

US Exports

- **US exports more than 40 million tons of scrap to 160 countries every year.**
- **\$25 million/day of scrap exports were placed into container ships in 2013.**
- **Five key overseas markets from the West Coast in 2014:**
 - **China = \$4.2 billion**
 - **Taiwan = \$1.1 billion**
 - **South Korea = \$1.1 billion**
 - **Japan = \$402 million**
 - **Thailand = \$200 million**

Source: American Recycler & ISRI – May, 2015

DDGS Distiller Dried Grains w/ Solubles

**One commodity of many that affects
availability of overseas containers**

11 million tons exported to 45 countries in 2014.

Top 5 countries as follows:

China = 5.7 million tons

Mexico = 1.3 million tons

Korea = 0.3 million tons

Vietnam = 0.3 million tons

Japan = 0.3 million tons

Availability of Import / Export Sea Ports

- **29 Sea Ports on US West Coast,
represented by one Longshoreman Union**
- **US Congress considering a new law to
address a warning system regarding
Port Work Slowdowns**

China's Green Fence

International Organization for Standardization

ISO 9000/9001 Standards

**Companies that ship materials to China
must be ISO certified!**

Green Fence Parameters

- **No Prohibitives**
 - **Radioactive**
 - **Explosives**
 - **Hazardous Wastes**

*National Standard of the People's Republic of China
GB 16487.4-2005*

Green Fence Parameters

Carried Wastes

'restricted' and shall not exceed 0.01% by weight and includes the following:

- * Asbestos waste
- * Burnt or partly burnt waste paper
- * Sensitization material waste
- * Sealed containers
- * Other hazardous wastes mixed into waste paper during the production, collection and transportation processes

Green Fence Parameters

- **Carried Wastes (0.01 % *in perspective*)**

If a bale of newspaper weighs 1800 lbs,

Then 'Carried Wastes' cannot exceed

$$(0.0001) \times 1800 \text{ lbs} = 0.18 \text{ lbs}$$

less than 3 ounces

***Therefore; for all practical purposes,
there can be no 'Carried Waste'.***

Green Fence Parameters

- **Other Carried Wastes (*Residuals / Out-throws*)**
- Referenced in GB16487.4-2005; 4.5 '*restricted*' and **shall not exceed 1.5% by weight**, includes the following:
 - Waste wood
 - Waste metal
 - Waste glass
 - Waste plastic
 - Waste rubber
 - Waste sorbent
 - Wall paper
 - Waxed paper
 - Wax dipped paper
 - Carbon paper, Etc.

Green Fence Parameters

- **Other Carried Wastes (1.5% *in perspective*)**

If a bale of newspaper weighs 1800 lbs,

Then 'Other Carried Wastes' cannot exceed

$$(0.015) \times 1800 \text{ lbs} = 27 \text{ lbs}$$

(400 aluminum cans + 600 single serve PET bottles)

While this may technically meet Chinese import regulatory % requirements, it likely will not be acceptable to the paper mill or to anyone else based on a visual inspection.

Measurement

Other Carried Waste

from 1800 lb newspaper bale

0.65Lb = 0.036%



Paper Generated & Recovered

- **2004**
 - **102 million tons of paper generated**
 - **50 million tons recovered**
 - **49% recovered**
- **2014**
 - **78 million tons of paper generated**
 - **52 million tons recovered**
 - **65% recovered**

76% of US Paper Mills rely on recovered paper fiber

Recovered paper is exported to 85 countries

~40% of recovered paper exported to China in 2013

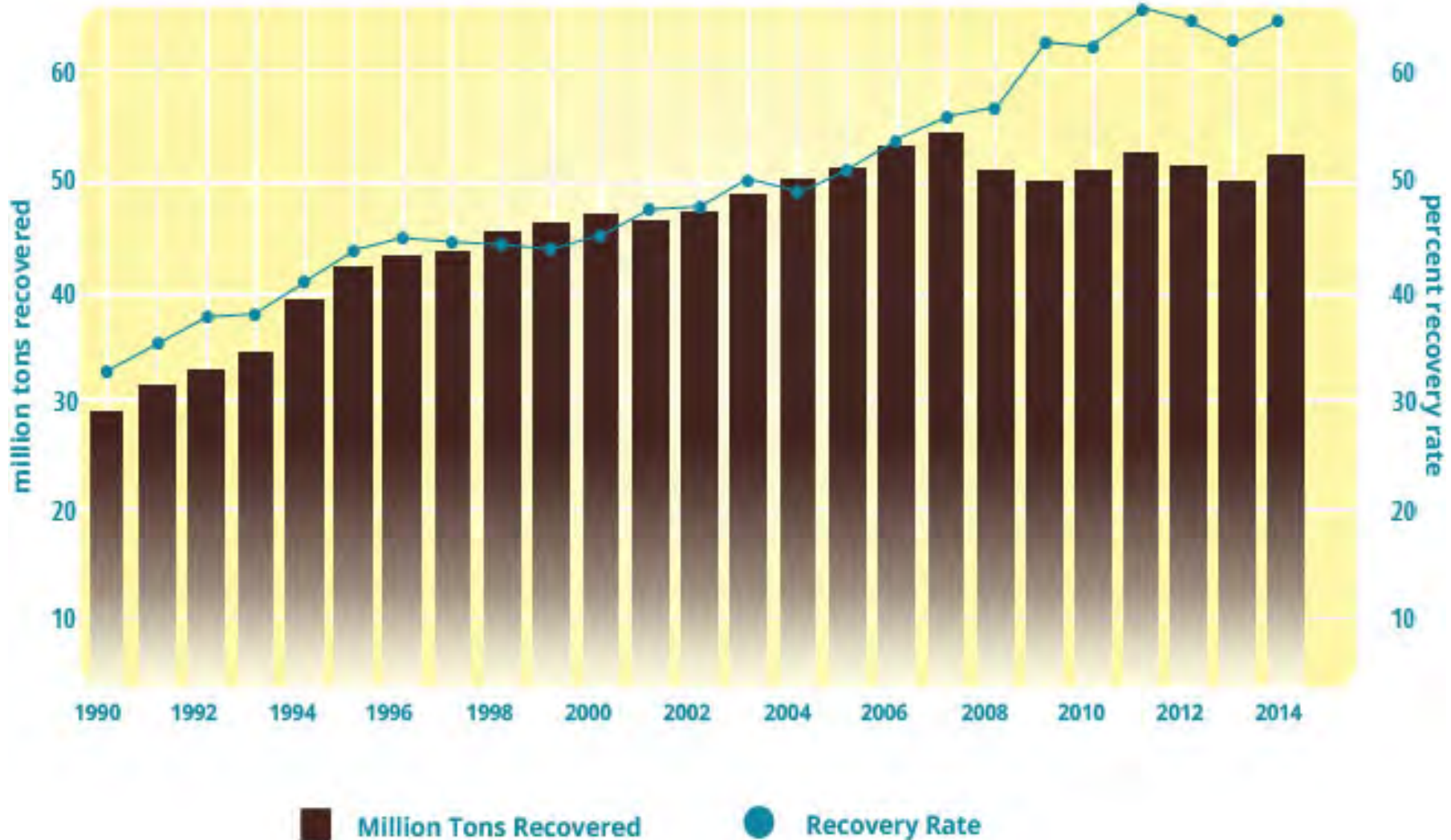
Sources:

American Forest & Paper Association

MSW Management / May, 2015

PaperRecycles.org

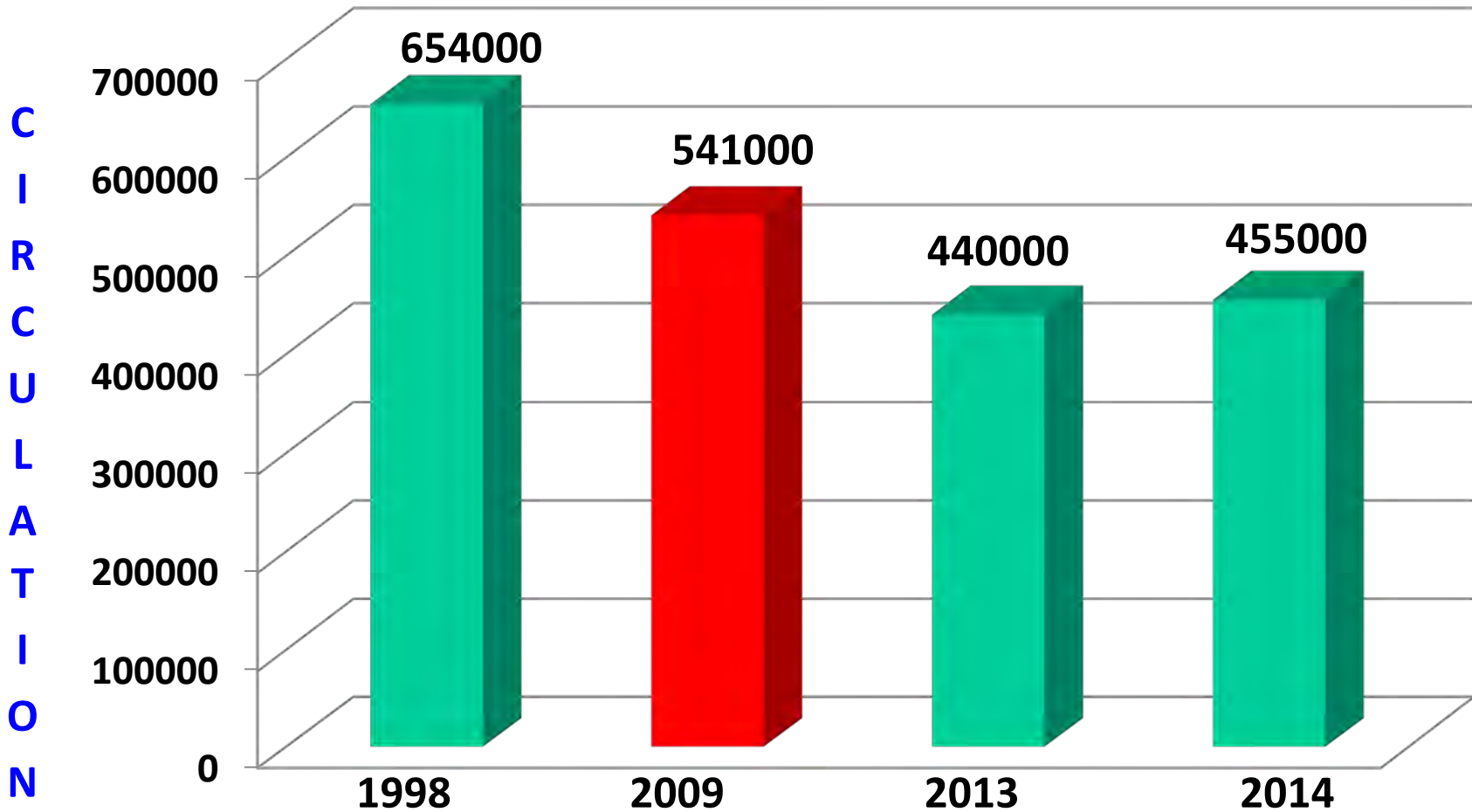
Total US Recovered Paper



Newspaper

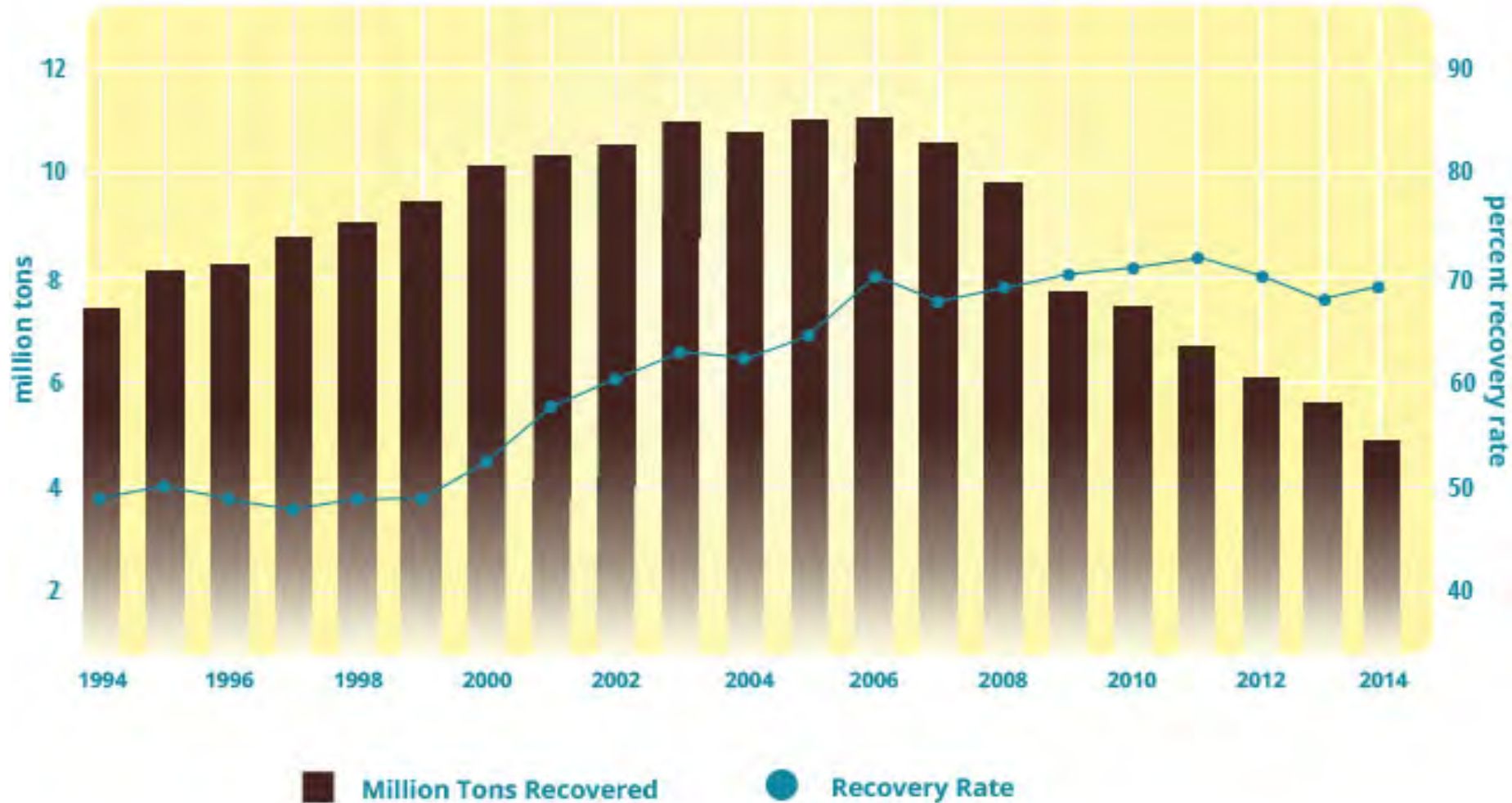


Chicago Tribune Newspaper Circulation



PaperRecycles.org

US ONP (Newspaper) Recovery



ISRI 2013 Guidelines for Paper Stock Domestic & Export Transactions - *Newspaper*

- **News (#7 ONP)**

Sorted, fresh newspapers, containing not more than a normal percentage of rotogravure and colored sections. May also include magazines.

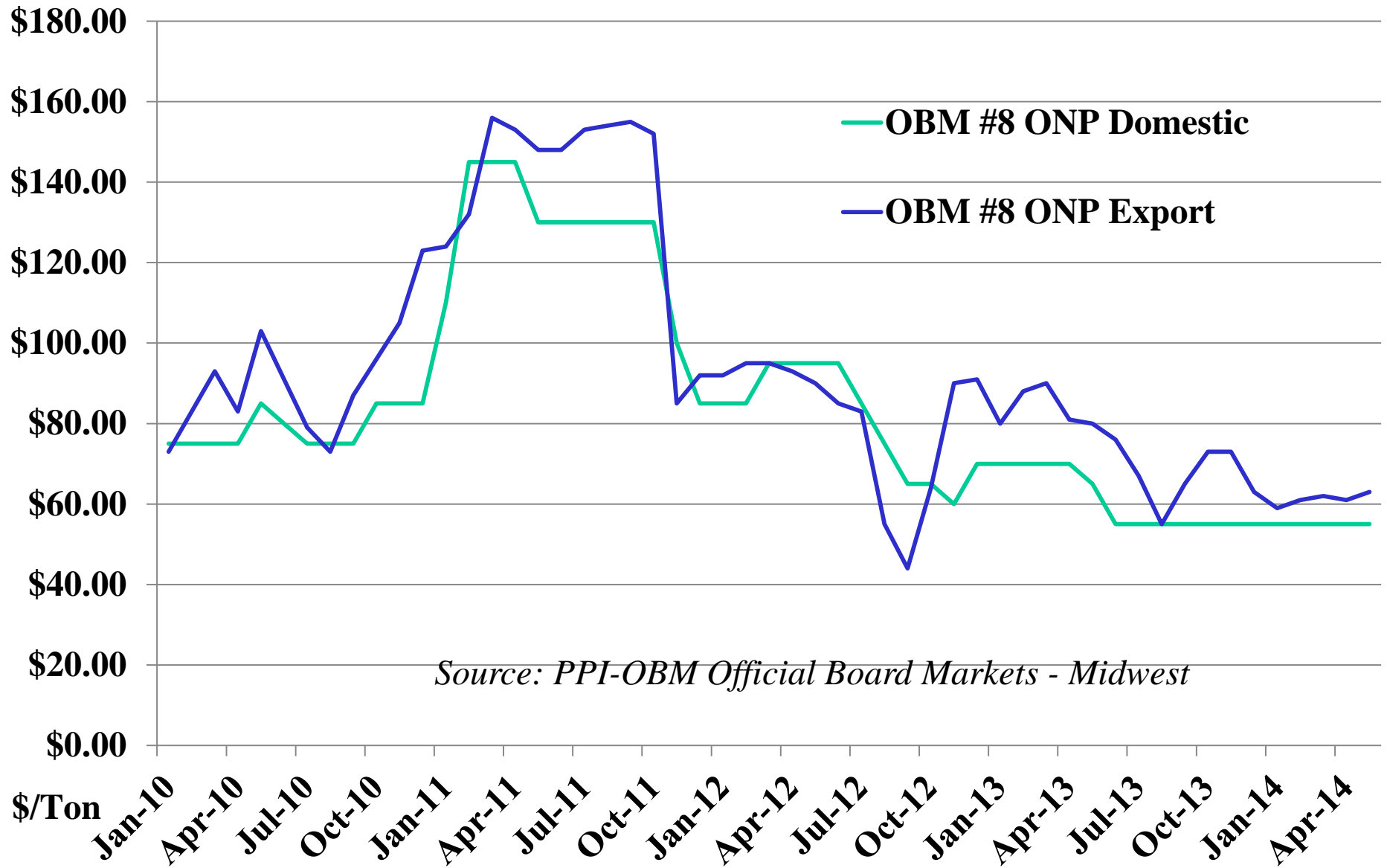
- **Prohibitives: $\leq 1\%$**
- **Outthrows $\leq 3\%$**
- **Other Papers $\leq 20\%$**

- **News (#8 ONP)**

Sorted, fresh newspapers, containing not more than a normal percentage of rotogravure and colored sections. Relatively free of magazines.

- **Prohibitives: $\leq 1\%$**
- **Outthrows $\leq 2\%$**
- **Other Papers $\leq 10\%$**

ONP OBM Market Index Prices

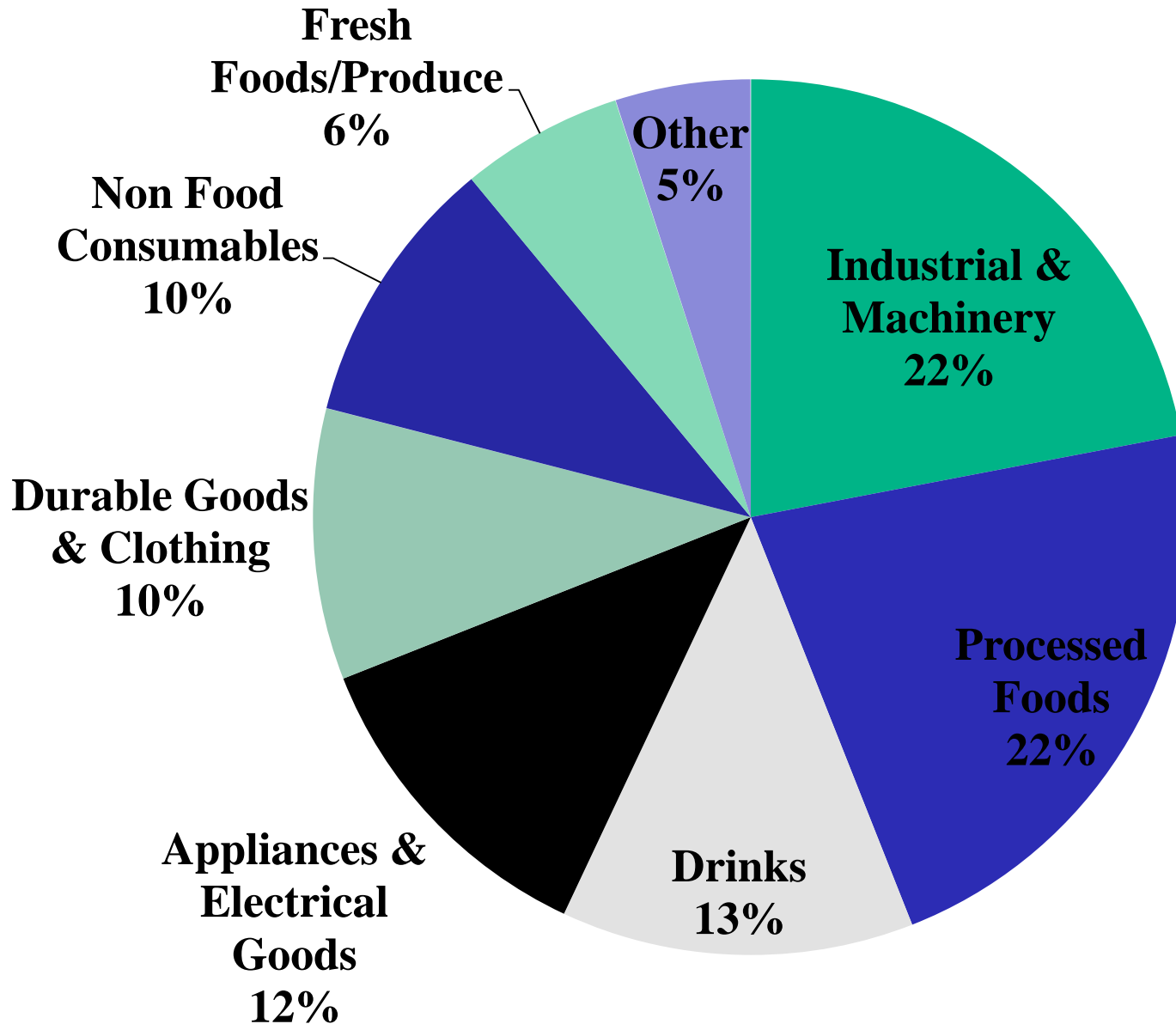


Source: PPI-OBM Official Board Markets - Midwest

Cardboard



Corrugated End Use Markets



ISRI 2013 Guidelines for Paper Stock Domestic & Export Transactions - *Cardboard*

- **Old Corrugated Containers**
(#11 OCC)

Corrugated containers having liners of either test liner or kraft.

- **Prohibitives $\leq 1\%$**
- **Outthrows $\leq 5\%$**

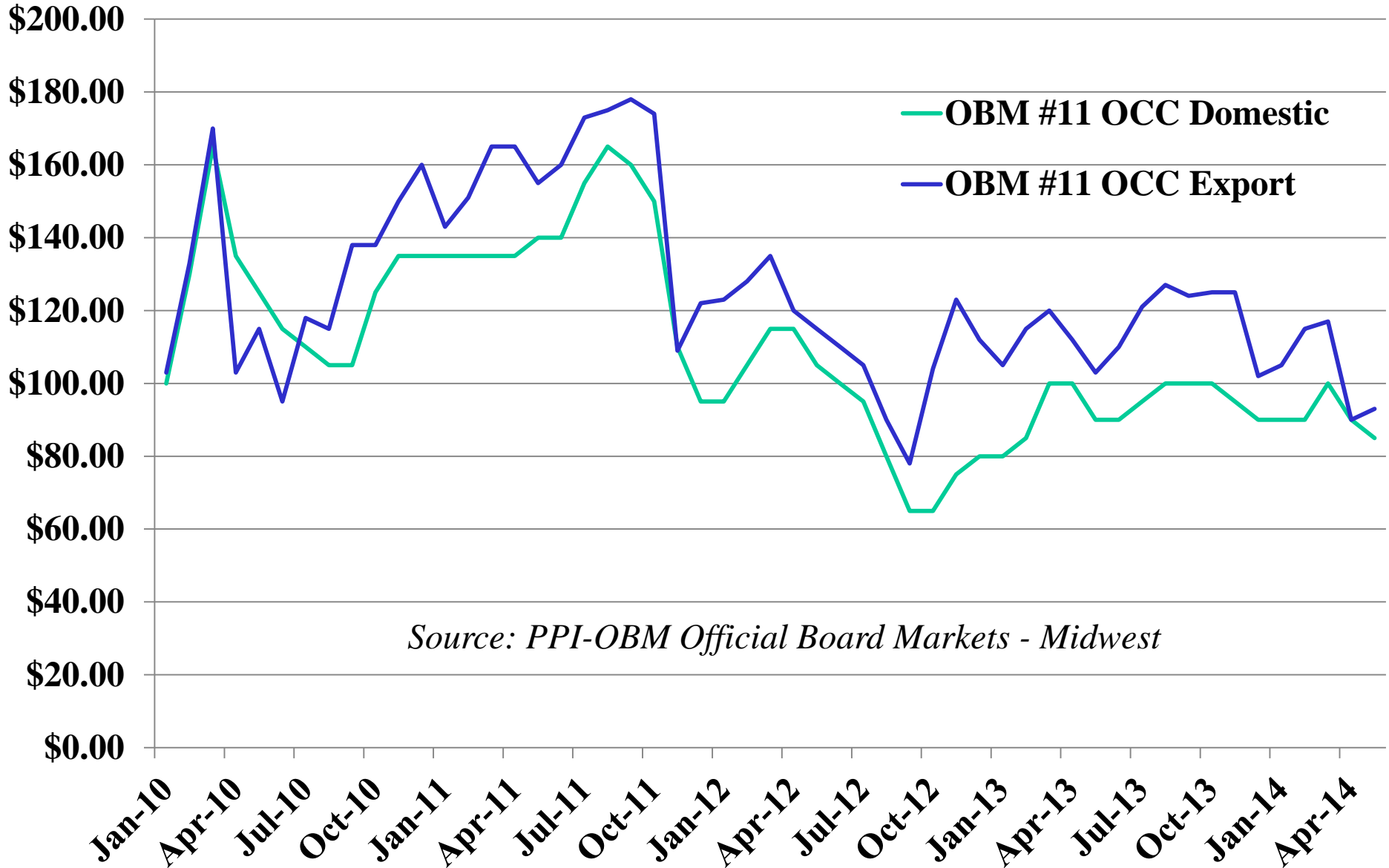
- **Double Sorted Old Corrugated Containers**
(#11 DS OCC)

Generated from supermarkets & commercial facilities having liners of either test liner or kraft, free of boxboard, off-shore corrugated, plastic, wax.

- **Prohibitives $\leq \frac{1}{2}$ of 1%**
- **Outthrows $\leq 2\%$**

OCC OBM Market Index Prices

\$/Ton



Mixed Paper



ISRI 2013 Guidelines for Paper Stock

Domestic & Export Transactions – *Mixed Paper*

- **Soft Mixed Paper (#2)**

Clean, sorted mixture of various qualities of paper not limited as to type of fiber content.

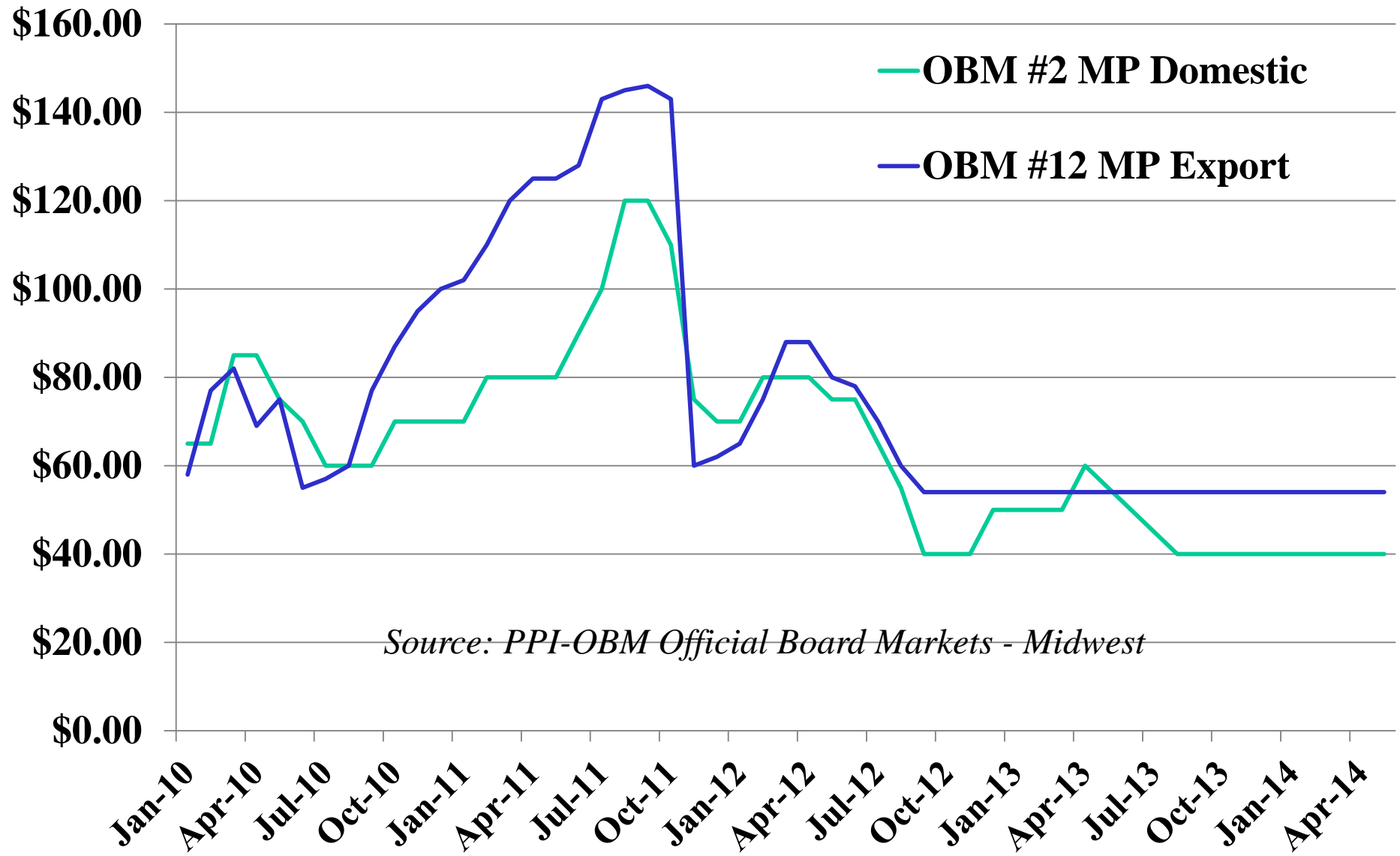
- Prohibitives $\leq 1\%$
- Outthrows $\leq 5\%$

- **Hard Mixed Paper (#3)**

Clean, sorted mixture of various qualities of paper containing less than 10% groundwood.

- Prohibitives $\leq \frac{1}{2}$ of 1%
- Outthrows $\leq 3\%$

Mixed Paper OBM Market Index Prices



Plastics Exports

- **Green Fence driven by:**
 - Government Concerns of pollution from imports of low quality scrap
 - Government desires to see better quality of recycled materials to help local industries to upgrade
- **Green Fence enforcement includes:**
 - Port Inspections
 - Point of Origin Inspections
 - Preventing illegal buying, selling and/or renting of government licenses

Source: Plastic News – May 19, 2015

Steven Wong, Executive President of Beijing-based China Scrap Plastics Association

Plastics Imports To China

- 2012 = 8.88 million metric tons
- 2013 = 7.88 million metric tons
- 2014 = 8.26 million metric tons

Reduction from 2012 to 2013 attributed to Green Fence initiatives

Source: Plastic News - May 18, 2015

Plastic Imports to China


- Waste Plastic entered into Chinese ports in 2014:
 - Guangdong – 37%
 - Shanghai & Ningbo – 28%
 - Tianjin & Qingdao – 22%
 - Fuzhou & Xiamen – 13%

Source: Plastic News - May 18, 2015

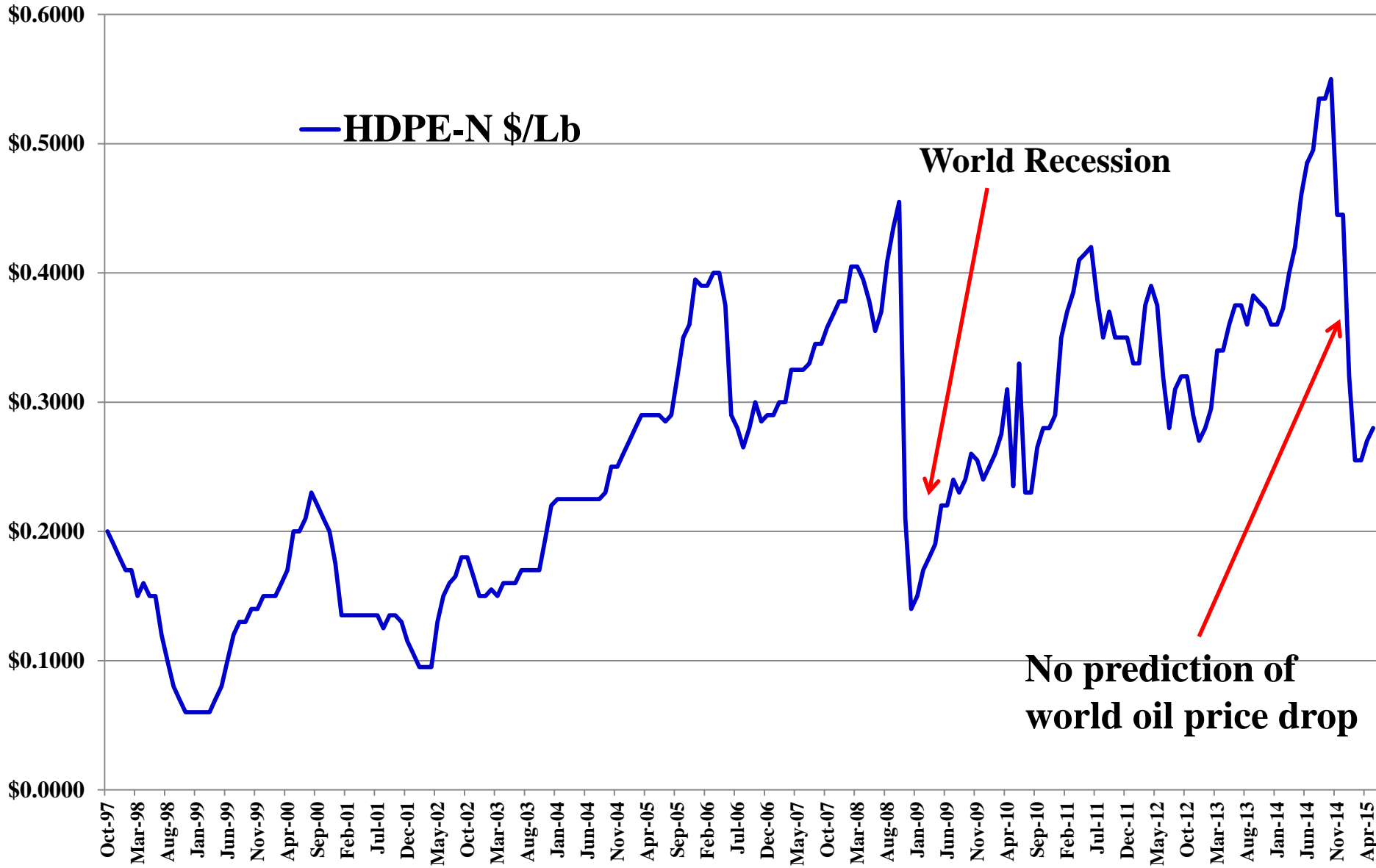
US Shale & Fracking Gas to Plastics

- The lower cost availability of continental natural gas may contribute to more feedstock for the US manufacture of plastics.
- Where will the manufactured plastics be recycled after consumer use?

Plastic Resin Prices

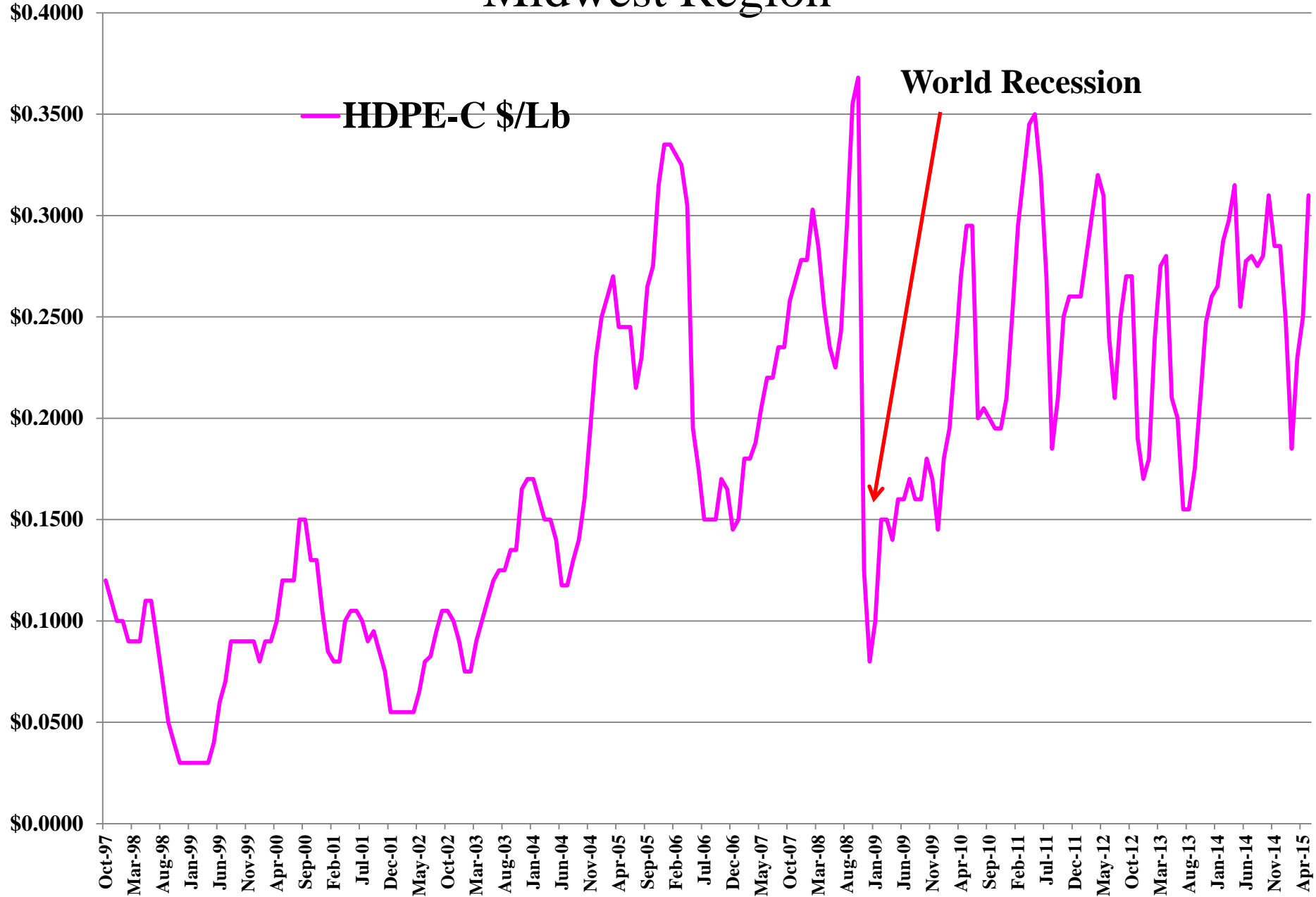
- Resin prices remain unpredictable!
- As Frank Sinatra would sing:
 - Riding High in April, 
 - Shot Down in May.
 - Back on top come June?

Secondary Materials Pricing . Com Midwest Region

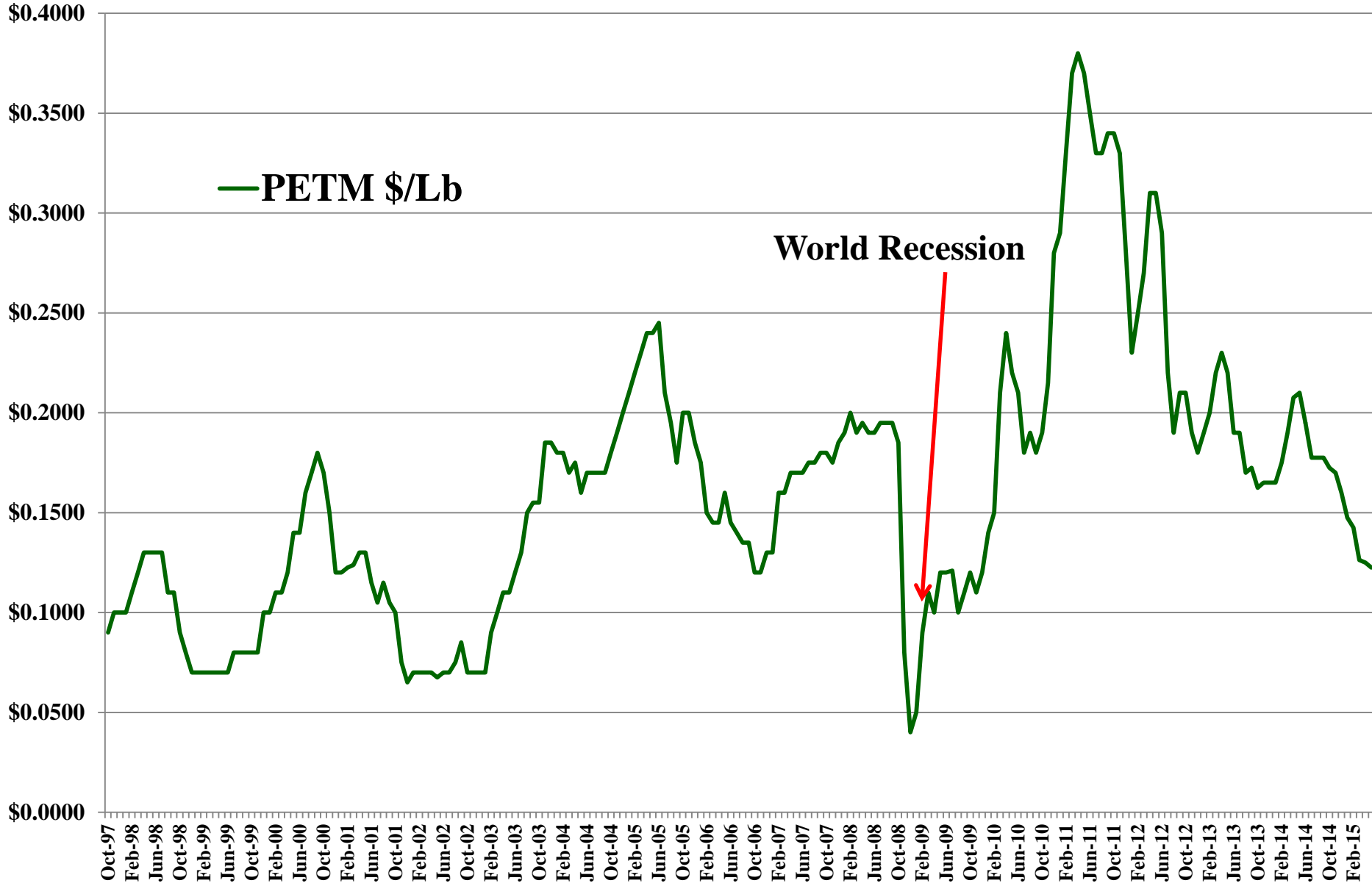


Secondary Materials Pricing . Com

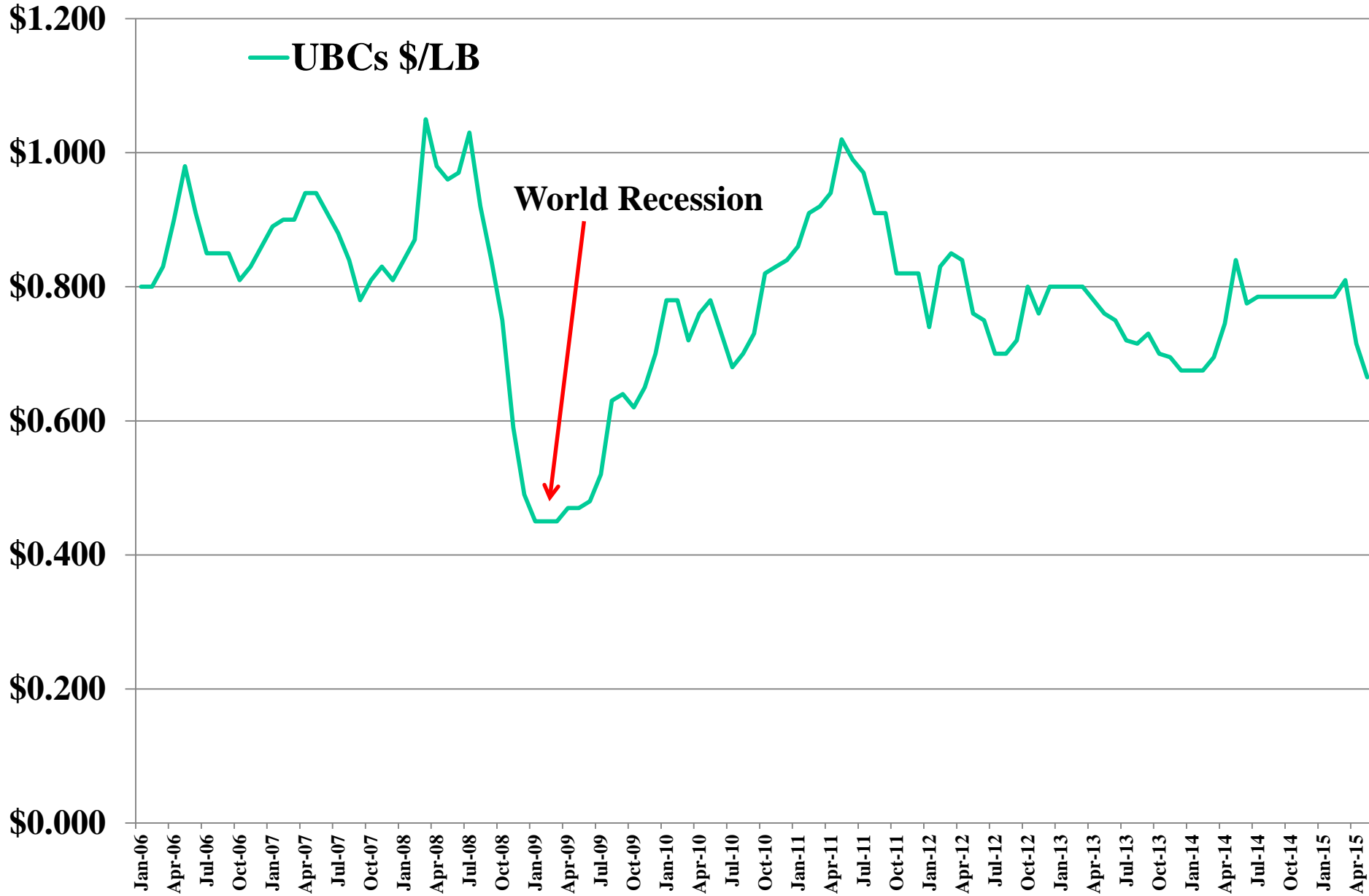
Midwest Region



Secondary Materials Pricing . Com Midwest Region



Secondary Materials Pricing . Com Midwest Region



Secondary Materials Pricing . Com Midwest Region

\$300.00

\$250.00

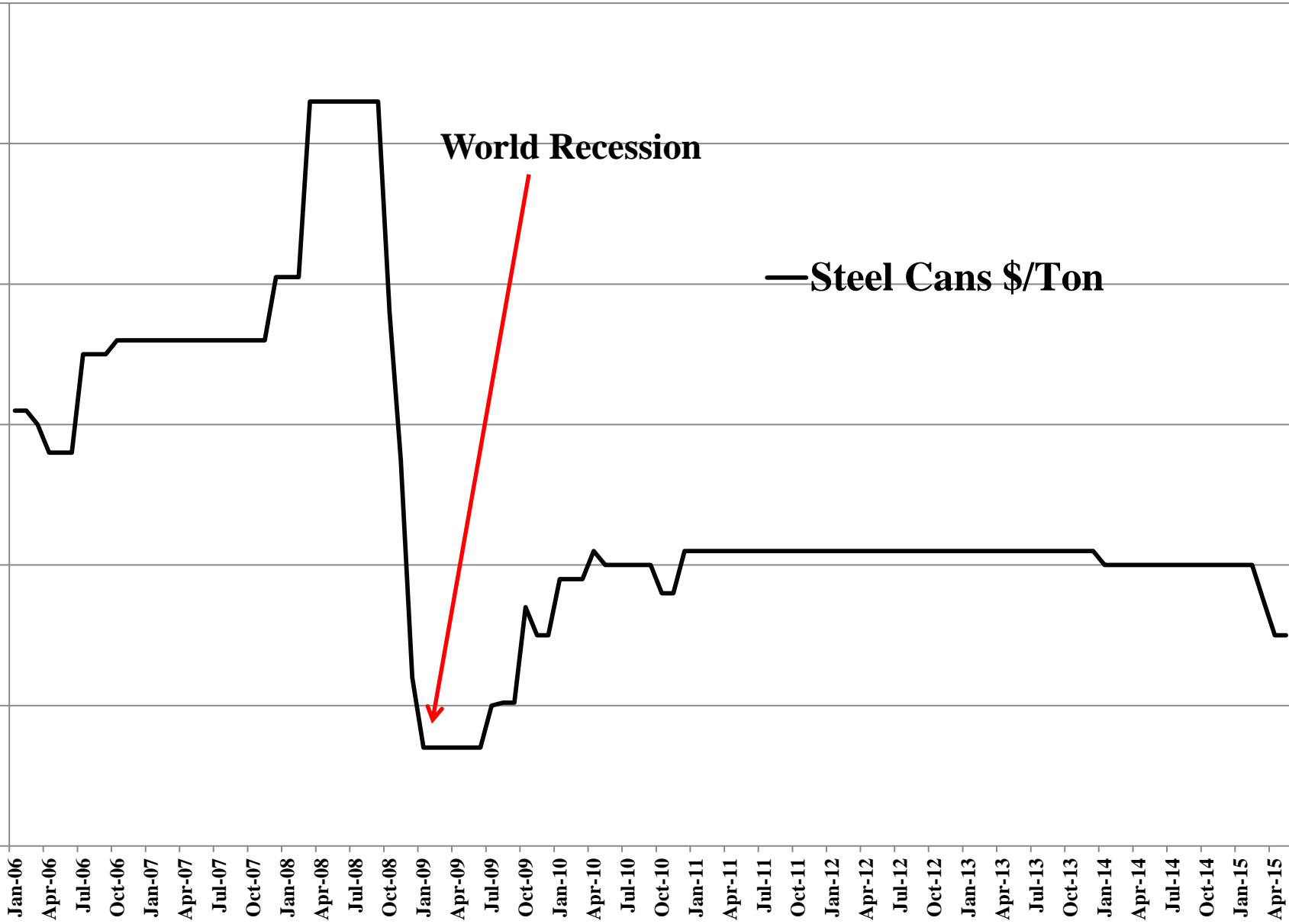
\$200.00

\$150.00

\$100.00

\$50.00

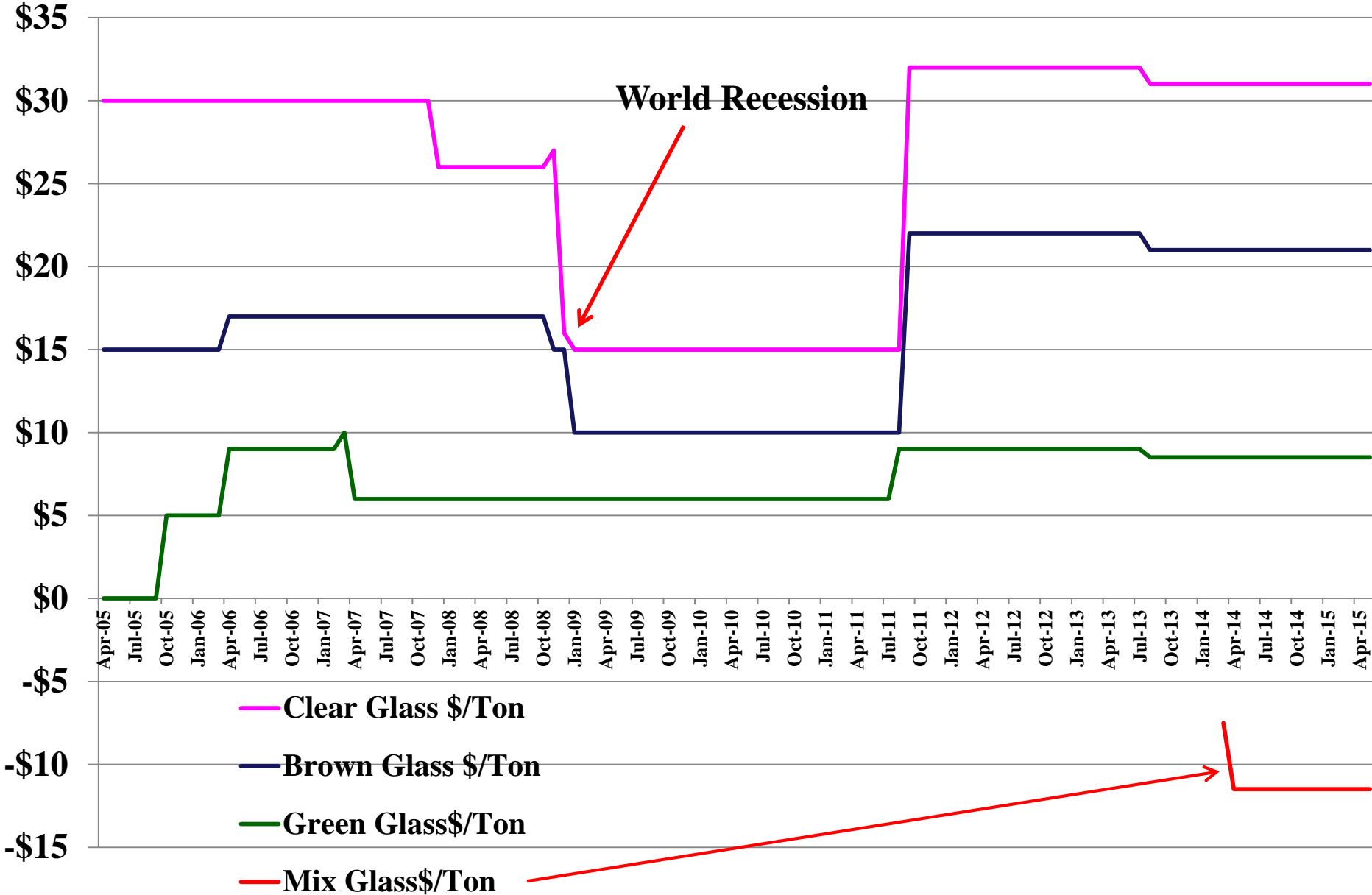
\$0.00



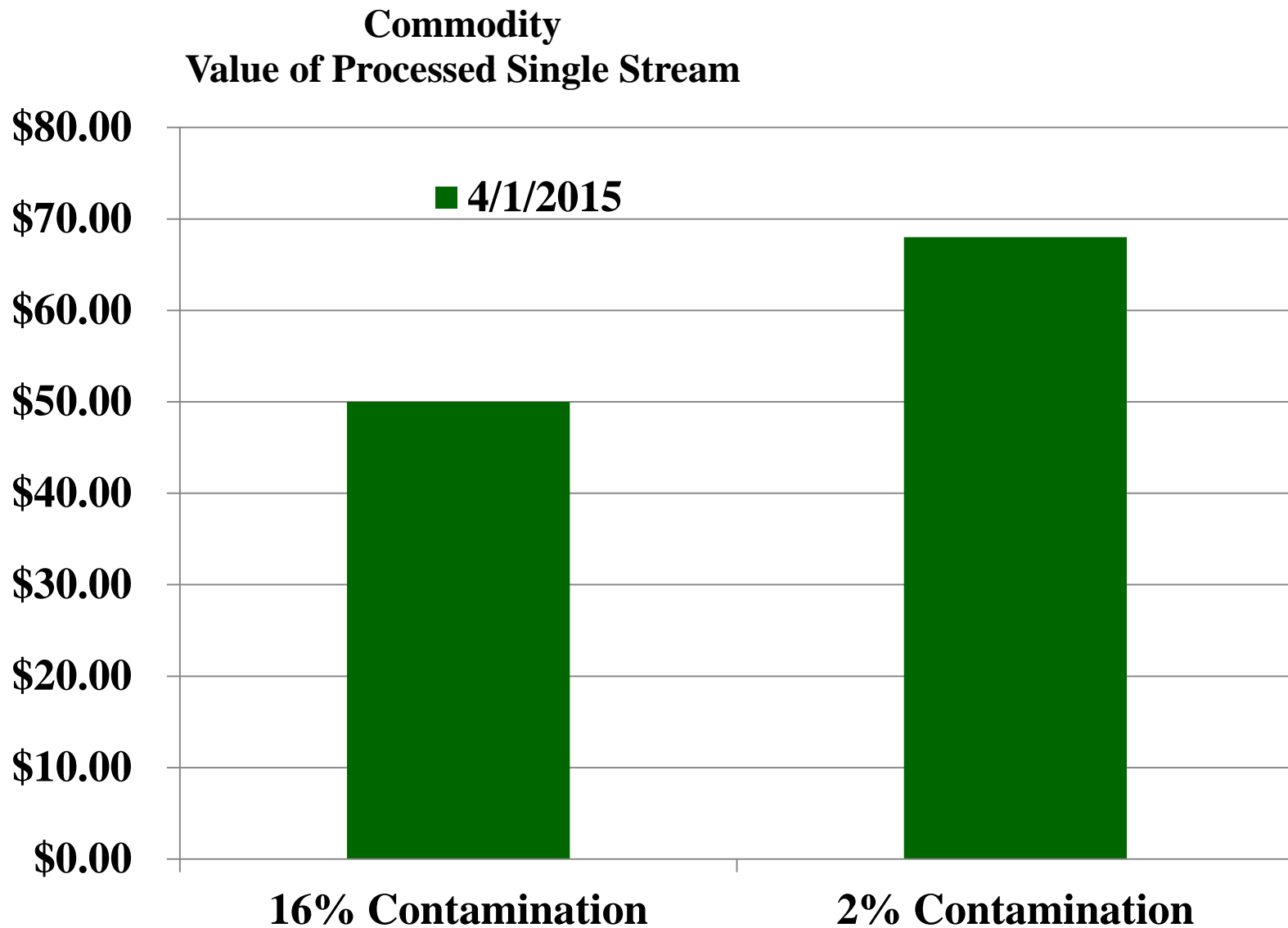
World Recession

— Steel Cans \$/Ton

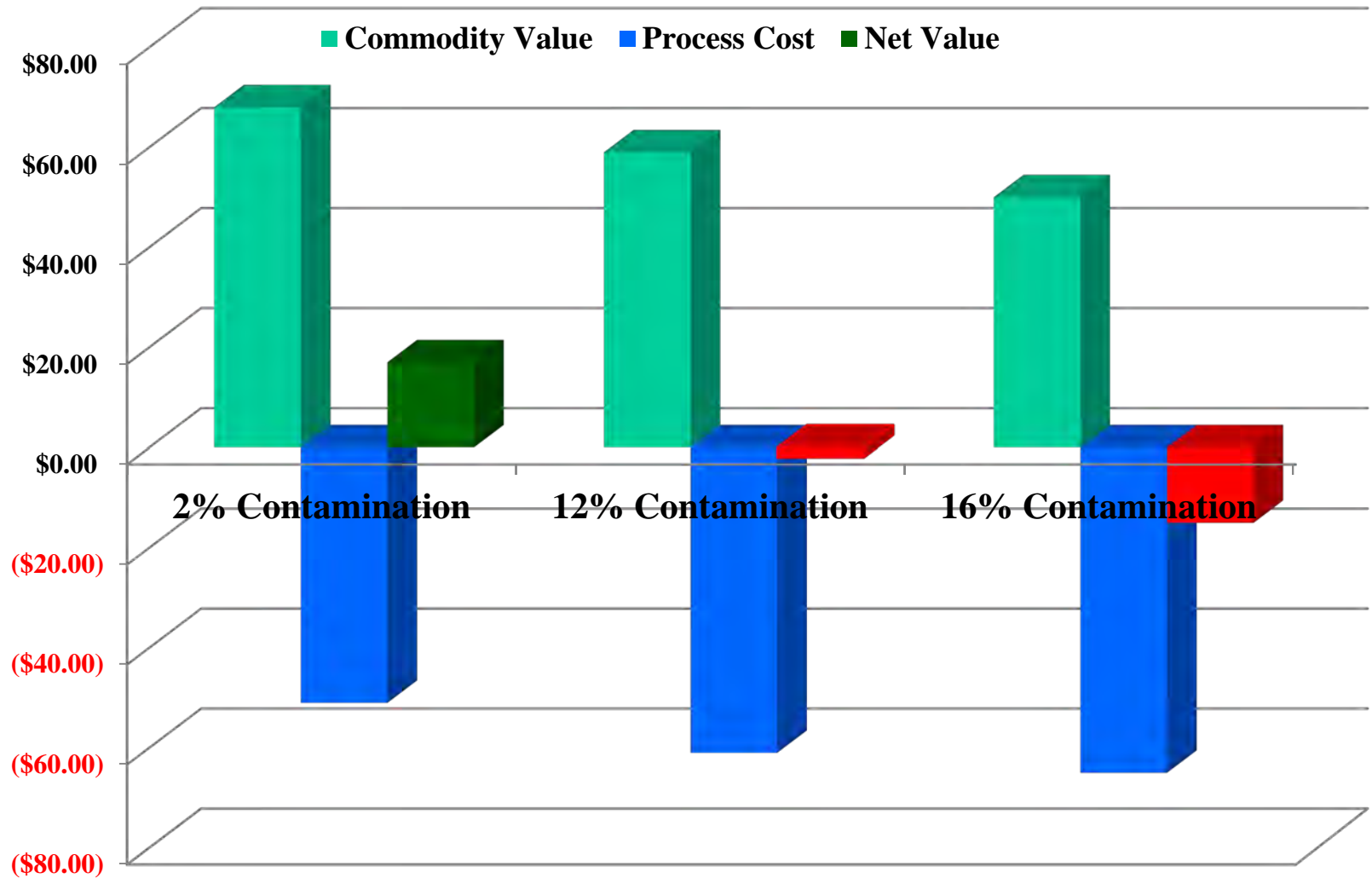
Secondary Materials Pricing . Com Midwest Region



How Contamination Affects Value

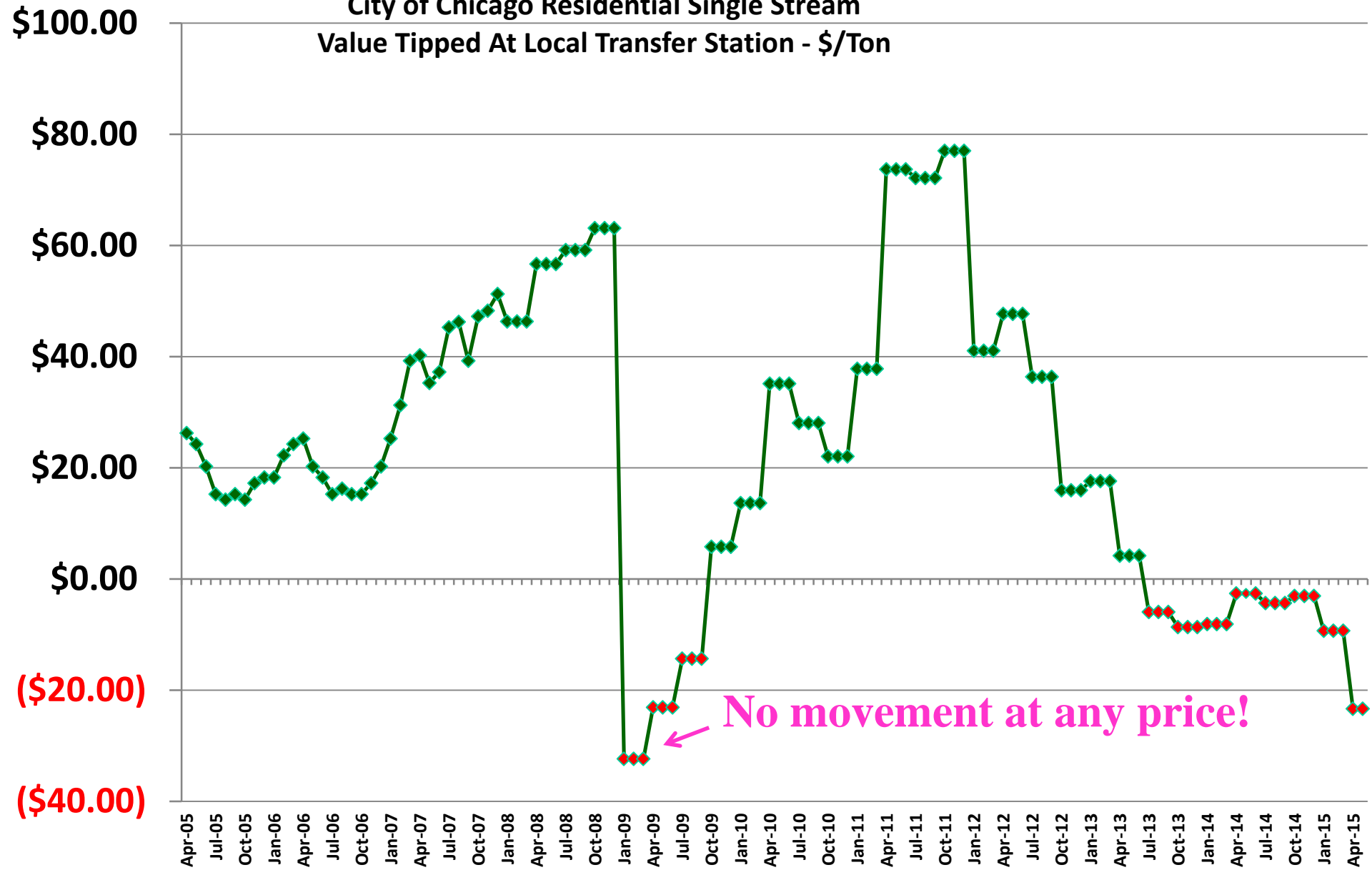


Higher Contamination = Higher Processing Cost and Lower Net Commodities Value



Value of Residential Single Stream

City of Chicago Residential Single Stream
Value Tipped At Local Transfer Station - \$/Ton



Recent Harris Survey

- **86% of Americans would like manufacturers to design products that can easily be disassembled for recycling.**
- **62% say if a product is not easy or convenient to recycle, they won't.**
- **87% are not willing to pay more for having a product more easy to recycle.**

Government Advisory Associates Residential Single Stream

- **Average Residual Rate = 16.6%**
- **Some as high as 25 to 30%**

Based on a study of 35 curbside single stream programs.

Source: Resource Recycling / April, 2015

Aseptic Packaging

73% paper, 23% plastic, 4% aluminum

75% by weight is recycled typically for tissue mills.

(Source: RecyclingToday, May, 2014)



Flexible Packaging / Pouches

Kraft Foods (CapriSun) being targeted by environmental groups for limited recycling of food & beverage pouches.



Cup Recycling

- MicroGreen Polymers Inc (Incycle Brand) recycled cup maker shuts down losing production of 400,000 to 2,000,000 cups per day. Cups made with minimum 50% recycled PET content.
- Dunkin Donuts PP cup?

Source: Plastic News – April 20, 2015

K-Cup

- How guilty should you feel about that K-Cup?

9.8 billion cups sold last year

= 140,434 tons of waste

However, the US packs landfills every year with

34.7 million tons of food waste

8.8 million tons of clothing

11.5 million tons of furniture

Every cup counts, but every sofa counts more.

Source: Fortune Magazine, April, 2015