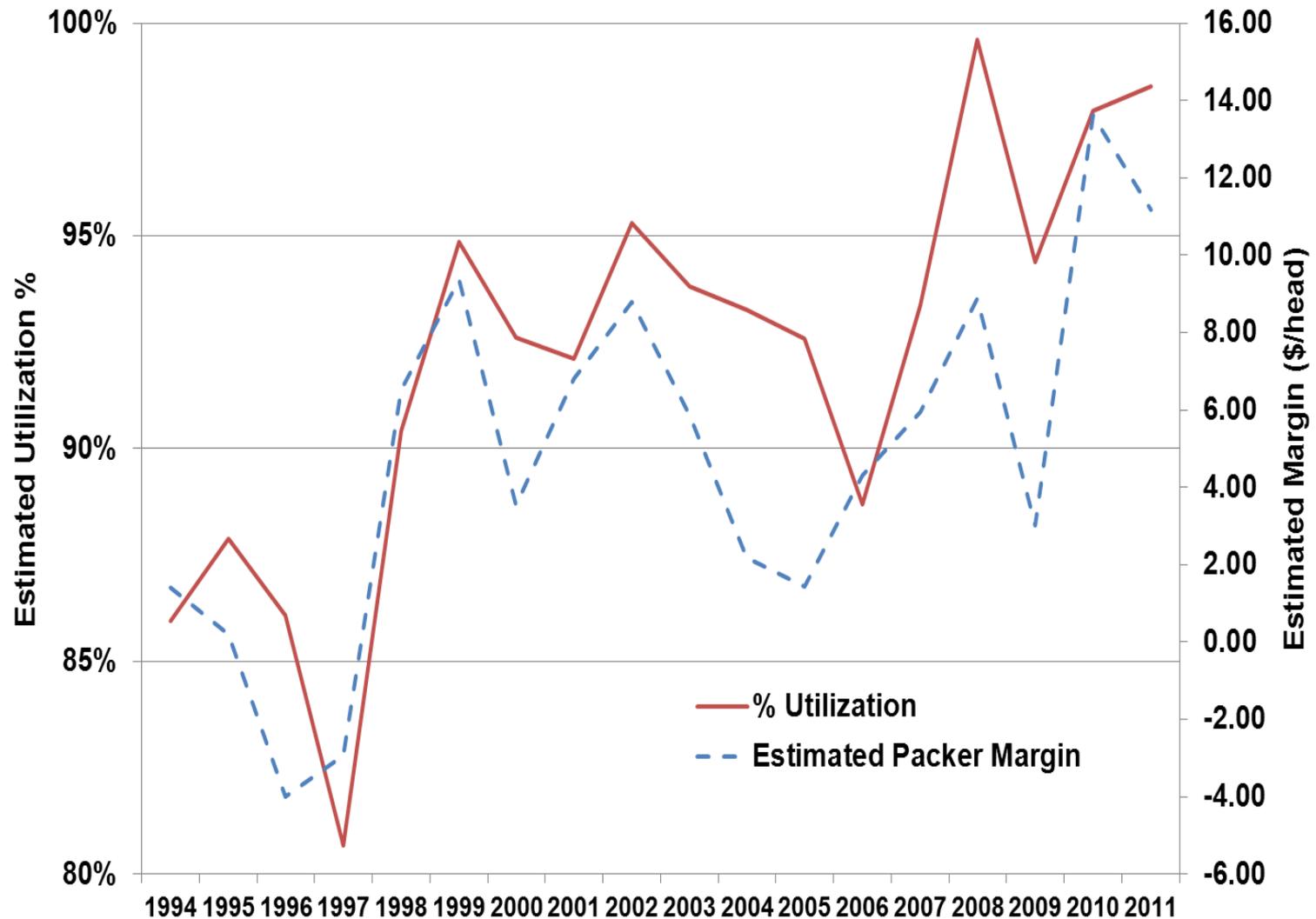
## Introduction to the Study Findings

- Hogs are the primary in-state demand source for soybean meal in IL.
- Increased meat exports drive increased slaughter capacity, which supports increased soybean meal demand. These exports rely on cold chain logistics.
- Illinois has a slight competitive disadvantage in terms of the cold chain freight costs when compared to other production areas.
- Opportunities to strengthen Illinois' cold chain supply system include:
  - Additional access to reefer containers
  - Investment in blast freezer capacity
  - Dedicated reefer unit trains from Illinois to West Coast

# Hogs Remain the Primary Demand Source within Illinois for Soybean Meal



# US Pork Processing is Near Capacity



Source: Informa Economics

# Number of Meat & Poultry Processing Facilities in Illinois

	Large	Small	Very Small	Size Not Available	Total:
Federally-inspected	11	150	89	3	253
Tamadge-Aiken	0	26	31	2	59
State Inspection	0	2	17	142	161
<b>Total:</b>	<b>11</b>	<b>178</b>	<b>137</b>	<b>147</b>	<b>473</b>

Source: USDA-FSIS

- Tamadge-Aiken plants are those plants that are inspected by state-employed inspectors, but the inspection is considered equivalent to federal inspection thus these plants can ship product out of state.
- It is very likely that most of the “size not available” plants would fall into the very small category.

# Economic Value of Reefer Meat Exports

- Meat and animal production (exports, out-shipments, and Illinois domestic use) totaled \$2.5 billion in the 2007.
- Value of Illinois meat exports using reefer containers past three years averaged \$616 million (shown below).
  - Complete data is applied here referencing 2008-2010.
  - 82% of the meat exports are pork product.

Meat Exports from Illinois (USD)		
<u>2008</u>	<u>2009</u>	<u>2010</u>
\$721,694,537	\$578,108,904	\$547,230,960

- Maintaining and improving existing supply chain channels will assist in preserving and enhancing Illinois' market presence.
- Meat exports by container originating from Illinois pork sector support 115,430 tons of soybean meal, the equivalent of 4.9 million bushels of soybeans or (at 42 bushels/acre) 117,450 acres.

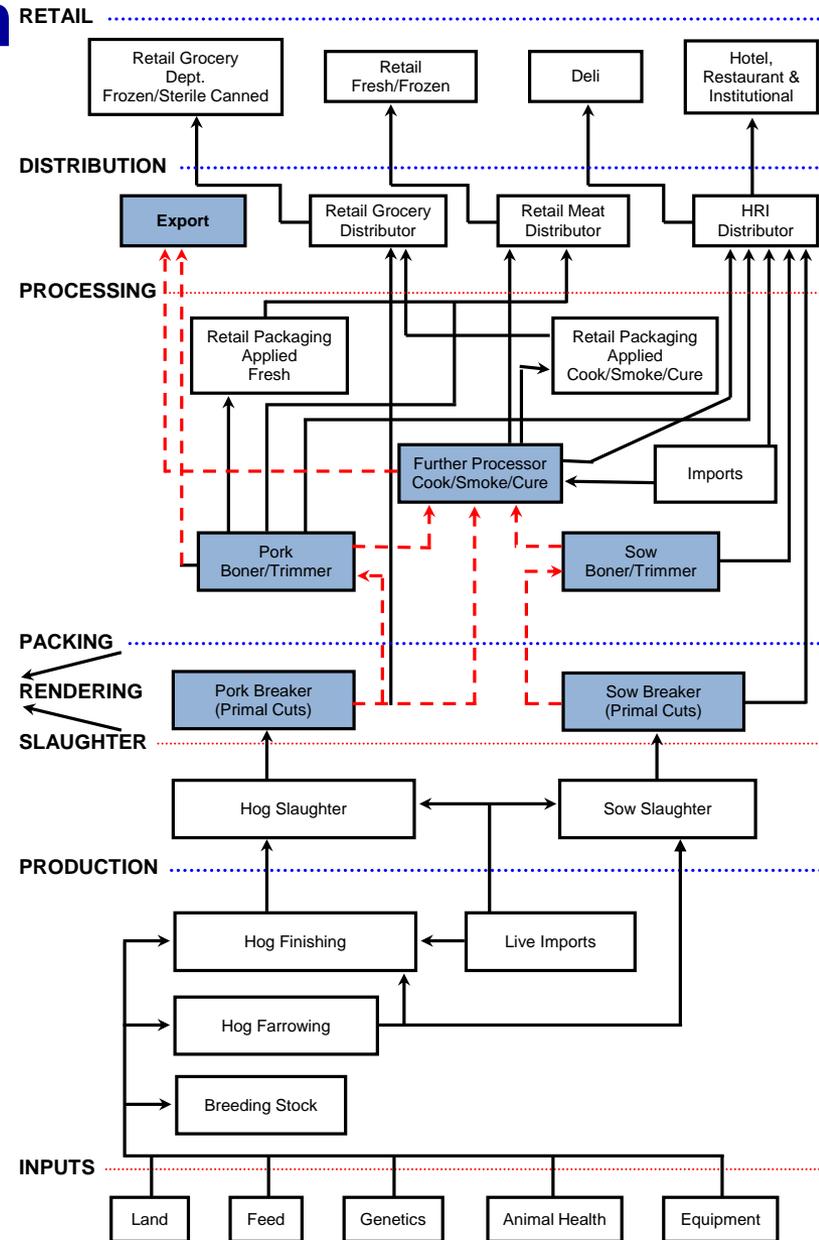
# Illinois Meat Supply Chain

➤ **In Shipments:** Illinois acquires regional supply at varying levels throughout the value chain. These imports are mostly from nearby states and include:

- Live animals for slaughter
- Carcasses and boxed meat for further processing
- Meat and meat products distributed to Illinois' retail chain

➤ **Exports:** In 2010, Illinois produced 4.2 million tons of meat per year. Of the 4.2 million tons 231,755 tons, or 5.6% of in state production, goes to the international market via containers that originate from Illinois. Primary export supply chain position for these moves include:

1. California (68,552 tons)
2. Florida (52,344 tons)
3. Washington (45,146 tons)
4. New York (27,857 tons)
5. Virginia (19,990 tons)



# Illinois Export Reefer Logistics Chains

## ➤ At Packing Plant Load into:

- Domestic Reefer Trailer
- Rail Reefer Box Car
- Reefer Container

## ➤ Domestic Reefer Trailer

- Cross-country move to Cold Storage Cross Dock location to be transloaded into:
  - ❖ Reefer Container
    - Local Dray to Container Terminal
    - Loaded on Container Ship
  - ❖ Direct Load onto Bulk Reefer Ship

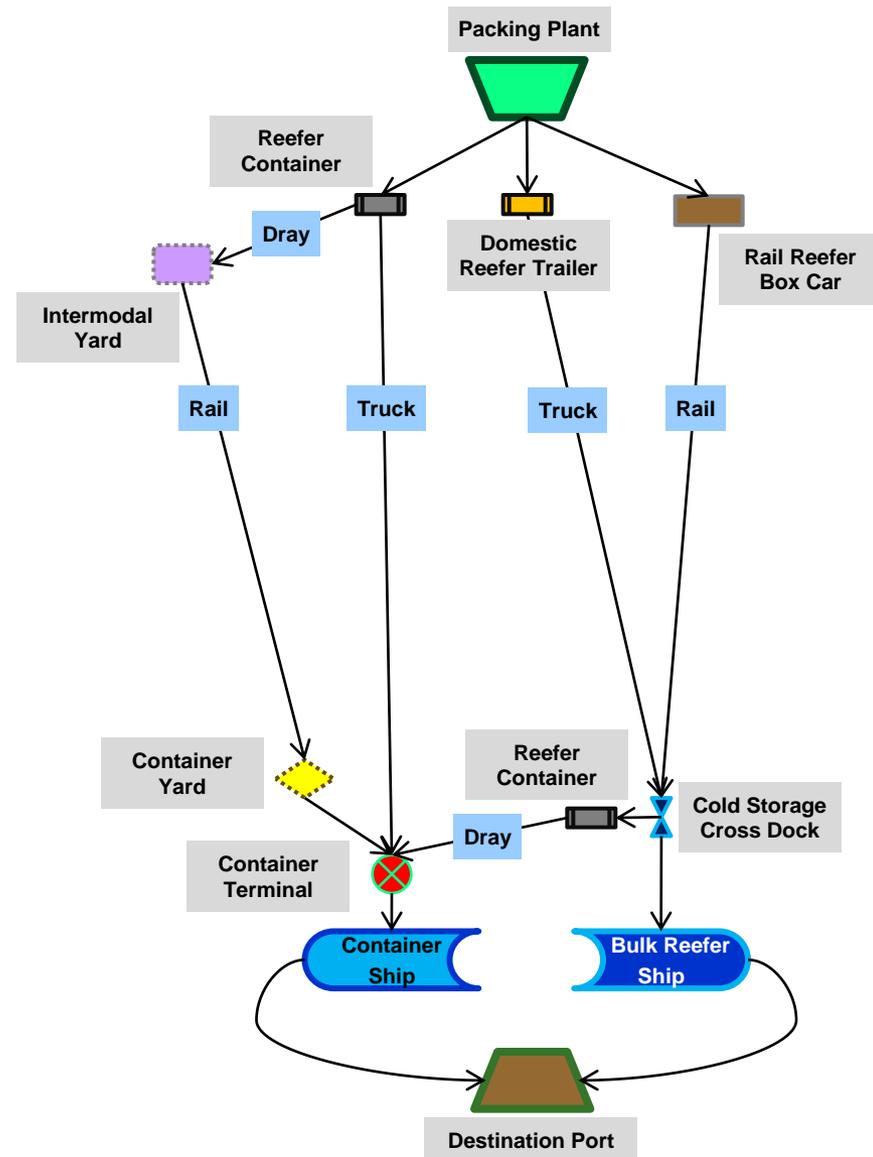
## ➤ Rail Reefer Box Car

- Cross-country move to Cold Storage Cross Dock location to be transloaded into:
  - ❖ Reefer Container
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## ➤ Reefer Container

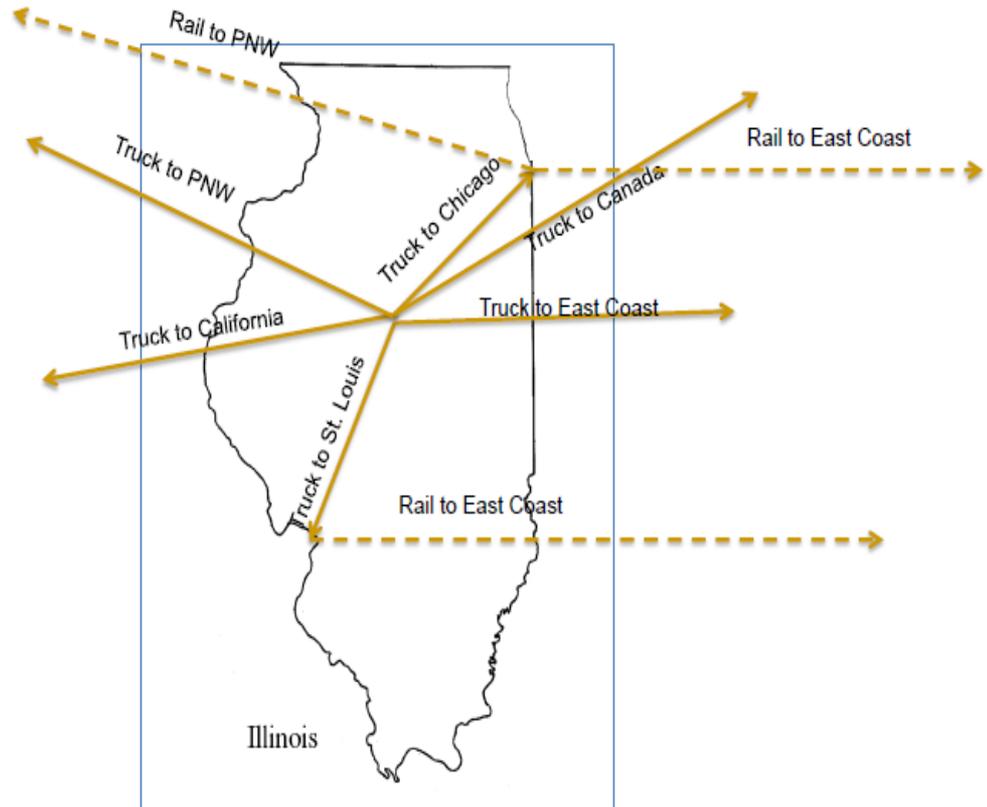
- Local Dray to Intermodal Yard
  - ❖ Place on intermodal train, railed cross-country to Container Yard
  - ❖ Moved from Container Yard to Container Terminal
- Trucked to Container Terminal
- Loaded on Container Ship

## ➤ Respective Ships to Destination Ports



# Slaughter to Export Factors

- The shelf life of meat is such that the time from slaughter to export is critical with regard to the value provided.
- There is a preference in certain cultures, especially in East Asia, for chilled meat products as opposed to frozen product.
- Frozen product has a longer shelf life and Illinois can ship frozen products destined to the Far East through either the East or West Coast.
- Chilled product must go through the West Coast if it is to be shipped to the Far East.
- If supply chain delays occur, chilled product must then be frozen, reducing product value at its final market position.



# Summary of Meat Logistics from an Illinois Packing Plant to Export Position (\$/cwt)

- Illinois has a slight advantage when shipping west to use a Southwest export position.
- Illinois has a slight advantage when shipping east to use a Southeast export position.

Logistics Function	Domestic Reefer Trailer		Rail Reefer Box Car		Reefer Container (Rail)	Reefer Container (Truck)
PNW Total Cost Comparison <i>(less vessel loading and ocean freight)</i>	\$8.07	\$7.29	\$7.98	\$7.20	\$8.20	\$8.58
Southwest Total Cost Comparison <i>(less vessel loading and ocean freight)</i>	\$8.04	\$7.26	\$7.67	\$6.88	\$7.47	\$8.49
Northeast Total Cost Comparison <i>(less vessel loading and ocean freight)</i>	\$5.66	\$4.88	\$5.41	\$4.63	\$6.20	\$6.07
Southeast Total Cost Comparison <i>(less vessel loading and ocean freight)</i>	\$5.61	\$4.83	\$5.36	\$4.58	\$6.15	\$6.04

# Truck Competitiveness to Export Position

- Illinois has an advantage over Iowa and the Western Corn Belt for transportation costs to an East Coast Export Position.
- All price ranges overlap with Illinois except Southwestern Plants moving to the West and East Coast plants moving to the East.

Market		Cost Range (\$/CWT)	
Origin	Destination	Low	High
Southwestern Plants	West Coast	4.65	6.78
Western Corn Belt Plants		6.08	7.44
Iowa Plants		5.95	7.35
Illinois		7.26	8.58
Western Corn Belt Plants	East Coast	6.97	8.78
Eastern Corn Belt Plants		3.01	4.88
East Coast Plants		0.49	4.22
Iowa Plants		5.90	8.81
Illinois		4.83	6.07

# Illinois Import and Export Reefer Statistics by Container Size (2010)

- Tracking the flow of reefer containers into and out of Illinois establishes if additional reefers are needed to support Illinois meat exports.

Container Size	Import		Export	
	Number Containers	Metric Tons	Number Containers	Metric Tons
20	1,802	34,440	3,796	75,299
40	6,844	65,763	26,196	304,869
43			123	1,064
45	34	309	439	2,340
53	34	276	731	4,987
Unspecified	3,026	27,181	1,855	23,600
<b>Total</b>	<b>11,740</b>	<b>127,969</b>	<b>33,140</b>	<b>412,159</b>

Source: PIERS

- The table here shows that there is nearly a three to one ratio between export bound reefer containers and import reefer containers, which suggests that container sourcing may be an issue.
- Every size category (except for the unspecified size) has a net import/export trade gap.

# Summary and Key Findings

- Additions to Illinois meat exports will primarily come from the hog and pork industry.
- Since the majority of hogs in Illinois currently fill existing slaughter capacity needs, hog supply growth will likely be driven by changes in slaughter capacity.
- Illinois has a slight competitive disadvantage in terms of freight cost when compared to other production areas.
- Enhancing export facility capabilities could offset this disadvantage because Chicago is an intermodal hub. This means that production in nearby states would flow through Illinois to reach the market.

## Summary and Key Findings (continued)

- International meat exports from Illinois support the current livestock industry within the state, which in turn supports soybean crushing.
- Stability of soybean crushing demand from nearby livestock operations is important, because it provides a nearby market for soybean farmers. This supply chain relationship allows for a positive impact on soybean farmer incomes. Alternatively if the nearby demand is removed, it will have a negative impact on area farmers.
- Based on the current cold chain supply chain from Illinois to select markets there are opportunities to strengthen the system. Strategic investment in the opportunities presented below, support enhanced competitiveness of Illinois meat exports.

## Summary and Key Findings (continued)

- Opportunities to strengthen the cold chain supply system include:
  - Cost savings from additional access to reefer containers. Illinois and its neighbors are reefer deficit states.
  - To the extent frozen product is to be shipped, investment in blast freezer capacity is necessary if the industry is to grow.
  - Reefer unit trains that are dedicated to long haul moves from Illinois to West Coast ports. These trains would allow for low cost movement of Illinois cold chain products and reduce the risk associated with limited shelf life for chilled meat products.