

A Study of  
**Packaging Efficiency**  
As It Relates to Waste Prevention

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*20th Anniversary Edition*

Prepared by  
the Editors of  
*The ULS Report*

January 2016

Louisville, CO  
[www.use-less-stuff.com](http://www.use-less-stuff.com)  
1-303-482-1745



## EXECUTIVE SUMMARY

### A. Background

This study, which is a follow-up to similar packaging efficiency studies performed in [1995](#) and [2007](#), is designed to do the following:

1. Provide clear and compelling examples of the value of source reduction as a strategy for developing and evaluating sustainable packaging.
2. Identify key characteristics of product/package configurations that add to their overall level of efficiency and sustainability.
3. Promote the use of this data as a way to ensure that cradle-to-grave analyses (raw material extraction through final disposal), which compare packaging alternatives, take into account all relevant information.
4. Illustrate how packaging decisions reflect consumer needs and expectations, and are not made lightly or “in a vacuum”.

### B. Methodology

1. Fifty-six high volume product categories were chosen from four outlet types: supermarkets, mass/general merchandise, drug/health & beauty aid, and “big-box” club stores. Over 300 products and packages were analyzed.
2. The package-to-weight ratio was determined by dividing the weight of the product by the total weight of the product and its package, creating a percentage. The closer the product percentage comes to 1.00, the more efficient the package.
3. Using the greater of two percentages – the EPA’s latest recycling (recovery for reuse) figures or the level of post-consumer recycled content as listed on packages - credit was given for use or creation of diverted materials.
4. The following formula was then applied and net discards (the amount of landfilled material) within categories compared:

Amount of packaging per equivalent unit of product	MINUS	Amount diverted by recycling <i>or</i> by use of post-consumer recycled materials (whichever is greater)	=	Amount being landfilled (net discards)
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## C. MAJOR FINDINGS

1. Consistent with previous studies, the best way to reduce materials going to landfills (net discards) continues to be through the use of lighter weight packaging. In general, bags, pouches, and aseptic packages are significantly lighter and thus more efficient than rigid containers, regardless of the materials used to construct flexible plastic packages, or the much higher recycling rates of the materials used to produce rigid containers. (See Table 3.)
2. While not as significant a factor as source reduction, recycling of primary packaging (defined as recovered material) plays a prominent and growing role in reducing discards. This is especially true for steel and aluminum cans, beverage bottles made from PETE, HPDE and glass, and paperboard cartons. As shown in Table 4, these materials are collectively recycled at a 34.2% rate today, up significantly versus 25.7% in 2005. *In fact, the level of primary packaging recycling is now equal to the recovery rate for total waste, and is the primary reason that the total recovery rate increased from 31.4% in 2005 to 34.3% today.*
3. Source reduction continues to play a significant role in the effort to reduce material usage and waste, even given the large amount of light weighting which occurred in the 1970s. For reference, the EPA estimated that between 1972 and 1992, soft drink containers were reduced in weight by 36% for one-way glass bottles, 32% for steel cans, 22% for aluminum cans, and 18% for PETE bottles. As shown in Table 5, the trend in many categories continues today.
4. Larger product/packaging sizes are significantly more efficient than their smaller counterparts, regardless of material type. The examples in Table 6 highlight how much more efficient large sizes can be than their smaller counterparts, regardless of the material selected. Again, this finding is consistent with previous studies.
5. In general, product packaging is more efficient for food products that require more preparation by consumers. Products to which water is added at the point of use, such as dessert mixes and concentrated juice, are significantly more efficient from a packaging perspective than their ready-to-serve counterparts. The same is true for products such as popcorn, cookies, salad dressing, soup, macaroni, and sports drinks.

Table 7 shows the significant reduction in discards when purchasing dry mixes, powders, and concentrates, rather than products in fully constituted form. Not only is there less packaging, but there is also less water to transport, reducing energy usage and greenhouse gas emissions.

## D. CONCLUSIONS

1. Reducing packaging weight continues to offer significant opportunities to minimize net discards, and thus conserve both materials and energy, resulting in lower emission of greenhouse gases and other pollutants. This is true for all materials and packaging types, regardless of the material(s) chosen.

2. The product-to-package weight ratio remains an excellent indicator when trying to make top-line decisions about packaging efficiencies. As an initial measure, this ratio provides a powerful and easy-to-understand metric.

*However, it must be noted that packaging efficiency is only part of the overall sustainability equation.* For example, a less efficient package that does a better job of reducing food waste, improving chances for reducing caloric intake, or eliminating the need of ancillary product use (e.g., disposal spoons or straws) may actually be a better option than a more efficient container.

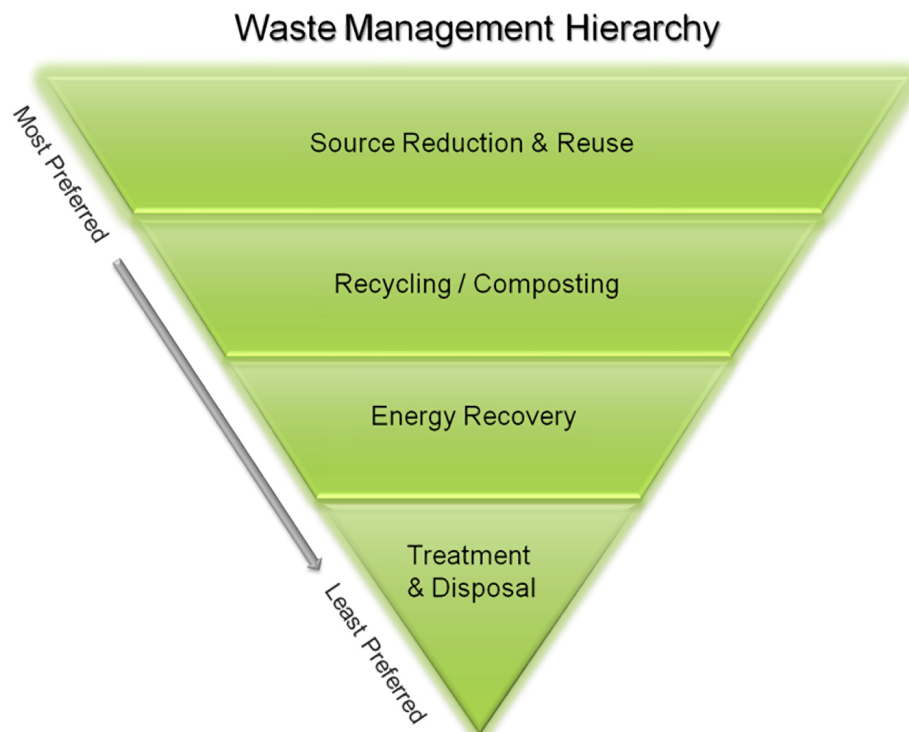
3. As concluded in 1995 and again in 2007, consumer goods marketers and retailers should be encouraged to develop and promote flexible plastic and refillable packaging, concentrates, dry mixes, and larger sizes for appropriate applications. While flexible plastic packaging can cost more to produce, the savings in transportation energy generated across the supply chain can be used to offset this increase.
4. As stated in 2007, consumer goods marketers, retailers, and material producers should coordinate efforts to increase recycling of packaging used in out-of-home applications. This is especially true for smaller size beverages such as water, soft drinks, and juices. PETE, HDPE, steel, and aluminum have both the value and infrastructure in place to effectively reduce the use and impact of virgin materials. Consumers need to be motivated to either bring these packages home for placement in their recycling bins, or provided with easy-to-find, out-of-home, recycling collection sites.
5. Ultimately, packaging decisions are driven by consumer perceptions and lifestyle requirements. In many cases, these factors lead to more packaging, rather than less. Two examples come to mind:
  - a. *We Tend to Equate Quality with Quantity*  
A 500ml bottle of store brand water weighs 8.8 grams and has a retail price of \$0.13. A 500ml bottle of a typical “performance brand” weighs 27.3 grams and retails for \$1.19. While the latter’s heavier weight and higher price may increase quality perceptions among users, they generate greater environmental and economic costs for society.
  - b. *We Strive to Achieve Active, Healthy Lifestyles*  
This state of mind leads to the demand for packaging to deliver convenience, ease of use, and portion control. Resulting packaging responses generally lead to inefficiencies, as they require smaller sizes or the increased functionality needed to deliver ready-to-eat, ready-to-serve, and out-of-home product solutions. (Example: Single serve yogurt containers, in multi-packs, with a paperboard outer wrap, versus one large tub of the equivalent amount of product.)

## I. INTRODUCTION

### A. Background

In [1995](#) and [2007](#), we published studies on packaging efficiency indicating that one of the best ways to improve both the environmental and economic efficiencies of typical consumer packaged goods was to practice source reduction -- focusing on delivering more product with the same or lesser amount of packaging.

These studies mirror the U.S. Environmental Protection Agency's waste management hierarchy, which lists source reduction as the most preferred waste reduction strategy, followed by recycling, composting and energy recovery:



Source: EPA (<http://www.epa.gov/waste/nonhaz/municipal/hierarchy.htm>)

Further, we have consistently stated that source reduction needs to take center stage because recycling could apparently not grow fast or large enough to offset increases in waste generation. We even predicted in 1995 that by the year 2000, the amount of material that would be discarded or combusted would be at least the same as it was in 1993 (about 160 million tons) -- even as recycling (defined as material recovered for reuse) increased from a rate of 23% in 1993 to a projected rate of 30% in 2000.

As shown in Table 1, our estimates in 1995 accurately foreshadowed what actually occurred in 2000 and is still continuing today: Even with the significant growth in the overall recovery rate to 34.3% in 2013, annual discards still exceed 160 million tons.

*Note: This report and the accompanying research were funded by the American Chemistry Council, which provided the author(s) with full control of the research methodology, findings, conclusions, and observations.*

**Table 1: U.S. Municipal Solid Waste Trends**

<b>U.S. Municipal Solid Waste Statistics</b> (MMT = Million Tons)						
	<u>Our Projection in 1995*</u>		<u>EPA Actual Figures**</u>			
	<u>2000</u>		<u>2000</u>		<u>2013</u>	
	<u>MMT</u>	<u>%</u>	<u>MMT</u>	<u>%</u>	<u>MMT</u>	<u>%</u>
Waste Generated	230.0	100.0	237.6	100.0	254.1	100.0
Material Recovered for Recycling	69.0	30.0	69.1	29.1	87.2	34.3
Discards Before Landfilling or Combustion for Energy	161.0	70.0	168.5	70.9	166.9	65.7

\* A Study of Packaging Efficiency As It Relates to Waste Prevention, The ULS Report, March 1, 1995

\*\* Advancing Sustainable Materials Management: 2013 Fact Sheet, EPA, June 2015, p. 8

Along with solid waste management concerns, issues relating to packaging, waste generation, and waste reduction continue to stir significant public, media, local government, and legislative interest. These ongoing concerns relate to a variety of issues:

1. Energy and raw material prices have fluctuated widely (and wildly), making the cost of maintaining the typical American lifestyle quite unpredictable. Plus, real income has been relatively stagnant, forcing people to constantly find savings opportunities. (See *Census Bureau: U.S. Poverty, Incomes Stay Stagnant*, U.S. News & World Report, September 16, 2015.)
2. Greenhouse gas emissions are now widely believed, with scientific evidence, to contribute to global climate change. Thus, the need to reduce carbon dioxide emissions by reducing energy consumption is generally accepted.
3. Reducing the use of fossil fuels continues to be viewed as an economic, political and ecological priority. This concern has helped increase interest in goods made from “renewable resources” such as corn and sugar cane; as well as in materials that can be composted or readily made to biodegrade.
4. Decreases over the last year in energy costs, and a slowing Chinese economy, have led to reductions in material costs, driving down recycling operation revenues. This has led to efforts to increase the collection of high-value recyclables such as aluminum, steel, paperboard, and plastics such as PETE and HDPE. (See *Recycling Becomes a Tougher Sell as Oil Prices Drop*, Wall Street Journal, April 5, 2015)

In addition to the above factors, the last 20 years have seen demographic, sociological, and marketplace trends that have led to new types of packaging:

- Smaller households; busier families looking for convenient options; and health concerns driven by the desire for weight loss; have all led to a proliferation of smaller sizes, portion control, and ready-to-serve packaging.
- Flexible plastic packaging continues to grow, as brand owners look to offer source reduced packages that can also reduce product and transportation costs.

Over the last 20 years, there has been some very good news relating to packaging discards. As shown in Table 2, between 1994 and 2012, municipal solid waste grew by 21.5%, in line with household growth. Yet, *the amount of MSW related to containers and packaging grew by only 1%*. This means that the percentage of solid waste due to packaging fell significantly during those 18 years, from 36% to 30%.

**Table 2 (MM = Millions):**

**Population and Municipal Solid Waste (MSW)**

U.S. EPA and Census Bureau Statistics

	<b>1994</b>	<b>2013</b>	<b>Change</b>
<b>U.S. Population</b> (MM)	261.8	316.5	20.9%
<b>Households</b> (MM)	97.1	122.5	26.2%
<b>Total MSW</b> (mm tons)	209.1	254.1	21.5%
<b>Containers &amp; Packaging:</b>			
<b>MSW Generated</b> (mm tons)	75.0	75.8	1.1%
% of Total MSW	35.9%	29.8%	
<b>MSW Recovered</b> (mm tons)	25.1	39.1	55.8%
% of Containers & Packaging	33.5%	51.6%	
<b>MSW Discarded</b> (mm tons)	49.9	36.7	-26.5%
% of Containers & Packaging	66.5%	48.2%	
<b>Per Capita MSW Discarded</b>			
Lbs/Person	381.2	231.9	-39.2%
Lbs/Household	1027.8	599.2	-41.7%

This is a far different scenario than that projected by the EPA back in 1994. At that time, the agency stated that by 2010, packaging-related waste would grow by 32% (from 75 to 99 million tons) and account for 38% of total MSW. What happened?

First, the *24 million tons of used packaging that was projected by the EPA, but not generated*, was primarily due to source reduction. As a related reference, the EPA estimated that between 1972 and 1992, soft drink containers were reduced in weight by 36% for one-way glass bottles, 32% for steel cans, 22% for aluminum cans, and 18% for PET bottles.

Second, there were major gains in container recycling. Between 1994 and 2013, the amount of packaging materials recovered for recycling grew by 55.8%, and the recovery (recycling) rate jumped from 33.5% to 51.6%. This is very significant, since most state bottle bill deposit legislation had already been passed and implemented by 1989.

Thus, the combination of increased source reduction and recycling helped reduce packaging discards by a 26.5%. *On a per capita basis, the reduction was a whopping 39% per person, and almost 42% per household.*

This analysis clearly shows the synergistic value of recycling and source reduction. Thanks to increased recycling activity, the absolute amount of materials recovered increased. In addition, thanks largely to source reduction, the relative amount of those recovered materials also increased, which is why the recycling rate grew significantly: There was a smaller base of generated waste against which to measure the larger amount of recyclables.

Given the strength of this data, and the lack of public awareness regarding it, there is still a strong need to educate a wide variety of audiences about the value of source reduction when making good decisions about efficient packaging. Thus, this study was undertaken as an update to its predecessors, providing a follow-up analysis and trend assessment.

## **B. Expected Outcomes of This Research**

This study has been designed to do the following:

1. Provide clear and compelling examples of the value of source reduction as a strategy for developing and evaluating sustainable packaging.
2. Identify key characteristics of product/package configurations that add to their overall level of efficiency and sustainability.
3. Promote the use of this data as a way to ensure that cradle-to-grave analyses (raw material extraction through final disposal) when examining packaging alternatives, take into account all necessary information.
4. Illustrate how packaging decisions reflect consumer needs and expectations, and are not made lightly or “in a vacuum”.



## C. Methodology

### 1. Procedure

- a. Fifty-six high volume product categories were chosen from four outlet types: supermarkets (e.g., Kroger, Whole Foods), mass/general merchandise (Walmart, Target), drug/health & beauty aid (Walgreen's, CVS), and "big-box" club stores (Costco, Sam's). The categories and sub-categories are listed on page 10, with data on almost 300 products beginning on page 11. (See Exhibits and Appendices for product/package information and photos.)
- b. Different containers used in each category were weighed after emptying, cleaning, and drying. As an example, the juice category includes containers made from glass; steel; aluminum; plastic or clay (kaolin) coated paperboard; plastic coated foil; and composites of paper, foil and plastic.

Using the stated weight on the package, product weight in grams (28.35 grams/ounce) was also recorded. In the case of most liquids, the weight was based on specific gravity of water, which is 29.57 grams. (For reference, one of the exceptions is table syrup, which weighs about 39.5 grams per ounce.)

Then, the package-to-weight ratio was determined by dividing the weight of the product by the total weight of the product and package, creating a percentage. The closer the product percentage comes to 1.00, the more efficient the package.

- c. To ensure that meaningful disposal and diversion comparisons could be made, alternative products and packages within each category were then converted to equivalent terms or functional unit. For laundry detergents this was 10,000 loads; for juices it was 100 gallons; for most foods it was 1000 pounds of product; and for sweeteners it was 10,000 servings.
- d. Using the EPA's latest recycling (recovery for reuse) figures or the level of post-consumer recycled content as listed on packages, credit was given for use or creation of diverted materials.
- e. The higher of the recycling rate or listed post-consumer recycled content percentage was used. Also, plastic packaging not including "chasing arrows" recycling symbol did not receive recycling or recycled content credit.

The recovery rates, as listed in the EPA's June, 2015 Report, *Advancing Sustainable Materials Management: 2013 Fact Sheet* and *Facts and Figures 2013*:

<u>Material</u>	<u>2013 Recovery Rate</u>
Aluminum, Beverage Cans	55%
Glass, Beer & Soft Drink Bottles	41%
Glass, Other Bottles and Jars	15%
HDPE, Milk and Water Bottles	28%
HDPE, Other Containers	21%
HDPE, Bags, Sacks & Wraps	6%
LDPE, Bags, Sacks & Wraps	21%
Paperboard & Other Packaging*	28%
Composite Carton Packaging**	10%
PETE, Bottles & Jars	31%
PETE, Other Packaging	3%
PP, Other Containers	11%
Steel, Food and Other Cans	71%
Steel, Other Packaging	79%

\* Estimated from EPA Data      \*\* Recovery rate provided by the Carton Council

- f. The following formula was then applied to determine net discards:

Amount of packaging per equivalent unit of product	MINUS	Amount diverted by recycling or by use of post-consumer recycled materials (whichever is greater)	=	Amount being landfilled (net discards)
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- g. Net discard quantities for packaging types within categories were compared.
- h. Study methodology, findings, and conclusions were reviewed by Dr. Jennifer Mangold and Rachel Simon of the Laboratory of Manufacturing and Sustainability (LMAS) at the University of California, Berkeley. Using a large sample of packaging that we provided, the LMAS researchers also duplicated a significant number of package weight measurements, confirming their accuracy.
- i. Rick Lingle, Technical Editor of *Packaging Digest*, also reviewed this study and agreed with the findings, conclusions, and recommendations.

## 2. Discussion Points/Study Limitations

- a. The study is not intended to provide absolute winners and losers, but rather trends and directional differences between various packaging options. Thus, restraint should be used when tempting to pick “the better package.”
- b. Every attempt was made to develop logical, consistent comparisons. Depending upon the category, delivered value was based on weight, reconstituted liquid, or number of portions. *For this reason, specific comparisons are best made within categories, rather than across them.*
- c. To minimize effects related to volume, comparisons were made primarily among packaging that contained similar amounts or delivered similar quantities of product. Because larger size containers are generally more efficient than smaller ones in their ability to deliver product, comparisons were generally made within single or multi-serve categories, rather than between them.
- d. Net discard figures should be considered approximate, and minor differences should not be considered to be significant. Figures listed are for specific products, not for entire categories, so results could vary somewhat between different brands using similar packaging types and materials. *We are most concerned about gross efficiencies, since these present both the most accurate results and the best opportunities for generating improvement.*
- e. Recycling rates do not necessarily reflect actual conditions, owing to differences arising as to where a product is consumed. In general, the EPA’s recycling rates reflect packaging recycling/diversion for products consumed at home. The ability to recycle packaging that is used out-of-home, such as while travelling, is significantly less than for products and packages used at home. *Thus, the recycling rates for single serve juice packages made from steel, aluminum, glass, HDPE, and PETE most likely overstate the diversion rates for these materials when used in out-of-home applications.*
- f. This study does not take into account the value of energy generated from combustion of discards. While the EPA provides general estimates of how much waste is combusted rather than discarded, there is no indication as to which materials are being combusted.
- g. This study seeks to determine waste reduction or diversion efficiency. It makes no judgments regarding the tangible or intangible value of different products or materials. The research was designed to highlight packaging that minimizes packaging discards, and cannot be used, in and of itself, to make categorical judgments regarding energy efficiency or total environmental impact.

- h. From a bigger picture perspective, this study does not take into account the relationship between packaging configurations and their ability to reduce product waste (“shrinkage”) or other types of waste. For example:
1. Single serve (6 oz.) yogurt containers use more packaging per product than do multi-serve (32 oz.) containers. However, if single serve containers ensure full consumption of the product while slower-than-anticipated use up of yogurt in the large size creates waste through spoilage, the value of food waste reduction must be considered before a full assessment can be made.
  2. Single serve yogurt tubes in paperboard boxes may use more packaging than single serve cups. However, the tubes allow for direct consumption, while the cups require a spoon that would either need to be washed or thrown away, if disposable. Again, total life cycle resource use must be factored in before a true comparison can be completed.

Thus, the protective and functional capabilities of a specific package are crucial factors in determining overall economic, environmental, and social performance. *Any conclusions drawn about the overall value of a package would most likely include factors that are beyond the scope of this study.*

### 3. *Terms and Abbreviations Used in This Study*

Fiberboard – Uncoated rigid paper, commonly known as “cardboard”, or in the recycling community as “old corrugated containers,” or OCC.

Paperboard – Paper coated with LDPE or clay (kaolin), usually bleached

Composite – A material made from combinations of paperboard, aluminum foil, and/or LDPE or PVC

HDPE – High density polyethylene

LDPE – Low density polyethylene

PS – Polystyrene

PETE – Polyethylene terephthalate

EPS – Expanded polystyrene

PP – Polypropylene

PVC – Polyvinyl chloride

## II. MAJOR FINDINGS

- A. Consistent with the previous studies, the best way to reduce materials going to landfills (net discards) continues to be through the use of lighter weight packaging. In general, bags, pouches, and aseptic packages are significantly lighter and thus more efficient than rigid containers, regardless of the materials used to construct flexible plastic packages, or the much higher recycling rates of the materials used to produce rigid containers. (See Table 3.)

**Table 3: Rigid vs. Flexible Plastic Container Comparisons**

<b>RIGID VS. FLEXIBLE PLASTIC CONTAINER COMPARISONS</b>					
(Based on Normalized Product Usage as Indicated)					
<b>Category</b>	<b>Package</b>	<b>Type</b>	<b>Package Size</b>	<b>Recycling Rate (%)</b>	<b>Net Discards* (Lbs.)</b>
<b>Dish Detergent</b> (1000 Lbs.)	Plastic Pouch	Flexible	12.7 oz.	0	27.5
	HDPE Bottle	Rigid	75 oz.	21	38.9
	Paperboard Box	Rigid	75 oz.	35**	36.9
<b>Pet Food (Dry)</b> (1000 Lbs.)	Plastic Pouch	Flexible	24 oz.	0	23.1
	Paperboard Box	Rigid	24 oz.	28	75.3
<b>Ground Beef</b> (1000 Lbs.)	Plastic Tube	Flexible	16 oz.	0	7.0
	Plastic Pouch	Flexible	16 oz.	0	12.6
	EPS Tray	Rigid	16 oz.	0	25.1
	Paperboard Box	Rigid	32 oz.	28	60.9
<b>Tuna</b> (1000 Lbs.)	Foil/LDPE Pouch	Flexible	5 oz.	0	45.1
	Steel Can	Rigid	5 oz.	71	63.8
<b>Fruit Juice</b> (100 Gallons)	Aseptic Boxes	Flexible	54 Fl. Oz.	10	40.4
	Steel Cans	Rigid	36 oz.	71	64.9
	Glass Bottles	Rigid	40 oz.	15	386.5
<b>Cereal</b> (1000 Lbs.)	Plastic Pouch	Flexible	11 oz.	0	28.9
	Paperboard Box	Rigid	17 oz.	35**	131.1
	Gabletop Carton	Rigid	24 oz.	10	77.1

\* Includes lids, liners, spouts, seals, labels, wraps, inner bags, etc.

\*\* Listed post-consumer recycled content

Importantly, the effect of light-weighting (i.e., source reduction) has value long before packages head to the landfill. Lighter weight helps reduce energy consumption during transportation at every step in the supply chain: Trucks or railcars either have weight-reduced cargos, or it takes fewer of them to carry the same amount of product. In either case energy is conserved, greenhouse gases and other pollutants are reduced, and money is saved.

- B. While not as significant a factor as source reduction, recycling of primary packaging (defined as recovered material) plays a prominent and growing role in reducing overall discards.** This is especially true for steel and aluminum cans, beverage bottles made from PETE, HPDE and glass, and paperboard cartons. As shown in Table 4, these materials are collectively recycled at a 34.2% rate today, up significantly versus 25.7% in 2005. *In fact, the level of primary packaging recycling is now equal to the recovery rate for total waste, and is the primary reason that the total recovery rate increased from 31.4% in 2005 to 34.3% today.*

**Table 4: Primary Packaging Waste Generation & Recovery**

<b>PRIMARY PACKAGING WASTE GENERATION &amp; RECOVERY</b> (Based on 2013 EPA Data)						
<b>Container Type</b>	<b>Waste Generated</b> (000 Tons)		<b>Waste Recovered</b> (000 Tons)		<b>Recovery Rate</b> (%)	
	<b>2005</b>	<b>2013</b>	<b>2005</b>	<b>2013</b>	<b>2005</b>	<b>2013</b>
Glass Beverage Bottles	8170	7160	2250	2840	27.5	39.7
Other Glass Bottles & Jars	2290	2100	340	310	14.8	14.8
Steel Cans & Other Packaging	2370	2400	1500	1740	63.3	72.5
Aluminum Cans, Foil & Closures	1930	1800	690	700	35.8	38.9
Paperboard Packaging	8710	8510	1510	2360	17.3	27.7
PETE Bottles & Jars	2540	2880	590	900	23.2	31.3
HDPE Natural Bottles	800	780	230	220	28.8	28.2
Other Plastic Containers	<u>1420</u>	<u>1830</u>	<u>140</u>	<u>330</u>	<u>9.9</u>	<u>18.0</u>
Total Primary Packaging	28,230	27,460	7250	9400	25.7	34.2
Total Waste	253,730	254,110	79,790	87,180	31.4	34.3
Primary Packaging % of Total Waste	11.1	10.8	9.1	10.8		

- C. Even though major weight reductions have occurred in the past, our data shows increases in source reduction continue to play a significant role in the effort to reduce material usage and waste. For reference, the EPA estimated that between 1972 and 1992, soft drink containers were reduced in weight by 36% for one-way glass bottles, 32% for steel cans, 22% for aluminum cans, and 18% for PETE bottles. As shown in Table 5, the trend in many categories continues today.

**Table 5: Examples of Source Reduction**

<b>THE VALUE OF SOURCE REDUCTION</b> (Based Upon 1000 Lbs., or 100 Gallons, of Product)			
<b>Package</b>	<b>2007</b> (g)	<b>2015</b> (g)	<b>Reduction</b> (%)
Kroger Milk, 64 fl. oz. HDPE Jug	47.2	41.5	-12.0
Applegate Sliced Turkey, 7 oz. Plastic Bag	12.7	9.3	-26.8
Heinz Ketchup, 64 oz. Plastic Bottle (from PETE to HDPE)	112.1	85.1	-24.1
Cascade Dishwashing Detergent, 75 oz. Paperboard Box	160.9	120.7	-25.0
Del Monte Fruit Cocktail, 15.25 oz. in Steel Can	65.1	55.2	-15.2
Jell-O Pudding, 3.9 oz. Paperboard Box	34.2	26.9	-21.5
Banquet Frozen Dinner, 12 oz. Paperboard Carton/PETE Tray	58.0	45.3	-21.9

- D. Larger product/packaging sizes are often significantly more efficient than their smaller counterparts, regardless of material type. The examples in Table 6 highlight how much more efficient large sizes can be than their smaller counterparts, regardless of the material selected. (Again, this finding is consistent with previous studies.)

Table 6

<b>SMALL VS. LARGE SIZE COMPARISON</b> (Based Upon 1000 Lbs., or 100 Gallons, of Product)			
<b>Category</b>	<b>Package</b>	<b>Product/Package Ratio (%)</b>	<b>Net Discards (Lbs.)</b>
<b>Cream Cheese</b>	8 oz. PP Tub	92/8	76.8
	12 oz. PP Tub	94/6	59.3
	16 oz. PP Tub	95/5	52.5
<b>Milk</b>	64 fl. oz. HDPE Bottle	98/2	14.6
	128 fl. oz. HDPE Bottle	98/2	10.4
<b>Cereal</b>	17.0 oz. Paperboard Box	86/14	107.4
	8.56 oz. – 8 Paperboard Boxes	70/30	298.0
<b>Baby Food</b>	2.5 oz. Glass Jar	51/49	767.1
	4.0 oz. Glass Jar	58/42	575.0
<b>Apple Sauce</b>	24 oz. PETE Jar	92/8	66.6
	46 oz. PETE Jar	94/6	46.5
<b>Soup</b>	17.3 oz. Aseptic Carton	96/4	84.5
	32 fl. oz. Aseptic Carton	96/4	70.2
<b>Pet Food</b>	3.0 oz. Aluminum Can	90/10	115.3
	5.5 oz. Aluminum Can	91/9	102.0

- E. In general, product packaging is more efficient for food products that require more preparation by consumers. Products to which water is added at the point of use, such as dessert mixes and concentrated juice, are significantly more efficient from a packaging perspective than their ready-to-serve counterparts. The same is true for products such as popcorn, cookies, salad dressing, soup, macaroni, and sports drinks. This efficiency also significantly reduces the impacts of transportation due to reduction in weight and package size.

Table 7 clearly shows the significant reduction in discards when purchasing dry mixes, powders, and concentrates, rather than products in fully constituted form. Not only is there less packaging, but there is also less water to transport, reducing energy usage and greenhouse gas emissions.

**Table 7: Convenience and Packaging Efficiency**

<b>THE VALUE OF DOING IT YOURSELF</b>			
<b>Category</b>	<b>Package</b>	<b>Product Type</b>	<b>Net Discards (Lb.)</b>
<b>Puddings/Gelatins</b> (4000 Servings)	Gelatin – 6 oz. in Plastic Bag	Dry Mix	2.8
	Pudding – 5.9 oz. in Paperboard Box	Dry Mix	18.2
	Pudding – 33 oz. – 6 Plastic Snack Cups	Ready to Eat	66.1
<b>Orange Juice</b> (100 Gallons)	Frozen Concentrate – 12 oz. Paper/Metal Can	Concentrate	18.5
	64 fl. oz. Gable Top Carton	Ready to Drink	26.3
<b>Popcorn</b> (1000 Lbs.)	32 oz. Bag of Kernels	Heat in Oil	5.9
	19.2 oz. – 6 Bags in Paperboard Box	Microwavable	255.3
<b>Cookies</b> (1000 Lbs.)	16.5 oz. Plastic Tube	Dough	12.3
	14.0 oz. Paperboard Box with LDPE/Foil Bag	Ready to Eat	92.2
<b>Salad Dressing</b> (4000 Servings)	.6 oz. Foil/LDPE Pouch	Add oil & water	2.4
	16 oz. PETE Bottle	Ready to Eat	20.1
	12 oz. – 8 Plastic Cups/Paperboard Box	Ready to Eat	41.9
	12 oz. Glass Bottle	Ready to Eat	148.5
<b>Soup</b> (4000 Servings)	26.0 oz. Plastic Bag	Dry Mix	6.2
	10.5 oz. Steel Can	Condensed	47.7
	26.0 oz. Aseptic Container	Ready to Eat	72.0
	10.75 oz. Single Serve PP Container	Ready to Eat	268.6
<b>Macaroni &amp; Cheese</b> (1000 Servings)	4.4 oz. Composite Pouch	Dry Mix	7.1
	14 oz. Paperboard Box with LDPE/Foil Pouch	Dry Mix	12.7
	32 oz. – 4 PP Cups with Paperboard Sleeve	Dry Mix	47.3
	10 oz. PP Tub with Paperboard Sleeve	Ready to Eat	62.9
<b>Sports Drinks</b> (4000 Servings)	18.4 oz. HDPE Container	Dry Mix	18.0
	32 fl. oz. PETE Bottle	Ready to Drink	132.0

**F. The increase in the availability of single serve items points to the complexity of both packaging and sustainable design decisions.** As shown in Table 8, packages that deliver consumer benefits such as convenience and portion control generate more discards than do bulk packages. When looked at through the lens of “sustainable packaging”, this appears to be a negative result. *However, when a broader perspective on sustainability is applied, the results can be quite different.*

For example:

- Smaller chip, candy, nut, and soda packaging can lead to reductions in sugar, salt, and caloric intake, thus providing weight control, dietary, and nutritional benefits.
- Single serve milk packaging can help reduce food waste by eliminating spillage and overly large portions.



- On-the-go yogurt packaging promotes healthy meals and snacking while it reduces related waste: Squeeze tubes and pouches eliminate the need for disposable spoons or straws.

**Table 8: Packaging Efficiency Based on Serving Size**

<b>PORTION CONTROL: MULTIPLE VS. SINGLE SERVING COMPARISON</b> (Based Upon 1000 Lbs. or 100 Gallons of Product)			
<b>Category</b>	<b>Package</b>	<b>Product/Package Ratio (%)</b>	<b>Net Discards (Lb.)</b>
<b>Snacks/Chips</b>	10.5 oz. LDPE/Foil Bag	97/3	16.9
	1.25 oz. LDPE/Foil Bag	94/6	62.1
<b>Candy</b>	4.5 oz. Plastic Wrapper	98/2	23.5
	11 oz. – 35-0.31 oz. Bars in Plastic Bag	96/4	45.2
<b>Yogurt</b>	32 oz. PP Container	97/3	30.5
	6 oz. PP Cup	96/4	40.6
	16 oz. – 8 LDPE Tubes in Paperboard Box	91/9	89.9
	16 oz. – 4 Pouches in Paperboard Box	85/15	152.0
<b>Milk</b>	32 fl. oz. Aseptic Composite Carton	96/4	30.4
	48 fl. oz. – 6 Aseptic Composite Cartons	95/5	37.4
<b>Nuts</b>	16 oz. LDPE Bag	98/2	19.5
	4.34 oz. – 7 Pouches in Paperboard Box	74/26	270.2
<b>Soft Drinks, Carbonated</b>	2 Liter PETE Bottle	98/2	15.2
	72 fl. oz. – 6-12 fl. oz. Aluminum Cans	96/4	15.1
	60 fl. oz. – 8-7.5 fl. oz. Aluminum Cans	94/6	23.5
	48 fl. oz. – 6-8 fl. oz. Glass Bottles in Paperboard Carrier	57/43	378.2

### III. OTHER OBSERVATIONS

- Besides beer and wine packaging, glass is increasingly becoming the material of choice for smaller volume products. For example, national ketchup and mayonnaise brands appear to have eliminated glass in favor of PETE and/or HDPE, while more “upscale” brands continue to use glass. (For many people, the EPA listing of higher recycling rates for PETE and HDPE than glass for these types of containers will be counterintuitive.)
- Packaging appears to play an increased role in manufacturers’ efforts to effectively control costs. Thanks to the unique shape and structural qualities of PETE, packaging can be used to reduce consumer perceptions regarding product size and pricing differences. For example, one national orange juice brand’s 59 fl. oz. PETE bottle looks similar in size to a standard half gallon (64 fl. oz.) HDPE container. Also, one brand of water uses a 101.4 fl. oz. PETE bottle that actually creates a larger size impression than the typical 128 fl. oz. (one gallon) HDPE jug.

- C. The use of flexible plastic packaging has increased over the last 20 years. Soup, maple syrup, baby food, yogurt, and applesauce are all categories with increased use of flexible plastic packaging. Interestingly, many uses for these types of containers are for products with “green” consumer perceptions in categories such as yogurt, fruit juice, and fresh soup. Thus, the value of source reduction continues to be recognized by all types of retailers, marketers, and manufacturers.

#### IV. CONCLUSIONS

- A. Reducing packaging weight continues to offer significant opportunities to minimize net discards, and thus conserve both materials and energy while reducing the generation of greenhouse gases and other pollutants. This is true for all materials and packaging types, regardless of the material(s) chosen.
- B. The product-to-package weight ratio remains an excellent indicator when trying to make top-line decisions about packaging efficiencies. As an initial measure, this ratio provides a powerful and easy-to-understand metric.

*However, it must be noted that packaging efficiency is only part of the overall sustainability equation.* For example, a less efficient package that does a better job of reducing food waste, improving chances for reducing caloric intake, or eliminating the need of ancillary product use (e.g., disposal spoons or straws) may actually be a better option than a more efficient container.

- C. As concluded in 1995 and again in 2007, consumer goods marketers and retailers should be encouraged to develop and aggressively promote flexible plastic packaging, concentrates, refills, dry mixes, and larger packaging sizes for appropriate applications. While flexible plastic packaging can cost more to produce, the savings in transportation energy generated across the supply chain can be used to offset this increase.
- D. As stated in 2007, consumer goods marketers, retailers, and material producers should coordinate efforts to increase recycling of packaging used in out-of-home applications. This is especially true for smaller size beverages such as water, soft drinks, and juices. PETE, HDPE, steel, and aluminum have both the value and infrastructure in place to effectively reduce the use and impact of virgin materials. Consumers need to be motivated to either bring these packages home for placement in their recycling bins, or provided with easy-to-find, out-of-home, recycling collection sites.

**E. Ultimately, packaging decisions are driven by consumer perceptions and lifestyle requirements. In many cases, these factors lead to more packaging, rather than less.**

Two examples come to mind:

**1. *We Tend to Equate Quality with Quantity***

A 500ml bottle of store brand water weighs 8.8 grams and has a retail price of \$0.13.

A 500ml bottle of a performance brand weighs 27.3 grams and retails for \$1.19.

While the latter's heavier weight and higher price may increase quality perceptions among users, they generate greater environmental and economic costs for society.

**2. *We Strive to Achieve Active, Healthy Lifestyles***

This state of mind leads to the demand for packaging to deliver convenience, ease of use, and portion control. Appropriate packaging responses generally lead to inefficiencies, as they require smaller sizes or the increased functionality needed to deliver ready-to-eat, ready-to-serve, and out-of-home product solutions.

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## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.
<b>ANALGESICS</b> Kroger Ibuprofen	1000 Tablets (200 mg each) in Plastic Bottle	HDPE Bottle	320.0	41.0	361.0	89 / 11		128.1	0	21	26.9	101.2
		Plastic/Paper Cap		9.5				29.7	0	0	0.0	29.7
		Composite Seal		0.7				2.2	0	0	0.0	2.2
		Net	320.0	51.2	371.2	86 / 14		160.0			26.9	133.1
Kroger Ibuprofen	500 Tablets (200 mg each) in Plastic Bottle	HDPE Bottle	160.0	22.5	182.5	88 / 12		140.6	0	21	29.5	111.1
		Plastic/Paper Cap		8.8				55.0	0	0	0.0	55.0
		Composite Seal		0.7				4.4	0	0	0.0	4.4
		Net	160.0	32.0	192.0	83 / 17		200.0			29.5	170.5
Kroger Ibuprofen	250 Tablets (200 mg each) in Plastic Bottle	HDPE Bottle	80.0	19.9	99.9	80 / 20		248.8	0	21	52.2	196.5
		Plastic/Paper Cap		2.5				31.3	0	0	0.0	31.3
		Composite Seal		0.5				6.3	0	0	0.0	6.3
		Net	80.0	22.9	102.9	78 / 22		286.3			52.2	234.0
<b>APPLESAUCE</b> Wacky Apple	24 oz. Glass Jar w/Metal Lid	Glass Jar	680.4	345.6	1026.0	66 / 34		507.9	0	15	76.2	431.7
		Steel Lid		8.6				12.6	0	79	10.0	2.7
		Paper Label		1.3				1.9	0	0	0.0	1.9
		Net	680.4	355.5	1035.9	66 / 34		522.5			86.2	436.3
Kroger Simple Truth	24 oz. Plastic Jar with Plastic Lid	PETE Jar	680.4	50.5	730.9	93 / 7		74.2	0	31	23.0	51.2
		Plastic Lid		9.5				14.0	0	0	0.0	14.0
		Paper Label		1.0				1.5	0	0	0.0	1.5
		Net	680.4	61.0	741.4	92 / 8		89.7			23.0	66.6
Wacky Apple	16 oz. - 4, 4 oz. Cups in Paperboard Sleeve	PP Cups	453.6	21.0	474.6	96 / 4		46.3	0	11	5.1	41.2
		Foil Lids		3.0				6.6	0	0	0.0	6.6
		Paperboard Sleeve		10.5				23.1	0	28	6.5	16.7
		Net	453.6	34.5	488.1	93 / 7		76.1			11.6	64.5
Kroger	46 oz. Plastic Jar w/Plastic Lid	PETE Jar	1304.1	72.5	1376.6	95 / 5		55.6	0	31	17.2	38.4
		Plastic Lid		9.4				7.2	0	0	0.0	7.2
		Paper Label		1.2				0.9	0	0	0.0	0.9
		Net	1304.1	83.1	1387.2	94 / 6		63.7			17.2	46.5
Go-Go Squeeze	12.8 oz. - 4, 3.2 oz. Pouches in Paperboard Sleeve	Pouch & Fitment	362.9	17.2	380.1	95 / 5		47.4	0	0	0.0	47.4
		Plastic Caps		5.2				14.3	0	0	0.0	14.3
		Paperboard Box		26.0				71.6	0	28	20.1	51.6
		Net	362.9	48.4	411.3	88 / 12		133.4			20.1	113.3
Go-Go Squeeze	3.2 oz. Pouch	Pouch & Fitment	90.7	4.3	95.0	95 / 5		47.4	0	0	0.0	47.4
		Plastic Cap		1.3				14.3	0	0	0.0	14.3
		Net	90.7	5.6	96.3	94 / 6		61.7			0.0	61.7

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.
<b>BABY FOOD</b> Gerber Organic Veggies	3.5 oz. Pouch	Pouch & Fitment	99.3	5.2	104.5	95 / 5		52.4	0	0	0.0	52.4
		Plastic Cap		2.6				26.2	0	0	0.0	26.2
		Net	99.3	7.8	107.1	93 / 7		78.5			0.0	78.5
Little Ducks Oatmeal	3.75 oz. Pouch	Plastic & Foil Pouch	106.3	8.0	114.3	93 / 7		75.3	0	0	0.0	75.3
Comforts Oatmeal	8.0 oz. Box	Paperboard Box	226.8	38.5	265.3	85 / 15		169.8	0	28	47.5	122.2
		Plastic Overwrap		2.1				9.3	0	0	0.0	9.3
		Net	226.8	40.6	267.4	85 / 15		179.0			47.5	131.5
Gerber Oatmeal	8 oz. Plastic Container	HDPE Container	226.8	40.3	267.1	85 / 15		177.7	0	21	37.3	140.4
		Plastic Lid		17.3				76.3	0	0	0.0	76.3
		Composite Seal		0.4				1.8	0	0	0.0	1.8
		Plastic Film Label		3.0				13.2	0	0	0.0	13.2
		Net	226.8	61.0	287.8	79 / 21		269.0			37.3	231.6
Gerber Lil' Bits Fruit	10 oz. - 2, 5.0 oz Tubs in Fiberboard Sleeve	Plastic Tubs	283.5	12.6	296.1	96 / 4		44.4	0	0	0.0	44.4
		Plastic Lids		7.4				26.1	0	0	0.0	26.1
		Composite Seals		1.2				4.2	0	0	0.0	4.2
		Paperboard Sleeve		6.0				21.2	0	28	5.9	15.2
		Net	283.5	27.2	310.7	91 / 9		95.9			5.9	90.0
Gerber Peaches	8 oz. - 2, 4 oz Plastic Tubs	Plastic Tubs	226.8	13.7	240.5	94 / 6		60.4	0	0	0.0	60.4
		Plastic Lids		5.6				24.7	0	0	0.0	24.7
		Composite Seals		1.4				6.2	0	0	0.0	6.2
		Paperboard Sleeve		5.9				26.0	0	28	7.3	18.7
		Net	226.8	26.6	253.4	90 / 10		117.3			7.3	110.0
Earth First	2.5 oz. Glass Jar w/Metal Lid	Glass Jar	70.9	64.9	135.8	52 / 48		915.4	0	15	137.3	778.1
		Steel Lid		5.8				81.8	0	79	64.6	17.2
		Paper Label		0.5				7.1	0	0	0.0	7.1
		Net	70.9	71.2	142.1	50 / 50		1004.2			201.9	802.3
Beech Nut Classics	2.5 oz. Glass Jar w/Metal Lid	Glass Jar	70.9	62.0	132.9	53 / 47		874.5	0	15	131.2	743.3
		Steel Lid		6.6				93.1	0	79	73.5	19.5
		Paper Label		0.3				4.2	0	0	0.0	4.2
		Net	70.9	68.9	139.8	51 / 49		971.8			204.7	767.1
Beech Nut Classics	4.0 oz. Glass Jar w/Metal Lid	Glass Jar	113.4	74.5	187.9	60 / 40		657.0	0	15	98.5	558.4
		Steel Lid		6.1				53.8	0	79	42.5	11.3
		Paper Label		0.6				5.3	0	0	0.0	5.3
		Net	113.4	81.2	194.6	58 / 42		716.0			141.0	575.0

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equiv Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 100 Gallon Liquid				Lbs.
<b>BEER</b>												
Upslope	72 fl. Oz. - 6 , 12 oz. Cans	Aluminum Cans	2129.0	77.4	2206.4	96 / 4		30.3	0	55	16.7	13.7
		LDPE Ring Carrier		3.6				1.4	0	0	0.0	1.4
			2129.0	81.0	2210.0	96 / 4		31.7			16.7	15.1
Deschutes Brewery	72 fl. Oz. - 6 , 12 oz. Bottles	Glass Bottles	2129.0	1368.0	3497.0	61 / 39		536.2	0	41	219.8	316.3
		Paper Labels		10.2				4.0	0	0	0.0	4.0
		Steel Caps		12.6				4.9	0	79	3.9	1.0
		Bottle	2129.0	1390.8	3519.8	60 / 40		545.1			223.7	321.4
		Paperboard Carton		93.6				36.7	0	28	10.3	26.4
		Net	2129.0	1484.4	3613.4	59 / 41		581.8			234.0	347.8
<b>BUTTER</b>				Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.
Simple Truth	16 oz. - 4 sticks in Paperboard Box	Paperboard Box	453.6	14.1	467.7	97 / 3		31.1	0	28	8.7	22.4
		Wax Paper Wrappers		5.0				11.0	0	0	0.0	11.0
		Net	453.6	19.1	472.7	96 / 4		42.1			8.7	33.4
Psst...	16 oz. in Wax Paper Wrapper	Wax Paper Wrapper	453.6	3.9	457.5	99 / 1		8.6	0	0	0.0	8.6
Kerry Gold	8 oz. in Foli & Paper Wrapper	Foil & Paper Wrapper	226.8	2.6	229.4	99 / 1		11.5	0	0	0.0	11.5
Challenge	8 oz. -2, 4 oz. Sticks in PaperBoard Box	Paperboard Box	226.8	10.6	237.4	96 / 4		46.7	0	28	13.1	33.7
		Foil & Paper Wrappers		2.8				12.3	0	0	0.0	12.3
		Net	226.8	13.4	240.2	94 / 6		59.1			13.1	46.0
Kroger Whipped Butter	8 oz. Plastic Tub	PP Tub	226.8	15.6	242.4	94 / 6		68.8	0	11	7.6	61.2
		Plastic Lid		6.4				28.2	0	0	0.0	28.2
		Plastic Seal		0.6				2.6	0	0	0.0	2.6
		Net	226.8	22.6	249.4	91 / 9		99.6			7.6	92.1
<b>CANDY</b>												
Kit Kat	4.5 oz. Plastic Wrapper	Plastic Wrapper	127.6	3.0	130.6	98 / 2		23.5	0	0	0.0	23.5
Kit Kat Minis	8 oz. Pouch	Plastic Pouch	226.8	7.0	233.8	97 / 3		30.9	0	0	0.0	30.9
Kit Kat Snack Size	10.78 oz - 22, 0.49 oz. Bars (Individually Wrapped)	Plastic Wrappers	305.6	5.5	311.1	98 / 2		18.0	0	0	0.0	18.0
		Plastic Bag		6.0				19.6	0	0	0.0	19.6
		Net	305.6	11.5	317.1	96 / 4		37.6			0.0	37.6
Kit Kat Miniatures	11 oz. - 35, 0.31 oz. Bars (Individually Wrapped)	Plastic Wrappers	311.9	8.7	320.6	97 / 3		27.9	0	0	0.0	27.9
		Plastic Bag		5.4				17.3	0	0	0.0	17.3
		Net	311.9	14.1	326.0	96 / 4		45.2			0.0	45.2

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.
<b>CANDY (cont.)</b>												
Kit Kat 6-Pack	9 oz. - 6, 1.5 oz. Bars	Plastic Wrappers	255.2	4.5	259.7	98 / 2		17.6	0	0	0.0	17.6
		Plastic Overwrap		2.0				7.8	0	0	0.0	7.8
		Net	255.2	6.5	261.7	98 / 2		25.5			0.0	25.5
Kit Kat 8-Pack Snack Size	3.92 oz. - 8, .49 oz. Bars	Plastic Wrappers	111.0	2.0	113.0	98 / 2		18.0	0	0	0.0	18.0
		Paper Tray		6.3				56.8	0	0	0.0	56.8
		Plastic Overwrap		1.8				16.2	0	0	0.0	16.2
		Net	111.0	10.1	121.1	92 / 8		91.0			0.0	91.0
<b>CEREAL</b>												
Nature Valley Granola	11 oz. Pouch	Plastic Pouch	311.9	9.0	320.9	97 / 3		28.9	0	0	0.0	28.9
Kroger Toasted Oats	28 oz. Plastic Bag/Pouch	Plastic Bag/Pouch	793.8	18.8	812.6	98 / 2		23.7	0	0	0.0	23.7
Sweet Home Granola	24 oz. Gable Top Carton	Paperboard Carton	680.4	58.3	738.7	92 / 8		85.7	0	10	8.6	77.1
Honey Nut Cheerios	17 oz. Paperboard Box with Inner HDPE Bag	Paperboard Box	482.0	83.5	565.5	85 / 15		173.2	35	0	60.6	112.6
		Plastic Bag		8.9				18.5	0	0	0.0	18.5
		Net	482.0	92.4	574.4	84 / 16		191.7			60.6	131.1
Oatmeal Crisp	17 oz. Paperboard Box with Inner HDPE Bag	Paperboard Box	482.0	67.5	549.5	88 / 12		140.0	35	0	49.0	91.0
		Plastic Bag		7.9				16.4	0	0	0.0	16.4
		Net	482.0	75.4	557.4	86 / 14		156.4			49.0	107.4
Honey Nut Cheerios	1.8 oz. Single Serve Cup	HDPE Cup	51.3	11.0	62.3	82 / 18		214.4	0	21	45.0	169.4
		Plastic Film Lid		0.9				17.5	0	0	0.0	17.5
		Net	51.3	11.9	63.2	81 / 19		232.0			45.0	186.9
Kellogg's Fun Pack	8.56 oz. Paperboard Boxes and Bags (8) with Plastic Film Overwrap	Paperboard Boxes	242.7	81.7	324.4	75 / 25		336.6	35	0	117.8	218.8
		HDPE Bags		17.0				70.0	0	6	4.2	65.8
		LDPE Overwrap		4.1				16.9	0	21	3.5	13.3
		Net	242.7	102.8	345.5	70 / 30		423.6			125.6	298.0
<b>CHEESE - AMERICAN &amp; CHEDDAR</b>												
Cracker Barrel Cheddar	8 oz. Plastic & Foil Wrapper	LDPE/Foil Wrapper	226.8	4.2	231.0	98 / 2		18.5	0	0	0.0	18.5
Cracker Barrel Cheddar Cracker Cuts	7 oz., Pre-Sliced in Plastic Tub with Plastic & Foil Lid/Seal	Plastic Tub & Label	198.5	12.1	210.6	94 / 6		61.0	0	0	0.0	61.0
		Plastic & Foil Lid/seal		1.4				7.1	0	0	0.0	7.1
		Net	198.5	13.5	212.0	94 / 6		68.0			0.0	68.0
American, Kraft Deluxe	16 oz.- 24 Slices in Resealable Foil Bag	LDPE/Foil Bag	453.6	6.9	460.5	99 / 1		15.2	0	0	0.0	15.2
American, Kraft Deluxe	12 oz. - 16 Slices in Plastic/Foil Wrapper	LDPE/Foil Wrapper	340.2	2.3	342.5	99 / 1		6.8	0	0	0.0	6.8



## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.
<b>CHEESE - AMERICAN &amp; CHEDDAR (cont.)</b>												
American, Kraft Singles	12 oz. - 16 Slices in Plastic Sheets and Plastic Wrapper	Plastic Wrapper	340.2	1.4	341.6	99 / 1		4.1	0	0	0.0	4.1
		Plastic Sheets		6.4				18.8	0	0	0.0	18.8
		Net	340.2	7.8	348.0	98 / 2		22.9			0.0	22.9
<b>CHEESE - COTTAGE</b>												
Meadow Gold	16 oz., Plastic Bag	Plastic Bag	453.6	3.1	456.7	99 / 1		6.8	0	0	0.0	6.8
Nordica	24 oz. Plastic Cup	PP Cup	680.4	21.3	701.7	97 / 3		31.3	0	11	3.4	27.9
		PP Lid		6.2				9.1	0	11	1.0	8.1
		Plastic Seal		0.7				1.0	0	0	0.0	1.0
		Net	680.4	28.2	708.6	96 / 4		41.4			4.4	37.0
Nordica	12 oz. Plastic Cup	PP Cup	340.2	12.7	352.9	96 / 4		37.3	0	11	4.1	33.2
		PP Lid		6.2				18.2	0	11	2.0	16.2
		Plastic Seal		0.7				2.1	0	0	0.0	2.1
		Net	340.2	19.6	359.8	95 / 5		57.6			6.1	51.5
Knudsen on the Go	16 oz. - 4, 4 oz. Plastic Cups	PS Cups	453.6	22.0	475.6	99 / 1		48.5	0	0	0.0	48.5
		Plastic/Foil Lids		0.8				1.8	0	0	0.0	1.8
		Net	453.6	22.8	476.4	95 / 5		50.3			0.0	50.3
<b>CHEESE - CREAM</b>												
Cream, Philadelphia	8 oz, Paperboard Box Foil Pouch	Paperboard Box	226.8	7.8	234.6	97 / 3		34.4	0	28	9.6	24.8
		Foil Pouch		3.3				14.6	0	0	0.0	14.6
		Net	226.8	11.1	237.9	95 / 5		48.9			9.6	39.3
Cream, Philadelphia	8 oz. Plastic Tub	PP Plastic Tub	226.8	11.6	238.4	95 / 5		51.1	0	11	5.6	45.5
		PP Lid		6.1				26.9	0	0	0.0	26.9
		Foil Seal		1.0				4.4	0	0	0.0	4.4
		Net	226.8	18.7	245.5	92 / 8		82.5			5.6	76.8
Cream, Philadelphia	12 oz. Plastic Tub	PP Plastic Tub	340.2	14.7	354.9	96 / 4		43.2	0	11	4.8	38.5
		Plastic Lid		6.1				17.9	0	0	0.0	17.9
		Foil Seal		1.0				2.9	0	0	0.0	2.9
		Net	340.2	21.8	362.0	94 / 6		64.1			4.8	59.3
Cream, Philadelphia	16 oz. Plastic Tub	PP Plastic Tub	453.6	18.8	472.4	96 / 4		41.4	0	11	4.6	36.9
		Plastic Lid		6.1				13.4	0	0	0.0	13.4
		Foil Seal		1.0				2.2	0	0	0.0	2.2
		Net	453.6	25.9	479.5	95 / 5		57.1			4.6	52.5

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.
<b>CHEESE - MOZZARELLA</b>												
Galbani	8 oz. in Plastic Container	PP Plastic Tub HDPE Lid Plastic Seal Plastic Label Net	226.8	13.5 8.0 0.6 1.9 24.0	240.3	94 / 6	6	59.5 35.3 2.6 8.4 105.8	0 0 0 0	11 21 0 0	6.5 7.4 0.0 0.0 14.0	53.0 27.9 2.6 8.4 91.9
Galbani	8 oz. in Plastic Pouch	Plastic Pouch	226.8	2.0	228.8	99 / 1	1	8.8	0	0	0.0	8.8
Galbani	16 oz. in Plastic Pouch	Plastic Pouch	453.6	3.9	457.5	99 / 1	1	8.6	0	0	0.0	8.6
<b>COFFEE</b>												
Maxwell House	11.5 oz. Paperboard and Tin Can, Plastic Lid	Paperboard/Tin Can Plastic Lid LPDE/Foil Seal Net	326.0	62.2 6.5 1.3 70.0	388.2	84 / 16	16	190.8 19.9 4.0 214.7	24 0 0	0 0 0	45.8 0.0 0.0 45.8	145.0 19.9 4.0 168.9
Café Bustelo	10 oz. Steel Can	Steel Can Plastic Film Label Plastic Lid LPDE/Foil Seal Net	283.5	94.2 1.7 5.6 1.8 103.3	377.7	75 / 25	25	332.3 6.0 19.8 6.3 364.4	0 0 0 0	71 0 0 0	235.9 0.0 0.0 0.0 235.9	96.4 6.0 19.8 6.3 128.5
Maui Coffee Company	16 oz. Bag	LDPE/Foil Bag	453.6	16.0	469.6	97 / 3	3	35.3	0	0	0.0	35.3
Nescafe Clasico	10.5 oz. Glass Jar	Glass Jar Plastic/Paper Lid LPDE/Foil Seal Plastic Film Label Net	297.7	597.8 22.9 0.7 3.0 624.4	895.5	33 / 67	67	2008.1 76.9 2.4 10.1 2097.4	0 0 0 0	15 0 0 0	301.2 0.0 0.0 0.0 301.2	1706.9 76.9 2.4 10.1 1796.2
Folger's Instant	12 oz. Plastic Jar	PETE Jar PP Plastic Lid LPDE/Foil Seal Plastic Film Label Net	340.2	52.0 21.2 1.4 4.3 78.9	392.2	87 / 13	13	152.9 62.3 4.1 12.6 231.9	0 0 0 0	31 11 0 0	47.4 6.9 0.0 0.0 54.2	105.5 55.5 4.1 12.6 177.7
Folger's	11.3 oz. Plastic Canister	HDPE Canister LDPE Plastic Lid LPDE/Foil Seal Plastic Film Label Net	320.4	51.9 10.1 1.0 1.0 64.0	372.3	86 / 14	14	162.0 31.5 3.1 3.1 199.8	0 0 0 0	21 21 0 0	34.0 6.6 0.0 0.0 40.6	128.0 24.9 3.1 3.1 159.1

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.
<b>COFFEE (cont.)</b>												
Starbucks Single Serve	0.9 oz. Single Servings (8)	LPDE/Foil Pouches	26.4	5.9	32.3	82 / 18		223.5	0	0	0.0	223.5
		Paperboard Box		12.3				465.9	0	28	130.5	335.5
		Net	26.4	18.2	44.6	59 / 41		689.4			130.5	558.9
Nescafe Single Serve	.49 oz. Single Servings (7) Paper Pods in Foil Bag	Plastic Pouches	14.0	3.8	17.8	79 / 21		271.4	0	0	0.0	271.4
		Paperboard Box		11.6				828.6	0	28	232.0	596.6
		Net	14.0	15.4	29.4	48 / 52		1100.0			232.0	868.0
Kroger Simple Truth K-Cups	4.6 oz. Single Servings (12)	Plastic/Foil Cups	130.0	40.4	170.4	76 / 24		310.8	0	0	0.0	310.8
		Paperboard Box		33.5				257.7	0	28	72.2	185.5
		Net	130.0	73.9	203.9	64 / 36		568.5			72.2	496.3
Nespresso Pods	125g Single Servings (10)	Aluminum/Foil Pods	125.0	23.4	148.4	84 / 16		187.2	0	10	18.7	168.5
		Paperboard Sleeve		9.9				79.2	0	28	22.2	57.0
		Paperboard Box		37.2				297.6	0	28	83.3	214.3
		Net	125.0	70.5	195.5	64 / 36		564.0			124.2	439.8
<b>COLD CUTS</b>												
Applegate Natural Sliced Turkey	7 oz. Plastic Ziploc Bag	Plastic Bag	198.5	8.3	206.8	96 / 4		41.8	0	0	0.0	41.8
		Plastic Label		1.0				5.0	0	0	0.0	5.0
		Net	198.5	9.3	207.8	96 / 4		46.9			0.0	46.9
Oscar Meyer Natural Selects, Sliced Turkey	8 oz. Plastic Tray	Plastic Tray	226.8	18.0	244.8	93 / 7		79.4	0	0	0.0	79.4
		Plastic Lid		8.3				36.6	0	0	0.0	36.6
		Plasti Label		0.9				4.0	0	0	0.0	4.0
		Net	226.8	27.2	254.0	89 / 11		119.9			0.0	119.9
Hormel Sliced Turkey	8 oz. in Pouch with Paperboard Box	Paperboard Box	226.8	18.7	245.5	92 / 8		82.5	0	28	23.1	59.4
		Plastic Pouch		6.3				27.8	0	0	0.0	27.8
		Net	226.8	25.0	251.8	90 / 10		110.2			23.1	87.1
Hilshire Farm Naturals Turkey Breast	8 oz. Plastic Tub	Plastic Tub	226.8	19.8	246.6	92 / 8		87.3	0	0	0.0	87.3
		Plastic Pouch		3.8				16.8	0	0	0.0	16.8
		Plastic Lid		10.7				47.2	0	0	0.0	47.2
		Plastic Label		4.0				17.6	0	0	0.0	17.6
		Net	226.8	38.3	265.1	86 / 14		168.9			0.0	168.9

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equiv Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards	
				Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.	
<b>CONDIMENTS</b> Ketchup, Heinz	64 oz. Plastic Bottle	HDPE Bottle	1814.4	84.0	1898.4	96 / 4		46.3	0	21	9.7	36.6	
		Plastic Cap		11.1				6.1	0	0	0.0	6.1	
		Paper Label		1.8				1.0	0	0	0.0	1.0	
		Composite Seal		0.2				0.1	0	0	0.0	0.1	
		Net	1814.4	97.1	1911.5	95 / 5		53.5				9.7	43.8
Ketchup, Heinz	38 oz. Plastic Bottle	HDPE Bottle	907.2	55.0	962.2	94 / 6		60.6	0	21	12.7	47.9	
		Plastic Cap		9.7				10.7	0	0	0.0	10.7	
		Paper Label		1.4				1.5	0	0	0.0	1.5	
		Composite Seal		0.2				0.2	0	0	0.0	0.2	
		Net	907.2	66.3	973.5	93 / 7		73.1				12.7	60.4
Ketchup, Simple Truth (Organic)	20 oz. Plastic Bottle	PETE Bottle	567.0	37.4	604.4	94 / 6		66.0	0	31	20.4	45.5	
		Plastic Cap		13.5				23.8	0	0	0.0	23.8	
		Paper Label		1.2				2.1	0	0	0.0	2.1	
		Composite Seal		0.2				0.4	0	0	0.0	0.4	
		Net	567.0	52.3	619.3	92 / 8		92.2				20.4	71.8
Mustard, Grey Poupon	8 oz. Glass Jar	Glass Jar	226.8	118.9	345.7	66 / 34		524.3	0	15	78.6	445.6	
		Steel Lid		7.3				32.2	0	79	25.4	6.8	
		Plastic Label		1.0				4.4	0	0	0.0	4.4	
		Plastic Seal		0.3				1.3	0	0	0.0	1.3	
		Net	226.8	127.5	354.3	64 / 36		562.2				104.1	458.1
Mustard, Grey Poupon	10 oz. Plastic Bottle	PETE Jar	283.5	21.2	304.7	93 / 7		74.8	0	31	23.2	51.6	
		Plastic Cap		5.8				20.5	0	0	0.0	20.5	
		Plastic Labels		1.5				5.3	0	0	0.0	5.3	
		Composite Seal		0.3				1.1	0	0	0.0	1.1	
		Net	283.5	28.8	312.3	91 / 9		101.6				23.2	78.4
Relish, Vlasic	10 Fl. Oz. Glass Jar	Glass Jar	295.7	168.5	464.2	64 / 36		569.8	0	15	85.5	484.4	
		Steel Lid		9.3				31.5	0	79	24.8	6.6	
		Paper Label		0.5				1.7	0	0	0.0	1.7	
		Net	295.7	178.3	474.0	62 / 38		603.0				110.3	492.7
		Relish, Vlasic	9 Fl. Oz. Plastic Bottle	PETE Jar	266.1	22.7	288.8	92 / 8		85.3	0	31	26.4
Plastic Cap				4.6				17.3	0	0	0.0	17.3	
Paper Label				1.0				3.8	0	0	0.0	3.8	
Composite Seal				0.3				1.1	0	0	0.0	1.1	
Net	266.1			28.6	294.7	90 / 10		107.5				26.4	81.0

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.
<b>COOKIES</b>												
Nestle's Toll House Refrigerated Ready to Bake	16.5 oz. Plastic Tube	Plastic Tube	467.8	4.5	472.3	99 / 1		9.6	0	0	0.0	9.6
		Metal Clips		6.0				12.8	0	79	10.1	2.7
		Net	467.8	10.5	478.3	98 / 2		22.4			10.1	12.3
Nestle's Toll House Refrigerated Ready to Bake	16 oz. Paper Tray	Paper Tray	453.6	7.0	460.6	98 / 2		15.4	0	0	0.0	15.4
		Plastic Overwrap		5.3				11.7	0	0	0.0	11.7
		Net	453.6	12.3	465.9	97 / 3		27.1			0.0	27.1
Oreo Minis	14 oz. Paperboard Box	Paperboard Box	396.9	44.7	441.6	90 / 10		112.6	0	28	31.5	81.1
		LDPE/Foil Bag		4.4				11.1	0	0	0.0	11.1
		Net	396.9	49.1	446.0	89 / 11		123.7			31.5	92.2
Oreo Minis	8 oz. Foil Pouch	LDPE/Foil Pouch	226.8	9.4	236.2	96 / 4		41.4	0	0	0.0	41.4
Oreo Family Size	17.9 Oz. Tray with Overwrap	PS Tray	507.5	12.0	519.5	98 / 2		23.6	0	0	0.0	23.6
		Plastic Overwrap		7.9				15.6	0	0	0.0	15.6
		Net	507.5	19.9	527.4	96 / 4		39.2			0.0	39.2
Famous Amos Multi-Pak	83 oz. - 42 Pouches in Paperboard Box	Plastic/Foil Pouches	2353.0	75.6	2428.6	97 / 3		32.1	0	0	0.0	32.1
		Paperboard Box		327.6				139.2	0	0	0.0	139.2
		Net	2353.0	403.2	2756.2	85 / 15		171.4			0.0	171.4
Barbara's Snackimals	2.125 oz. Composite Bag	Composite Pouch	60.2	1.7	61.9	97 / 3		28.2	0	0	0.0	28.2
Animal Crackers	2.125 oz. Paperboard Box	Paperboard Box	60.2	20.3	80.5	75 / 25		337.2	0	28	94.4	242.8
		LDPE/Foil Bag		2.5				41.5	0	0	0.0	41.5
		Net	60.2	22.8	83.0	73 / 27		378.7			94.4	284.3
Mini Chips Ahoy! Go Pak	3.5 oz. Snack Cup	PP Cup	99.3	11.1	110.4	90 / 10		111.8	0	11	12.3	99.5
		Plastic Lid		4.5				45.3	0	0	0.0	45.3
		LDPE/Foil Seal		0.4				4.0	0	0	0.0	4.0
		Net	99.3	16.0	115.3	86 / 14		161.1			12.3	148.8
Chips Ahoy! Multi-Pack	16.4 oz, 12 Packs	Paperboard Carton	464.9	48.6	513.5	91 / 9		104.5	0	28	29.3	75.3
		Plastic Wrappers		12.0				25.8	0	0	0.0	25.8
		Paper Trays		28.8				61.9	0	0	0.0	61.9
		Plastic Outer Wrap		5.3				11.4	0	0	0.0	11.4
		Net	464.9	94.7	559.6	83 / 17		203.7			29.3	174.4

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equiv Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.
<b>COOKIES (cont.)</b>												
Archway Windmill	9 oz. Paperboard Box	Paperboard Box	255.2	33.3	288.5	88 / 12		130.5	0	28	36.5	93.9
		PS Tray		8.4				32.9	0	0	0.0	32.9
		Plastic & Foil Liner		4.1				16.1	0	0	0.0	16.1
		Net	255.2	45.8	301.0	85 / 15		179.5			36.5	142.9
Pepperidge Farm Piroutte	13.5 oz Steel Tin	Steel Tin	382.7	117.0	499.7	77 / 23		305.7	0	71	217.1	88.7
		Paper Liners		7.6				19.9	0	0	0.0	19.9
		Foil Pouches		5.6				14.6	0	0	0.0	14.6
		Plastic Seal		1.2				3.1	0	0	0.0	3.1
		Net	382.7	131.4	514.1	74 / 26		343.3			217.1	126.3
Pepperidge Farm Nantucket	7.75 oz. Paper 7 Foil Bag	Paper & Foil Bag	219.7	19.2	238.9	92 / 8		87.4	0	0	0.0	87.4
		PETE Trays		7.5				34.1	0	3	1.0	33.1
		Net	219.7	26.7	246.4	89 / 11		121.5			1.0	120.5
<b>CRACKERS</b>												
Cheez-Its	2.2 oz. Snack Cup	Composite Cup	62.4	11.0	73.4	85 / 15		176.3	0	0	0.0	176.3
		LDPE Lid		4.7				75.3	0	0	0.0	75.3
		LDPE/Foil Seal		0.8				12.8	0	0	0.0	12.8
		Net	62.4	16.5	78.9	79 / 21		264.4			0.0	264.4
Wheat Thins	9.1 oz. Paperboard Box with Inner Bag	Paperboard Box	258.0	43.3	301.3	86 / 14		167.8	0	28	47.0	120.8
		HDPE Bag		3.0				11.6	0	6	0.7	10.9
		Net	258.0	46.3	304.3	85 / 15		179.5			47.7	131.8
Goldfish	6.6 oz. Bag	Paper & Foil Bag	187.1	16.5	203.6	92 / 8		88.2	0	0	0.0	88.2
Goldfish	11 oz. Pouch	Plastic & Foil Pouch	311.9	13.4	325.3	96 / 4		43.0	0	0	0.0	43.0
Goldfish	30 oz. Gable Top Carton	Composite Carton	850.0	98.5	948.5	90 / 10		115.9	0	0	0.0	115.9
Goldfish	2 oz. Gable Top Carton	Composite Carton	56.7	15.1	71.8	79 / 21		266.3	0	0	0.0	266.3
Goldfish Snack Packs	9 oz. - 9, 1 oz. Bags	Paperboard Tray	255.2	44.2	299.4	85 / 15		173.2	0	28	48.5	124.7
		Plastic Overwrap		5.2				20.4	0	0	0.0	20.4
		Plastic & Foil Bags		11.7				45.8	0	0	0.0	45.8
		Net	255.2	61.1	316.3	81 / 19		239.4			48.5	190.9
Ritz Crackers	13.7 Oz. Paperboard Box 4 Stacks	Paperboard Box	388.4	63.8	452.2	86 / 14		164.3	0	28	46.0	118.3
		Plastic Wrappers		8.5				21.9	0	0	0.0	21.9
		Net	388.4	72.3	460.7	84 / 16		186.1			46.0	140.2

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equiv Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 100 Lbs. of Pdct				Lbs.
<b>CRACKERS (cont.)</b>												
Ritz Crackers	11.8 oz Paperboard Box	Paperboard Box	334.5	56.4	390.9	86 /	14	168.6	0	28	47.2	121.4
Fresh Stacks	8 Small Stacks	Plastic Wrappers		10.8				32.3	0	0	0.0	32.3
		Net	334.5	67.2	401.7	83 /	17	200.9			47.2	153.7
				Grams				Lbs. of Pkg/ 4000 Servings				Lbs.
<b>DESSERTS</b>												
Jell-O Pudding (6 Servings)	5.9 oz. in Paperboard Box	Paperboard Box	167.3	13.3	180.6	93 /	7	19.5	0	28	5.5	14.1
		Paper/LDPE Pouch		2.8				4.1	0	0	0.0	4.1
		Net	167.3	16.1	183.4	91 /	9	23.7			5.5	18.2
Jell-O Pudding (4 Servings)	3.9 oz. in Paperboard Box	Paperboard Box	110.6	10.0	120.6	92 /	8	22.0	0	28	6.2	15.9
		Paper/LDPE Pouch		2.2				4.9	0	0	0.0	4.9
		Net	110.6	12.2	122.8	90 /	10	26.9			6.2	20.7
Jello-Pudding Super Snack Packs (6 Servings)	33 oz. 6-5.5 oz. in Paperboard Sleeve (Ready to Eat)	Plastic Cups	935.5	27.4	962.9	97 /	3	40.3	0	0	0.0	40.3
		Foil/LDPE Seals		2.4				3.5	0	0	0.0	3.5
		Paperboard Sleeve		21.1				31.0	0	28	8.7	22.3
		Net	935.5	50.9	986.4	95 /	5	74.8			8.7	66.1
Jell-O Pudding Snack Packs (4 Servings)	13 oz. 4-3.25 oz. in Paperboard Sleeve (Ready to Eat)	Plastic Cups	368.8	17.4	386.2	95 /	5	38.4	0	0	0.0	38.4
		Foil/LDPE Seals		2.2				4.9	0	0	0.0	4.9
		Paperboard Sleeve		10.0				22.0	0	28	6.2	15.9
		Net	368.8	29.6	398.4	93 /	7	65.3			6.2	59.1
Congelli Gelatin (8 Servings)	6 oz. in Plastic Bag	Plastic Bag	170.1	2.5	172.6	99 /	1	2.8	0	0	0.0	2.8
				Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.
<b>DETERGENT, Dish</b>												
Cascade, Powder	75 oz. in Paperboard Box	Paperboard Box	2126.3	120.7	2247.0	95 /	5	56.8	35	0	19.9	36.9
Cascade, Liquid	75 oz. in Plastic Bottle	HDPE Bottle	2126.3	85.7	2212.0	96 /	4	40.3	0	21	8.5	31.8
		Plastic Cap		10.9				5.1	0	0	0.0	5.1
		Plastic Spout		1.2				0.6	0	0	0.0	0.6
		Paper Label		3.0				1.4	0	0	0.0	1.4
		Net	2126.3	100.8	2227.1	95 /	5	47.4			8.5	38.9
Cascade, Tablets	12.7 oz. Plastic Pouch	Plastic Pouch	360.0	9.9	369.9	97 /	3	27.5	0	0	0.0	27.5

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equiv Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 10000 Loads				Lbs.
<b>DETERGENT, Laundry</b>												
Tide Liquid 32 Loads	50 fl. oz. in Plastic Bottle	HDPE Bottle Plastic Cap Net	1550.0	90.4 <u>13.5</u> 103.9	1640.4  1653.9			62.3 <u>9.3</u> 71.6	0 0	21 0	13.1 <u>0.0</u> 13.1	49.2 <u>9.3</u> 58.5
Tide Powder 68 Loads	95 oz. Paperboard Box	Papberboard Box	2693.3	181.6	2874.9	94 / 6		58.9	35	0	20.6	38.3
Tide Pods 66 Loads	59 oz. Plastic Container	PETE Container	1672.7	150.1	1822.8	92 / 8		50.1	0	3	1.5	48.6
Tide Pods 32 Loads	27 oz. Flexible Pouch	Flexible Pouch	775.0	16.2	791.2	98 / 2		11.2	0	0	0.0	11.2
Colors Liquid 50 Loads	50 fl. Oz. Flexible Pouch	Flexible Pouch	1550.0	46.7	1596.7	97 / 3		20.6	0	0	0.0	20.6
<b>EGGS &amp; EGG SUBSTITUTES</b>												
Egg Beaters	16 oz. in Paperboard Carton	LDPE/Paper Carton Plastic Lid Plastic Seal Net	453.6	23.3 1.6 <u>0.5</u> 25.4	476.9  479.0	95 / 5		51.4 3.5 <u>1.1</u> 56.0	0 0 0	0 0 0	0.0 0.0 <u>0.0</u> 0.0	51.4 3.5 <u>1.1</u> 56.0
Egg Beaters	32 oz. in Paperboard Carton	LDPE/Paper Carton Plastic Lid Plastic Seal Net	907.2	34.8 1.6 <u>0.5</u> 36.9	942.0  944.1	96 / 4		38.4 1.8 <u>0.6</u> 40.7	0 0 0	0 12 0	0.0 0.2 <u>0.0</u> 0.2	38.4 1.6 <u>0.6</u> 40.5
Eggland's Best	24 oz. in Plastic Carton	EPS Carton	680.4	16.1	696.5	98 / 2		23.7	0	0	0.0	23.7
Simple Truth	24 oz. in Molded Pulp Carton	Molded Pulp Carton	680.4	64.2	744.6	91 / 9		94.4	35	0	33.0	61.3
Eggland's Best Cage Free	24 oz. in Plastic Carton	PETE Carton Paper Label Net	680.4	45.1 3.7 <u>48.8</u>	725.5  729.2	94 / 6		66.3 5.4 <u>71.7</u>	0 0	3 0	2.0 <u>0.0</u> 2.0	64.3 <u>5.4</u> 69.7



## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 10000 Loads				Lbs.
<b>FABRIC SOFTENER</b>												
Downy Liquid 60 Loads	60 Fl. Oz. in Plastic Bottle	HDPE Bottle	1568.3	88.7	1657.0	95 / 5		32.6	0	21	6.8	25.7
		Plastic Cap		8.2				3.0	0	0	0.0	3.0
		Paper Labels		0.0				0.0	0	0	0.0	0.0
		Net	1568.3	96.9	1665.2	94 / 6		35.6			6.8	28.8
Downy Liquid Refill 60 Loads	60 Fl. Oz. in Paprbd Carton	LDPE/Paper Carton	1568.3	62.4	1630.7	96 / 4		22.9	0	0	0.0	22.9
Bounce 105 Loads (Due to impregnation, product weight is only an estimate.)	105 Sheets, Fiberboard Box Spun Paper Sheets	Spun Paper	99.6	148.0	247.6	40 / 60		31.1	0	0	0.0	31.1
		Paperboard Box		35.3				7.4	0	28	2.1	5.3
		Net	99.6	183.3	282.9	35 / 65		38.5			2.1	36.4
				Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.
<b>FRUIT COCKTAIL</b>												
Del Monte	15.25 oz. Metal Can	Steel Can & Lid	432.3	55.2	487.5	89 / 11		127.7	0	79	100.9	26.8
		Paper Label		2.3				5.3	0	0	0.0	5.3
		Net	432.3	57.5	489.8	88 / 12		133.0			100.9	32.1
Del Monte Citrus Salad	20 oz. Glass Jar	Glass Jar	567.0	347.0	914.0	62 / 38		612.0	0	15	91.8	520.2
		Steel Lid		13.0				22.9	0	79	18.1	4.8
		Paper Label		1.2				2.1	0	0	0.0	2.1
		Net	567.0	361.2	928.2	61 / 39		637.0			109.9	527.1
Dole Tropical Fruit Salad	23.5 oz. Plastic Jar	PP Jar	666.3	29.2	695.5	96 / 4		43.8	0	11	4.8	39.0
		PP Lid		7.3				11.0	0	11	1.2	9.8
		Plastic Seal		0.5				0.8	0	0	0.0	0.8
		Paper Label		1.0				1.5	0	0	0.0	1.5
		Net	666.3	38.0	704.3	95 / 5		57.0			6.0	51.0
Kroger Fruit Cocktail	8.75 oz. Metal Can	Steel Can & Lid	248.1	34.9	283.0	88 / 12		140.7	0	79	111.1	29.5
		Paper Label		1.4				5.6	0	0	0.0	5.6
		Net	248.1	36.3	284.4	87 / 13		146.3			111.1	35.2
Simple Truth Fruit Salad	32 oz. Plastic Bag	Plastic Bag	907.2	13.2	920.4	99 / 1		14.6	0	0	0.0	14.6
Del Monte Mixed Fruit	16 oz. - 4 Plastic Cups in Paperboard Sleeve	PP Cups	453.6	20.2	473.8	96 / 4		44.5	0	11	4.9	39.6
		Plastic Seals		2.6				5.7	0	0	0.0	5.7
		Paperboard Sleeve		14.9				32.8	0	28	9.2	23.7
		Net	453.6	37.7	491.3	92 / 8		83.1			14.1	69.0
Del Monte Fruit Naturals - Single	7 oz. Cup	PP Cup	198.5	8.7	207.2	96 / 4		43.8	0	11	4.8	39.0
		Plastic Lid		0.5				2.5	0	0	0.0	2.5
		Net	198.5	9.2	207.7	96 / 4		46.3			4.8	41.5

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.
<b>GROUND BEEF</b> Kroger	16 oz. in Plastic Tube	Plastic Film	453.6	3.0	456.6	99 / 1		6.6	0	0	0.0	6.6
		Steel Ties		0.8				1.8	0	79	1.4	0.4
		Net	453.6	3.8	457.4	99 / 1		8.4			1.4	7.0
Simple Truth Organic	16 oz. in Plastic Pouch	Plastic Pouch	453.6	5.1	458.7	99 / 1		11.2	0	0	0.0	11.2
		Paper Labels		0.6				1.3	0	0	0.0	1.3
		Net	453.6	5.7	459.3	99 / 1		12.6			0.0	12.6
Laura's Beef	16 oz. on Plastic Tray	EPS Tray	453.6	6.7	460.3	99 / 1		14.8	0	0	0.0	14.8
		Plastic Wrap		4.7				10.4	0	0	0.0	10.4
		Net	453.6	11.4	465.0	98 / 2		25.1			0.0	25.1
Natures Rancher Burgers	32 oz. 8-4 oz. Burgers in Paperboard Box	Paperboard Box	907.2	56.4	963.6	94 / 6		62.2	0	28	17.4	44.8
		Plastic Film Bag		6.2				6.8	0	0	0.0	6.8
		Plastic Slip Sheets		8.4				9.3	0	0	0.0	9.3
		Net	907.2	71.0	978.2	93 / 7		78.3			17.4	60.9
<b>ICE CREAM</b> Psst...	1.75 qt. in Paperboard Carton 56 fl. Oz.	Paperboard Carton	1655.9	57.8	1713.7	97 / 3		29.1	0	28	8.2	21.0
Breyer's	1.5 qt. in Paperboard Carton 48 fl. Oz.	Paperboard Carton	1419.4	30.8	1450.2	98 / 2		18.1	0	28	5.1	13.0
		Paper & Plastic Lid		14.0				8.2	0	0	0.0	8.2
		Plastic Seal		1.5				0.9	0	0	0.0	0.9
		Net	1419.4	46.3	1465.7	97 / 3		27.2			5.1	22.1
Talenti Gelato	1 qt. Plastic Jar 32 fl. Oz.	PETE Jar	946.2	64.7	1010.9	94 / 6		57.1	0	31	17.7	39.4
		HDPE Lid		21.1				18.6	0	21	3.9	14.7
		Plastic Seal		1.1				1.0	0	0	0.0	1.0
		Net	946.2	86.9	1033.1	92 / 8		76.6			21.6	55.0
Ben & Jerry's	.5 Cup Paperboard Container 4 fl. Oz.	Paperboard Carton	118.3	5.2	123.5	96 / 4		36.7	0	28	10.3	26.4
		Paper & Plastic Lid		2.5				17.6	0	0	0.0	17.6
		Plastic Seal		0.3				2.1	0	0	0.0	2.1
		Net	118.3	8.0	126.3	94 / 6		56.4			10.3	46.2
Ben & Jerry's	1 Pint Paperboard Container 16 fl. Oz.	Paperboard Carton	473.2	13.5	486.7	97 / 3		23.8	0	28	6.7	17.1
		Paper & Plastic Lid		7.7				13.6	0	0	0.0	13.6
		Plastic Seal		0.7				1.2	0	0	0.0	1.2
		Net	473.2	21.9	495.1	96 / 4		38.6			6.7	32.0

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
<b>JELLY</b>												
Welch's	27 oz. Plastic Jar	PETE Jar	765.5	46.9	812.4	94 / 6		61.3	0	31	19.0	42.3
		Plastic & Metal Lid		11.6				15.2	0	0	0.0	15.2
		Paper Label		2.2				2.9	0	0	0.0	2.9
		Net	765.5	60.7	826.2			93 / 7	79.3		19.0	60.3
Smucker's	32 oz. Glass Jar	Glass Jar	907.2	298.2	1205.4	75 / 25		328.7	0	15	49.3	279.4
		Steel Lid		9.1				10.0	0	79	7.9	2.1
		Paper Label		1.0				1.1	0	0	0.0	1.1
		Net	907.2	308.3	1215.5			75 / 25	339.8		57.2	282.6
Smucker's	18 oz. Glass Jar	Glass Jar	510.3	226.0	736.3	69 / 31		442.9	0	15	66.4	376.4
		Steel Lid		9.2				18.0	0	79	14.2	3.8
		Paper Label		0.7				1.4	0	0	0.0	1.4
		Net	510.3	235.9	746.2			68 / 32	462.3		80.7	381.6
Smucker's	20 oz. Squeezable Plastic Bottle	Plastic Bottle	567.0	30.0	597.0	95 / 5		52.9	0	0	0.0	52.9
		Plastic Cap		9.7				17.1	0	0	0.0	17.1
		Composite Seal		0.5				0.9	0	0	0.0	0.9
		Plastic Film Label		2.0				3.5	0	0	0.0	3.5
		Net	567.0	42.2	609.2			93 / 7	74.4		0.0	74.4
Welch's	18 oz. Squeezable Plastic Bottle	Plastic Bottle	510.3	29.7	540.0	95 / 6		58.2	0	0	0.0	58.2
		Plastic Cap		5.2				10.2	0	0	0.0	10.2
		Composite Seal		0.4				0.8	0	0	0.0	0.8
		Paper Label		0.9				1.8	0	0	0.0	1.8
		Net	510.3	36.2	546.5			93 / 7	70.9		0.0	70.9
<b>JUICE</b>												
Capri Sun Red Berry 6.0 fl. oz. pouches	60 fl. oz. - 10 Pouches in Paperboard Box	LDPE/Foil Pouch	1774.2	41.5	1815.7	97 / 3		19.5	0	0	0.0	19.5
		Drinking Straw		5.0				2.4	0	0	0.0	2.4
		Pouch	1774.2	46.5	1820.7			21.9				21.9
		Paperboard Carton		91.6				43.1	0	28	12.1	31.0
		Net	1774.2	138.1	1912.3			93 / 7	65.0		12.1	52.9
Honest Kids Organic Grape 6.75 fl. oz. pouches	54 fl. oz. - 8 Pouches in Paperboard Box	LDPE/Foil Pouch	1596.8	34.4	1631.2	98 / 2		18.0	0	0	0.0	18.0
		Drinking Straw		5.6				2.9	0	0	0.0	2.9
		Pouch	1596.8	40.0	1636.8			20.9				20.9
		Paperboard Box		126.1				65.9	0	28	18.5	47.4
		Net	1596.8	166.1	1762.9			91 / 9	86.8		18.5	68.3

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 100 Gallon Liquid				Lbs.
<b>JUICE (cont.)</b>												
Apple & Eve Organic Apple 6.75 fl. Oz. Juice Boxes	20.25 fl. Oz. - 3 Juice Boxes	Composite Box	598.8	25.5	624.3			35.5	0	10	3.6	32.0
		Plastic Straws		<u>1.2</u>				<u>1.7</u>	0	0	0.0	<u>1.7</u>
		Juice Box	598.8	26.7	625.5	96 / 4		37.2				33.7
		Plastic Shrink Wrap		<u>2.5</u>				<u>3.5</u>	0	0	<u>0.0</u>	<u>3.5</u>
		Net	598.8	29.2	628.0	95 / 5		40.7			3.6	37.1
Apple & Eve Fruitables 6.75 fl. Oz. Juice Boxes	54 fl. oz. - 8 Juice Boxes with Paperboard Label and Plastic Shrink Wrap	Composite Box	1596.8	68.0	1664.8			35.5	0	10	3.6	32.0
		Plastic Straws		<u>3.2</u>				<u>1.7</u>	0	0	<u>0.0</u>	<u>1.7</u>
		Juice Box	1596.8	71.2	1668.0	96 / 4		37.2			3.6	33.7
		Paperboard Label		11.0				5.7	0	28	1.6	4.1
		Plastic Shrink Wrap		<u>4.9</u>				<u>2.6</u>	0	0	<u>0.0</u>	<u>2.6</u>
		Net	1596.8	87.1	1683.9	95 / 5		45.5			8.7	40.4
V8 Fusion Fruit & Vegetable 8 oz. Aluminum Cans	48 fl. Oz. - 6 Alum Cans with Plastic Shrink Wrap	Aluminum Can	1419.4	70.2	1489.6			41.3	0	55	22.7	18.6
		Shrink Wrap		<u>6.3</u>				<u>3.7</u>	0	0	<u>0.0</u>	<u>3.7</u>
		Net	1419.4	76.5	1495.9	95 / 5		45.0			22.7	22.3
Treetop Apple 5.5 fl. Oz. Aluminum Cans	33 Fl. Oz. in 6 Metal Cans HDPE Loop Carrier	Aluminum Can	975.8	57.6	1033.4			49.3	0	55	27.1	22.2
		LDPE Loop Carrier		<u>2.6</u>				<u>2.2</u>	0	0	<u>0.0</u>	<u>2.2</u>
		Net	975.8	60.2	1036.0	94 / 6		51.5			27.1	24.4
Dole Pineapple 6 fl. Oz Steel Cans	36. fl. Oz. - 6 Metal Cans with Paperboard Carton	Steel Can	1064.5	189.6	1254.1			148.6	0	71	105.5	43.1
		Paper Label		<u>12.6</u>				<u>9.9</u>	0	0	<u>0.0</u>	<u>9.9</u>
		Can	1064.5	202.2	1266.7	84 / 16		158.5			105.5	53.0
		Paperboard Carton		<u>21.1</u>				<u>16.5</u>	0	28	<u>4.6</u>	<u>11.9</u>
		Net	1064.5	223.3	1287.8	83 / 17		175.0			110.2	64.9
Motts Apple Juice 8 fl. Oz. PETE Bottles	48 fl. Oz. - 6 Plastic Bottles with HDPE Loop Carrier	PETE Bottle	1419.4	128.4	1547.8	92 / 8		75.5	0	31	23.4	52.1
		Plastic Label		3.6				2.1	0	0	0.0	2.1
		Plastic Cap		<u>18.6</u>				<u>10.9</u>	0	0	<u>0.0</u>	<u>10.9</u>
		Bottle	1419.4	150.6	1570.0	90 / 10		88.5			23.4	65.1
		HDPE Loop Carrier		<u>4.0</u>				<u>2.4</u>	0	0	<u>0.0</u>	<u>2.4</u>
		Net	1419.4	154.6	1574.0	90 / 10		90.9			23.4	67.5
Martinelli Apple Juice 10 fl. Oz. Glass Bottles	40 fl. Oz. - 4 Glass Bottles with Plastic Shrink Wrap	Glass Bottle	1182.8	632.0	1814.8			445.9	0	15	66.9	379.0
		Steel Cap		<u>17.2</u>				<u>12.1</u>	0	79	<u>9.6</u>	<u>2.5</u>
		Bottle	1182.8	649.2	1832.0	65 / 35		458.0			76.5	381.5
		Plastic Shrink Wrap		<u>7.1</u>				<u>5.0</u>	0	0	<u>0.0</u>	<u>5.0</u>
		Net	1182.8	656.3	1839.1	64 / 36		463.0			76.5	386.5
Martinelli Organic Apple Juice 10 fl. Oz. Glass Bottle	10 fl. Oz. Glass Bottle	Glass Bottle	295.7	158.0	453.7			445.9	0	15	66.9	379.0
		Paper Label		0.2				0.6	0	0	0.0	0.6
		Steel Cap		<u>4.3</u>				<u>12.1</u>	0	79	<u>9.6</u>	<u>2.5</u>
		Bottle	295.7	162.5	458.2	65 / 35		458.6			76.5	382.1
Martinelli Apple Juice 10. fl. Oz. Plastic Bottle	10 fl. Oz. PETE Bottle	PETE Bottle	295.7	28.0	323.7			79.0	0	31	24.5	54.5
		Plastic Cap		<u>3.4</u>				<u>9.6</u>	0	0	<u>0.0</u>	<u>9.6</u>
		Bottle	295.7	31.4	327.1	90 / 10		88.6			24.5	64.1

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 100 Gallon Liquid				Lbs.
<b>JUICE (cont.)</b>												
Columbia Gorge Smoothie	15.2 fl. Oz. HDPE Bottle	HDPE Bottle	449.5	32.4	481.9			60.2	0	21	12.6	47.5
	15.2 fl. Oz. Plastic Bottle	Plastic Label		1.6				3.0	0	0	0.0	3.0
		Plastic Cap		2.7				5.0	0	0	0.0	5.0
		Net	449.5	36.7	486.2	92 / 8		68.1			12.6	55.5
Uncle Matt's Organic OJ	12.0 fl. Oz. PETE Bottle	PETE Bottle	354.4	28.4	382.8			66.8	0	31	20.7	46.1
	12 fl. Oz. Plastic Bottle	Cap		3.5				8.2	0	0	0.0	8.2
		Net	354.4	31.9	386.3	92 / 8		75.0			20.7	54.3
Capri Sun Juice	11.2 fl. Oz. Pouch	Pouch	331.2	8.1	339.3			20.4	0	0	0.0	20.4
	11.2 fl. Oz. Pouch	Cap		2.6				6.6	0	0	0.0	6.6
		Net	331.2	10.7	341.9	97 / 3		27.0			0.0	27.0
Gerber Apple Prune Juice	16 fl. Oz. - 4, 4 fl. Oz Plastic Bottles	Plastic Bottles	473.1	68.4	541.5	87 / 13		120.6	0	0	0.0	120.6
		Plastic Lids/Seals		16.6				29.3	0	0	0.0	29.3
		Paper Labels		2.0				3.5	0	0	0.0	3.5
		Bottle	473.1	87.0	560.1	84 / 16		153.4			0.0	153.4
		Paperboard Sleeve		14.7				25.9	0	0	0.0	25.9
		Net	473.1	101.7	574.8	82 / 18		179.4			0.0	179.4
<b>JUICE, ORANGE</b>												
Kroger	128 Fl. Oz. (1 Gal.) Plastic Bottle	HDPE Bottle	3968.0	60.5	4028.5	98 / 2		13.3	0	21	2.8	10.5
		Plastic Cap & Seal		2.6				0.6	0	0	0.0	0.6
		LDPE/Paper Label		0.6				0.1	0	0	0.0	0.1
		Net	3968.0	63.7	4031.7	98 / 2		14.0			2.8	11.2
Minute Maid	128 Fl. Oz. (1 Gal.) Plastic Bottle	Plastic Bottle	3968.0	132.0	4100.0	97 / 3		29.1	0	0	0.0	29.1
		Plastic Cap & Seal		4.0				0.9	0	0	0.0	0.9
		LDPE/Paper Label		1.4				0.3	0	0	0.0	0.3
		Net	3968.0	137.4	4105.4	97 / 3		30.3			0.0	30.3
Kroger	64 Fl. Oz. (1/2 Gal.) Plastic Bottle	HDPE Bottle	1984.0	41.6	2025.6	98 / 2		18.3	0	21	3.9	14.5
		Plastic Cap		2.6				1.1	0	0	0.0	1.1
		LDPE/Paper Labels		0.6				0.3	0	0	0.0	0.3
		Net	1984.0	44.8	2028.8	98 / 2		19.8			3.9	15.9
365 Organic	64 Fl. Oz. (1/2 Gal.) Gable Top Carton	Paper & LDPE Carton	1987.7	63.2	2050.9	97 / 3		27.9	0	10	2.8	25.1
		Plastic Lid		1.7				0.7	0	0	0.0	0.7
		Plastic Fitment		1.0				0.4	0	0	0.0	0.4
		Net	1987.7	65.9	2053.6	97 / 3		29.1			2.8	26.3

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equiv Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
			Grams				Lbs. of Pkg/ 100 Gallon Liquid				Lbs.	
<b>JUICE, ORANGE (cont.)</b>												
Simply Juice	59 Fl. Oz. (1.75Liter) Plastic Bottle	PETE Bottle	1829.0	63.2	1892.2	97 / 3		30.2	0	31	9.4	20.9
		Plastic Cap		12.2				5.8	0	0	0.0	5.8
		Plastic Labels		1.2				0.6	0	0	0.0	0.6
		Composite Seals		0.5				0.2	0	0	0.0	0.2
		Net	1829.0	77.1	1906.1	96 / 4		36.9			9.4	27.5
Kroger Frozen Concentrate	12 oz. Fiberbd/Metal Can BASED ON 48 OZ. RECONSTITUTED VALUE	Paper/Metal Can	1488.0	30.6	1518.6	98 / 2		18.0	0	0	0.0	18.0
		Plastic Ring Opener		0.8				0.5	0	0	0.0	0.5
		Net	1488.0	31.4	1519.4	98 / 2		18.5			0.0	18.5
			Grams				Lbs. of Pkg/ 1000 Servings				Lbs.	
<b>MACARONI &amp; CHEESE</b>												
Michelina's Frozen Ready to Eat - 1 Serving	8.5 oz. in Paperboard	Paperboard Tray/lid	241.0	24.4	265.4	91 / 9		53.8	0	28	15.1	38.7
Banquet Frozen Ready to Eat - 1 Serving	12 oz. in Plastic Tray with Paperboard Carton	PETE Tray	340.0	20.6	360.6	94 / 6		45.4	0	3	1.4	44.1
		Paperboard Carton		23.8				52.5	0	28	14.7	37.8
		Plastic Seal		0.9				2.0	0	0	0.0	2.0
		Net	340.0	45.3	385.3	88 / 12		99.9			16.1	83.8
Hormel Compleats Ready to Eat - 1 Serving	10 oz. Plastic Tub with Paperboard Sleeve	PP Tub	283.5	19.2	302.7	94 / 6		42.3	0	11	4.7	37.7
		Paperboard Sleeve		13.0				28.7	0	28	8.0	20.6
		Plastic Seal		2.1				4.6	0	0	0.0	4.6
		Net	283.5	34.3	317.8	89 / 11		75.6			12.7	62.9
Knorr 2 - 8 oz. Servings	4.4 oz. In Composite Pouch (16 oz. prepared)	Composite Pouch	453.6	6.4	460.0	99 / 1		7.1	0	0	0.0	7.1
Kraft Deluxe 4 - 8 oz. Servings	14 oz. Paperboard Box with Pouch (32 oz. prepared)	Paperboard Box	907.2	28.0	935.2	97 / 3		15.4	0	28	4.3	11.1
		LDPE/Foil Pouch		2.8				1.5	0	0	0.0	1.5
		Net	907.2	30.8	938.0	97 / 3		17.0			0.0	12.7
Annie's Creamy Deluxe 3 - 8 oz. Servings	11 oz. Paperboard Box with Pouch (24 oz. Prepared)	Paperboard Box	680.4	31.5	711.9	96 / 4		23.1	0	28	6.5	16.7
		LDPE/Foil Pouch		3.6				2.6	0	0	0.0	2.6
		Net	680.4	35.1	715.5	95 / 5		25.8			0.0	19.3
Annie's 2.5 - 8 oz. Servings	6 oz. Paperboard Box with Pouch (20 oz. Prepared)	Paperboard Box	567.0	22.1	589.1	96 / 4		19.5	0	28	5.5	14.0
		LDPE/Foil Pouch		2.3				2.0	0	0	0.0	2.0
		Net	567.0	24.4	591.4	96 / 4		21.5			0.0	16.1

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 1000 Servings				Lbs.
<b>MACARONI &amp; CHEESE (cont.)</b>												
Annie's Multi-Pack 5 - 8 oz. Servings	10.7 oz. in Paperboard Box with Bags & Pouches (40 oz. Prepared)	Paperboard Box	1134.0	52.8	1186.8	96 / 4		23.3	0	28	6.5	16.8
		Composite Pouches		13.5				6.0	0	0	0.0	6.0
		Plastic Bags		6.5				2.9	0	0	0.0	2.9
		Net	1134.0	72.8	1206.8	94 / 6		32.1			6.5	25.6
Annie's 1 - 8 oz. Serving Single Serving Pack	2.01 oz. in Plastic Cup (8 oz. Prepared)	PP Cup	453.6	9.5	463.1	98 / 2		20.9	0	11	2.3	18.6
		Paper Label		4.3				9.5	0	0	0.0	9.5
		Composite Bag		2.1				4.6	0	0	0.0	4.6
		Plastic Lid		0.6				1.3	0	0	0.0	1.3
Net	453.6	16.5	470.1	96 / 4		36.4			2.3	34.1		
Annie's Multi-Pack 4 - 8 oz. Servings Single Serving Packs	8.04 oz. in Plastic Cups (32 oz. Prepared)	PP Cups	907.2	38.0	945.2	96 / 4		20.9	0	11	2.3	18.6
		Plastic Labels		17.2				9.5	0	0	0.0	9.5
		Composite Bags		8.4				4.6	0	0	0.0	4.6
		Plastic Lids		2.4				1.3	0	0	0.0	1.3
		Sub-Total	907.2	66.0	973.2	93 / 7		36.4			2.3	34.1
		Paperboard Sleeve		33.3				18.4	0	28	5.1	13.2
Net	907.2	99.3	1006.5	90 / 10		54.7			7.4	47.3		
Kraft Multi-Pack 4 - 8 oz. Servings Single Serving Packs	8.2 oz. in Plastic Cups (32 oz. Prepared)	PP Cups	907.2	47.6	954.8	95 / 5		26.2	0	11	2.9	23.3
		Plastic Labels		5.2				2.9	0	0	0.0	2.9
		Composite Bags		4.0				2.2	0	0	0.0	2.2
		Plastic Lids		2.4				1.3	0	0	0.0	1.3
		Sub-Total	907.2	59.2	966.4	94 / 6		32.6			2.9	29.7
		Paperboard Sleeve		20.3				11.2	0	28	3.1	8.1
Net	907.2	79.5	986.7	92 / 8		43.8			6.0	37.8		
<b>MAYONNAISE</b>												
				Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.
Hollywood	24 fl. Oz. Glass Jar	Glass Jar	709.7	354.2	1063.9	67 / 33		499.1	0	15	74.9	424.2
		Plastic & Paper Lid		9.2				13.0	0	0	0.0	13.0
		Plastic Seal		0.4				0.6	0	0	0.0	0.6
		Paper Label		1.2				1.7	0	0	0.0	1.7
		Net	709.7	365.0	1074.7	66 / 34		514.3			74.9	439.4
Hellman's	30 fl. Oz. Plastic Jar	PETE Jar	887.2	43.3	930.5	95 / 5		48.8	0	31	15.1	33.7
		Plastic/Paper Cap		11.0				12.4	0	0	0.0	12.4
		Plastic/Paper Seal		0.4				0.5	0	0	0.0	0.5
		Paper Label		2.0				2.3	0	0	0.0	2.3
		Net	887.2	56.7	943.9	94 / 6		63.9			15.1	48.8

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.
<b>MAYONNAISE (cont.)</b>												
Miracle Whip	22 fl. Oz Squeeze Bottle	PETE Bottle	650.5	38.8	689.3	94 / 6		59.6	0	31	18.5	41.2
		Plastic Cap		11.2				17.2	0	0	0.0	17.2
		Composite Seal		0.3				0.5	0	0	0.0	0.5
		Paper Labels		1.6				2.5	0	0	0.0	2.5
		Net	650.5	51.9	702.4	93 / 7		79.8			18.5	61.3
Best Foods	20 fl. Oz. Squeeze Bottle	PETE Bottle	591.4	35.0	626.4	94 / 6		59.2	0	31	18.3	40.8
		Plastic Cap		10.8				18.3	0	0	0.0	18.3
		Composite Seal		0.2				0.3	0	0	0.0	0.3
		Plastic Label		2.6				4.4	0	0	0.0	4.4
		Net	591.4	48.6	640.0	92 / 8		82.2			18.3	63.8
Miracle Whip	12 fl. Oz. Squeeze Bottle	PETE Bottle	354.8	24.0	689.3	94 / 6		67.6	0	31	21.0	46.7
		Plastic Cap		4.9				13.8	0	0	0.0	13.8
		Composite Seal		0.3				0.8	0	0	0.0	0.8
		Paper Labels		0.9				2.5	0	0	0.0	2.5
		Net	650.5	30.1	702.4	93 / 7		84.8			21.0	63.9
<b>MILK</b>				Grams				Lbs. of Pkg/ 100 Gallon Liquid				Lbs.
Horizon Organic	128 Fl. Oz. (1 Gallon) Plastic Bottle	HDPE Bottle	3785.0	60.5	3845.5	98 / 2		13.3	0	28	3.7	9.6
		Plastic Cap/Closure		2.6				0.6	0	0	0.0	0.6
		Paper Labels		1.1				0.2	0	0	0.0	0.2
		Net	3785.0	64.2	3849.2	98 / 2		14.2			3.7	10.4
Kroger	64 Fl. Oz. (1/2 Gallon) Plastic Bottle	HDPE Bottle	1892.5	41.5	1934.0	98 / 2		18.3	0	28	5.1	13.2
		Paper Label		2.6				1.1	0	0	0.0	1.1
		Paper Label		0.6				0.3	0	0	0.0	0.3
		Net	1892.5	44.7	1937.2	98 / 2		19.7			5.1	14.6
Horizon Organic	64 Fl. Oz. (1/2 Gallon) Gable Top Paperboard Carton	LDPE/Paper Carton	1892.5	62.3	1954.8	97 / 3		27.5	0	10	2.7	24.7
		Plastic Seal		3.4				1.5	0	0	0.0	1.5
		Net	1892.5	65.7	1958.2	97 / 3		29.0			2.7	26.2
Longmont Farms (Recycling estimate based on 90% return rate and 10% breakage/nonuse.)	64 Fl. Oz. (1/2 Gallon) Refillable Glass Bottle	Glass Bottle	1892.5	886.5	2779.0	68 / 32		390.9	0	80	312.7	78.2
		Plastic Cap		4.2				1.9	0	0	0.0	1.9
		Plastic Seal		1.0				0.4	0	0	0.0	0.4
		Net	1892.5	891.7	2784.2	68 / 32		393.2			312.7	80.5
Fairlife	52 Fl. Oz. in PETE Bottle	PETE Bottle	1537.6	51.8	1589.4	97 / 3		28.1	0	31	8.7	19.4
		Plastic Closure		3.8				2.1	0	0	0.0	2.1
		Film Label		3.7				2.0	0	0	0.0	2.0
		Net	1537.6	59.3	1596.9	96 / 4		32.2			8.7	23.5



## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 100 Gallon Liquid				Lbs.
<b>MILK (cont.)</b>												
Meadow Gold	32 Fl. Oz. (1 Quart) Plastic Bottle	PETE Bottle Plastic Closure Film Label Net	946.2	31.8 2.1 0.7 34.6	978.0	97 / 3		28.0 1.9 0.6 30.5	0 0 0	31 0 0	8.7 0.0 0.0 8.7	19.3 1.9 0.6 21.8
Horizon Organic	32 Fl. Oz. (1 Quart) Gabletop Paperboard Carton	LDPE/Paper Carton	946.2	32.1	978.3	97 / 3		28.3	0	10	2.8	25.5
Horizon Aseptic Shelf Stable	32 Fl. Oz. (1 Quart) Composite Carton	Composite Carton Plastic Cap & Fitment Plastic & Foil Seal Net	946.2	35.0 2.5 0.5 38.0	981.2	96 / 4		30.9 2.2 0.4 33.5	0 0 0	10 0 0	3.1 0.0 0.0 3.1	27.8 2.2 0.4 30.4
Longmont Farms (Recycling estimate based on 90% return rate and 10% breakage/nonuse.)	32 Fl. Oz. (1 Quart) Refillable Glass Bottle	Glass Bottle Plastic Cap Plastic Seal Net	946.2	505.1 4.2 1.0 510.3	1451.3	65 / 35		445.4 3.7 0.9 450.0	0 0 0	80 0 0	356.3 0.0 0.0 356.3	89.1 3.7 0.9 93.7
Mountain Dairy	16 Fl. Oz. (1 Pint) Plastic Bottle	PETE Bottle Plastic Closure Plastic Film Label Net	473.1	20.2 3.3 2.6 26.1	493.3	96 / 4		35.6 5.8 4.6 46.0	0 0 0	31 0 0	11.0 0.0 0.0 11.0	24.6 5.8 4.6 35.0
Fairlife	11.5 Fl. Oz. Plastic Bottle	Plastic Bottle Plastic Cap Film Label Net	1892.5	22.3 3.7 1.6 27.6	1914.8	99 / 1		54.7 9.1 3.9 67.7	0 0 0	0 0 0	0.0 0.0 0.0 0.0	54.7 9.1 3.9 67.7
Meadow Gold TruMoo Chocolate	10 Fl. Oz. Plastic Bottle	PETE Bottle Plastic Closure Plastic Film Label Net	295.7	21.2 2.2 0.2 23.6	316.9	93 / 7		59.8 6.2 0.6 66.6	0 0 0	31 0 0	18.5 0.0 0.0 18.5	41.3 6.2 0.6 48.1
Horizon Aseptic Shelf Stable	8 Fl. Oz. (1 Cup) Composite Carton	Composite Carton Plastic Straw Plastic Wrapper Net	236.6	10.6 0.5 0.1 11.2	247.2	96 / 4		37.4 1.8 0.4 39.5	0 0 0	10 0 0	3.7 0.0 0.0 3.7	33.7 1.8 0.4 35.8
Horizon Aseptic 6-Pack Shelf Stable	48 Fl. Oz. (6- 8 Fl. Oz. Packs) Composite Carton	Composite Carton Plastic Straw Plastic Wrapper Net	1419.4	63.6 3.6 2.8 70.0	1483.0	96 / 4		37.4 2.1 1.6 41.2	0 0 0	10 0 0	3.7 0.0 0.0 3.7	33.7 2.1 1.6 37.4

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.
<b>NUTS</b> Kroger	16 oz. Plastic Bag	LDPE Bag	453.6	11.2	464.8	98 / 2		24.7	0	21	5.2	19.5
Blue Diamond	16 oz. Plastic Pouch	LDPE/Foil Pouch	453.6	10.6	464.2	98 / 2		23.4	0	0	0.0	23.4
Kroger	16 oz. Plastic Jar	PETE Jar	453.6	39.3	492.9	92 / 8		86.6	0	31	26.9	59.8
		Plastic Lid		6.1				13.4	0	0	0.0	13.4
		Composite Seal		0.8				1.8	0	0	0.0	1.8
		Paper Label		1.7				3.7	0	0	0.0	3.7
		Net	453.6	47.9	501.5	90 / 10		105.6			26.9	78.7
Kroger	12 oz. Paperboard and Paperboard & Metal Can	Paper and Metal Can	340.2	50.9	391.1	87 / 13		149.6	0	0	0.0	149.6
		HDPE Lid		6.3				18.5	0	21	3.9	14.6
		Foil/LDPE Seal		1.1				3.2	0	0	0.0	3.2
		Net	340.2	58.3	398.5	85 / 15		171.4			3.9	167.5
Blue Diamond	6 oz. Paperboard and Metal Can	Steel Can	170.1	37.4	207.5	82 / 18		219.9	0	79	173.7	46.2
		HDPE Lid		4.0				23.5	0	21	4.9	18.6
		Foil/LDPE Seal		0.9				5.3	0	0	0.0	5.3
		Paper Label		1.5				8.8	0	0	0.0	8.8
		Net	170.1	43.8	213.9	80 / 20		257.5			178.6	78.9
Emerald	8.5 oz. Plastic Cannister	Plastic Cannister	241.0	27.2	268.2	90 / 10		112.9	0	0	0.0	112.9
		PP Lid		7.8				32.4	0	0	0.0	32.4
		Plastic Overwrap		2.1				8.7	0	0	0.0	8.7
		Plastic & Foil Seal		0.5				2.1	0	0	0.0	2.1
		Net	241.0	37.6	278.6	87 / 13		156.0			0.0	156.0
Emerald 7-Pack	4.34 oz. (7-0.62 oz. Bags) Paperboard Box	Plastic & Foil Pouches	123.0	10.2	133.2	92 / 8		82.9	0	0	0.0	82.9
		Paperboard Box		32.0				260.2	0	28	72.8	187.3
		Net	123.0	42.2	165.2	74 / 26		343.1			72.8	270.2
<b>OLIVE/SALAD OIL</b> Kroger Canola	48 Fl. Oz. Plastic Bottle	PETE Bottle	1360.8	39.0	1399.8	97 / 3		22.9	0	31	7.1	15.8
		Plastic Cap/Seal		4.0				2.4	0	0	0.0	2.4
		Paper Label		2.8				1.6	0	0	0.0	1.6
		Net	1360.8	45.8	1406.6	97 / 3		26.9			7.1	19.8
Whole Foods Canola	16.9 Fl. Oz. (500 mL) Plastic Bottle	PETE Bottle	479.1	48.6	527.7	91 / 9		81.1	0	31	25.2	56.0
		Plastic Cap/Seal		4.0				6.7	0	0	0.0	6.7
		Paper Label		1.6				2.7	0	0	0.0	2.7
		Net	479.1	54.2	533.3	90 / 10		90.5			25.2	65.3

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
			Grams				Lbs. of Pkg/ 100 Gallon Liquid				Lbs.	
<b>OLIVE/SALAD OIL (cont.)</b>												
A L'Olivier	16.9 Fl. Oz. (500 mL)	Steel Can	479.1	82.7	561.8	85 / 15	15	91.5	0	79	72.3	19.2
	Steel Can	Plastic Cap & Spout		2.5				2.8	0	0	0.0	2.8
		Plastic Label		1.0				1.1	0	0	0.0	1.1
		Net	479.1	86.2	565.3	85 / 15		95.4			72.3	23.1
			Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.	
Badia a Cotibueno	25.5 Fl. Oz. (750 ml)	Glass Bottle	479.1	429.1	908.2	53 / 47	47	474.8	0	15	71.2	403.6
	Glass Bottle	Plastic Cap		6.2				6.9	0	0	0.0	6.9
		Foil Seal		1.1				1.2	0	0	0.0	1.2
		Paper Label		1.2				1.3	0	0	0.0	1.3
		Net	479.1	437.6	916.7	52 / 48		484.3			71.2	413.0
<b>PASTA</b>			Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.	
Pastificio di Matino	16 oz. Plastic Bag	Plastic Bag	453.6	3.6	457.2	99 / 1	1	7.9	0	0	0.0	7.9
Barilla	16 oz. Paperboard Box	Paperboard Box	453.6	20.8	474.4	96 / 4	4	45.9	0	28	12.8	33.0
		Plastic Window		1.0				2.2	0	0	0.0	2.2
		Net	453.6	21.8	475.4	95 / 5		48.1			12.8	35.2
Kroger	16 oz. Paperboard Box	Paperboard Box	453.6	21.8	475.4	95 / 5	5	48.1	0	38	18.3	29.8
		Plastic Window		1.0				2.2	0	0	0.0	2.2
		Net	453.6	22.8	476.4	95 / 5		50.3			18.3	32.0
Buitoni Fresh/Refrigerated	20 oz. Flexible Plastic Container	Plastic Tray & Lid	567	22.8	589.8	96 / 4	4	40.2	0	0	0.0	40.2
<b>PASTA SAUCE</b>												
Ragu	67 oz. Plastic Jar	PETE Jar	1899.5	92.1	1991.6	95 / 5	5	48.5	0	31	15.0	33.5
		Plastic Cap		10.5				5.5	0	0	0.0	5.5
		Paper Label		1.0				0.5	0	0	0.0	0.5
		Net	1899.5	103.6	2003.1	95 / 5		54.5			15.0	39.5
Kroger	43 oz. Glass Jar	Glass Jar	1219.1	469.3	1688.4	72 / 28	28	385.0	0	15	57.7	327.2
		Steel Lid		12.6				10.3	0	0	0.0	10.3
		Paper Label		2.0				1.6	0	0	0.0	1.6
		Net	1219.1	483.9	1703.0	72 / 28		396.9			57.7	339.2
Monte Bene	24 oz. Glass Jar	Glass Jar	680.4	301.4	981.8	69 / 31	31	443.0	0	15	66.4	376.5
		Steel Lid		8.6				12.6	0	0	0.0	12.6
		Paper Label		2.2				3.2	0	0	0.0	3.2
		Net	680.4	312.2	992.6	69 / 31		458.8			66.4	392.4

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.
<b>PASTA SAUCE (cont.)</b> Simply Balanced	24 oz. Glass Jar	Glass Jar	680.4	365.5	1045.9	65 / 35		537.2	0	15	80.6	456.6
		Steel Lid		14.0				20.6	0	0	0.0	20.6
		Paper Label		1.0				1.5	0	0	0.0	1.5
		Net	680.4	380.5	1060.9	64 / 36		559.2			80.6	478.7
Kroger Private Selection	12 oz. Glass Jar	Glass Jar	340.2	229.0	569.2	60 / 40		673.1	0	15	101.0	572.2
		Steel Lid		8.7				25.6	0	63	16.1	9.5
		Paper Label		0.9				2.6	0	0	0.0	2.6
		Net	340.2	238.6	578.8	59 / 41		701.4			117.1	584.3
Hunt's	24 oz. Can	Steel Can	680.4	80.3	760.7	89 / 11		118.0	0	79	93.2	24.8
		Paper Label		3.3				4.9	0	0	0.0	4.9
		Net	680.4	83.6	764.0	89 / 11		122.9			93.2	29.6
Progresso	15 oz. Can	Steel Can	425.3	53.9	479.2	89 / 11		126.7	0	79	100.1	26.6
		Paper Label		2.4	2.4			5.6	0	0	0.0	5.6
		Net	425.3	56.3	481.6	88 / 12		132.4			100.1	32.3
Buitoni Refrigerated	15 oz. Plastic Tub	PP Tub	235.3	18.7	254.0	93 / 7		79.5	0	11	8.7	70.7
		Plastic Seal		1.0				4.2	0	0	0.0	4.2
		LDPE Lid		8.4				35.7	0	0	0.0	35.7
		Paper Labels		0.7				3.0	0	0	0.0	3.0
		Net	235.3	28.8	264.1	89 / 11		122.4			8.7	113.7
Simply Organic (Based on Reconstitution)	1.48 oz. Pouch (Makes 13 oz. Of Product)	Composite Pouch	368.6	3.6	372.2	99 / 1		9.8	0	0	0.0	9.8
<b>PEANUT BUTTER</b> Simple Truth	16 oz. Plastic Jar	PETE Jar	453.6	30.6	484.2	94 / 6		67.5	0	31	20.9	46.5
		PP Lid		10.2				22.5	0	11	2.5	20.0
		Composite Seal		1.3				2.9	0	0	0.0	2.9
		Paper Label		0.5				1.1	0	0	0.0	1.1
		Net	453.6	42.6	496.2	91 / 9		93.9			23.4	70.5
Smucker's	16 oz. Glass Jar	Glass Jar	453.6	240.5	694.1	65 / 35		530.2	0	15	79.5	450.7
		Steel Lid		12.9				28.4	0	79	22.5	6.0
		Plastic Seal		0.6				1.3	0	0	0.0	1.3
		Paper Labels		1.1				2.4	0	0	0.0	2.4
		Net	453.6	255.1	708.7	64 / 36		562.4			102.0	460.4

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.
<b>PEANUT BUTTER (cont.)</b>												
Jif To Go	12 oz. (8-1.5 oz. Cups) in Paperboard Box	PP Cups	340.2	24.0	364.2	93 / 7		70.5	0	11	7.8	62.8
		Foil & Plastic Lids		3.6				10.6	0	0	0.0	10.6
		Paperboard Box		21.8				64.1	0	0	0.0	64.1
		Net	340.2	49.4	389.6	87 / 13		145.2			7.8	137.4
Justin's	1.15 oz. Pouch	Foil & Plastic Pouch	32.6	1.5	34.1	96 / 4		46.0	0	0	0.0	46.0
<b>PET FOOD</b>												
<b>Multi-Serve</b>												
Dog Food, Milk Bone	24 oz. Box (dry)	Paperboard Box	680.4	71.2	751.6	91 / 9		104.6	0	28	29.3	75.3
Dog Food, Pet Pride	24 oz. Pouch (dry)	Plastic Pouch	680.4	15.7	696.1	98 / 2		23.1	0	0	0.0	23.1
Purina Beggin' Strips	40 oz. Pouch (dry)	Plastic Pouch	1134.0	33.1	1167.1	97 / 3		29.2	0	0	0.0	29.2
Dog Food, Iams	9.3 lbs. Bag (dry)	Paper & LDPE Bag	4218.5	118.3	4336.8	97 / 3		28.0	0	0	0.0	28.0
Dog Food, Pet Pride	5.5 oz. Metal Can	Aluminum Can	155.9	15.2	171.1			97.5	0	0	0.0	97.5
		Paper Label		0.7				4.5	0	0	0.0	4.5
		Net	155.9	15.9	171.8	91 / 9		102.0			0.0	102.0
Cat Food, Purina Naturals	50.4 oz. Bag (dry)	Paperboard Bag	1428.8	32.5	1461.3	98 / 2		22.7	0	28	6.4	16.4
Dog Food, Fresh Pet Refrigerated	16 oz. in Plastic Tube	LDPE Tube	453.6	5.5	459.1			12.1	0	21	2.5	9.6
		Steel Clips		0.7				1.5	0	0	0.0	1.5
		Net	453.6	6.2	459.8	99 / 1		13.7			2.5	11.1
Dog Food, Fresh Pet Refrigerated	10.25 oz. in Plastic Tub	PP Tub	290.6	16.5	307.1	95 / 5		56.8	0	11	6.2	50.5
		PETE Lid		7.5				25.8	0	3	0.8	25.0
		Plastic Film Seal		1.0				3.4	0	0	0.0	3.4
		Net	290.6	25.0	315.6	92 / 8		86.0			7.0	79.0
Dog Food, Pet Pride	5.3 oz. Pouch	Foil/LDPE Pouch	150.3	4.0	154.3	97 / 3		26.6	0	0	0.0	26.6
<b>Single Serve</b>												
Cat Food, I Love You	3 oz. Metal Can	Aluminum Can	85.0	9.2	94.2			108.2	0	0	0.0	108.2
		Paper Label		0.6				7.1	0	0	0.0	7.1
		Net	85.0	9.8	94.8	90 / 10		115.3			0.0	115.3

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.
<b>PET FOOD (cont.) - Single Serve</b>												
Cat Food, Nutrish	2.8 oz. Cup	Plastic Cup	79.4	6.0	85.4			75.6	0	0	0.0	75.6
		Plastic Lid		0.6				7.6	0	0	0.0	7.6
		Net	79.4	6.6	86.0	92 / 8		83.1			0.0	83.1
Cat Food, Abound	3 oz. Pouch	Foil/LDPE Pouch	85.0	3.4	88.4	96 / 4		40.0	0	0	0.0	40.0
<b>POPCORN</b>												
Jolly Time	32 oz. Bag	LDPE Bag	907.2	6.8	914.0	99 / 1		7.5	0	21	1.6	5.9
Orville Reddenbacher's	30 oz. Plastic Jar	PETE Jar	850.5	38.6	889.1	96 / 4		45.4	0	31	14.1	31.3
		Plastic Cap		3.5				4.1	0	0	0.0	4.1
		Foil/LDPE Seal		0.1				0.1	0	0	0.0	0.1
		Paper Label		2.3				2.7	0	0	0.0	2.7
		Net	850.5	44.5	895.0	95 / 5		52.3			14.1	38.3
Pop Secret	19.2 oz. - 6-3.2 oz. Bags in Paperboard Box	Paper/Plastic Bags	544.3	85.2	629.5	86 / 14		156.5	0	0	0.0	156.5
		Plastic Wraps		7.2				13.2	0	12	1.6	11.6
		Paperboard Box		47.4				87.1	0	0	0.0	87.1
		Net	544.3	139.8	684.1	80 / 20		256.8			1.6	255.3
Pop Secret	9.6 oz. - 3-3.2 oz. Bags in Paperboard	Paper/Plastic Bags	272.2	42.6	314.8	86 / 14		156.5	0	0	0.0	156.5
		Plastic Wraps		3.6				13.2	0	0	0.0	13.2
		Paperboard Box		28.0				102.9	0	0	0.0	102.9
		Net	272.2	74.2	346.4	79 / 21		272.6			0.0	272.6
Jiffy Pop	4.5 oz. Foil Pan with Metal Handle, Paper Lid	Steel Handle	127.6	18.9	146.5	87 / 13		148.1	0	79	117.0	31.1
		Foil Tray		12.9				101.1	0	0	0.0	101.1
		Foil Lid		4.2				32.9	0	0	0.0	32.9
		Paper Label		10.0				78.4	0	0	0.0	78.4
		Net	127.6	46.0	173.6	74 / 26		360.5			117.0	243.5
<b>RAISINS</b>												
Sun Maid	32 oz. Plastic Bag	Plastic Bag	907.2	7.4	914.6	99 / 1		8.2	0	0	0.0	8.2
Kroger	10 oz. Composite Pouch	Composite Pouch	283.5	8.0	291.5	97 / 3		28.2	0	0	0.0	28.2
Kroger	20 oz. Paperboard Box with Plastic Lid	Paperboard Box	567.0	28.4	595.4	95 / 5		50.1	0	28	14.0	36.1
		LDPE Lid		6.0				10.6	0	0	0.0	10.6
		Plastic Outer Seal		0.9				1.6	0	0	0.0	1.6
		Plastic Inner Seal		0.7				1.2	0	0	0.0	1.2
		Net	567.0	36.0	603.0	94 / 6		63.5			14.0	49.5

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.
<b>RAISINS cont.)</b>												
Sun Maid	12 oz. Paperboard Box with Plastic Bag	Paperboard Box	340.2	25.7	365.9	93 / 7		75.5	0	28	21.2	54.4
		Plastic Inner Bag		4.0				11.8	0	0	0.0	11.8
		Net	340.2	29.7	369.9	92 / 8		87.3			21.2	66.1
Sun Maid	6 oz. - 6, 1 oz. Boxes in Plastic Film Wrap	Paperboard Boxes	170.1	26.4	196.5	87 / 13		155.2	0	28	43.5	111.7
		Plastic Film Wrap		1.2				7.1	0	0	0.0	7.1
		Net	170.1	27.6	197.7	86 / 14		162.3			43.5	118.8
Sun Maid Mini-Snacks	6 oz. - 12, 0.5 oz. Boxes in Plastic Pouch	Paperboard Boxes	170.1	27.6	197.7	86 / 14		162.3	0	28	45.4	116.8
		Plastic Pouch		4.4				25.9	0	0	0.0	25.9
		Net	170.1	32.0	202.1	84 / 16		188.1			45.4	142.7
<b>READY TO EAT MEALS</b>												
Chef Boyardee Spaghetti & Meatballs	7.5 oz. in Plastic Bowl	PP Bowl	212.6	19.0	231.6	92 / 8		89.4	0	11	9.8	79.5
		Plastic Cap		5.5				25.9	0	0	0.0	25.9
		Aluminum Lid		4.2				19.8	0	0	0.0	19.8
		Plastic Film Label		0.8				3.8	0	0	0.0	3.8
		Net	212.6	29.5	242.1	88 / 12		138.8			9.8	128.9
Chef Boyardee Ravioli	14.25 oz. in Plastic Bowl	PP Bowl	404.0	32.3	436.3	93 / 7		80.0	0	11	8.8	71.2
		Plastic Cap		8.8				21.8	0	0	0.0	21.8
		Aluminum Lid		6.0				14.9	0	0	0.0	14.9
		Plastic Film Label		1.3				3.2	0	0	0.0	3.2
		Net	404.0	48.4	452.4	89 / 11		119.8			8.8	111.0
Chef Boyardee Spaghetti & Meatballs	14.5 oz. Metal Can	Steel Can & Lid	411.1	52.7	463.8	89 / 11		128.2	0	71	91.0	37.2
		Paper Label		2.1				5.1	0	0	0.0	5.1
		Net	411.1	54.8	465.9	88 / 12		133.3			91.0	42.3
Hormel Compleats Spaghetti & Meatballs	10 oz. Plastic Bowl Paperboard Sleeve	PP Bowl	283.5	18.2	301.7	94 / 6		64.2	0	11	7.1	57.1
		Plastic Seal		1.8				6.3	0	0	0.0	6.3
		Paperboard Sleeve		12.8				45.1	0	28	12.6	32.5
		Net	283.5	32.8	316.3	90 / 10		115.7			19.7	96.0
Campbell Spaghetti Micros	6 oz. in Plastic Tub with Paperboard Sleeve	PP Tub	170.1	15.9	186.0	91 / 9		93.5	0	11	10.3	83.2
		Plastic Seal		1.0				5.9	0	0	0.0	5.9
		Paperboard Sleeve		10.6				62.3	0	28	17.4	44.9
		Net	170.1	27.5	197.6	86 / 14		161.7			27.7	133.9
Progresso Chili	20 oz. in Pouch	Plastic & Foil Pouch	567	16.2	583.2	97 / 3		28.6	0	0	0.0	28.6

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.
<b>RICE</b>												
Yoga Organic Brown	32 oz. Bag	LDPE Bag	907.2	6.9	914.1	99 / 1		7.6	0	21	1.6	6.0
Uncle Ben's Original	32 oz. Box	Paperboard Box	907.2	39.7	946.9	96 / 4		43.8	0	28	12.3	31.5
Uncle Ben's Instant	28 oz. Box	Paperboard Box	793.8	65.7	859.5	92 / 8		82.8	0	28	23.2	59.6
Uncle Ben's Instant Brown	14 oz. Box w/Inner Bag	Paperboard Box LDPE Inner Bag	399.0	40.0	439.0	91 / 9		100.3	0	28	28.1	72.2
		Net	399.0	4.0	443.0	90 / 10		10.0	0	21	2.1	7.9
				44.0	443.0			110.3			30.2	80.1
Uncle Ben's Brown Boil-in-Bag	14 oz. 4-3.5 oz. Bags in Fiberboard Box	Paperboard Box LDPE Inner Bags	399.0	36.8	435.8	92 / 8		92.2	0	28	25.8	66.4
		Net	399.0	7.4	443.2	90 / 10		18.5	0	21	3.9	14.7
				44.2	443.2			110.8			29.7	81.1
Minute Rice	8.8 oz. - 2 4.4 oz Cups in Paperboard Overwrap	PP Cup Plastic Lid Cup Paperbd Overwrap	249.5	11.9	261.4			47.7	0	11	5.2	42.4
		Net	249.5	1.0	262.4	95 / 5		4.0	0	0	0.0	4.0
				12.9	262.4			51.7				46.5
				18.2	280.6	89 / 11		72.9	0	28	20.4	52.5
				31.1	280.6			124.6			25.7	99.0
Uncle Ben's	8.8 oz. Pouch	Plastic Pouch	249.5	7.5	257.0	97 / 3		30.1	0	0	0.0	30.1
<b>SALAD DRESSING</b>												
Brianna's 12 Servings	12 fl. Oz. Glass Bottle	Glass Bottle Plastic Cap Paper Seal Paper Label	375.6	230.4	606.0	62 / 38		169.3	0	15	25.4	143.9
		Net	375.6	3.2	612.2	61 / 39		2.4	0	0	0.0	2.4
				1.0	612.2			0.7	0	0	0.0	0.7
				2.0	612.2			1.5	0	0	0.0	1.5
				236.6	612.2			173.9			25.4	148.5
Hidden Valley 16 Servings	16 fl. Oz. Plastic Bottle	PETE Bottle Plastic Cap/Spout Paper Seal Paper Labels	500.8	41.9	542.7	92 / 8		23.1	0	31	7.2	15.9
		Net	500.8	5.2	550.2	91 / 9		2.9	0	0	0.0	2.9
				0.9	550.2			0.5	0	0	0.0	0.5
				1.4	550.2			0.8	0	0	0.0	0.8
				49.4	550.2			27.2			7.2	20.1
Hidden Valley Ranch To Go 12 Servings	12 fl. Oz. - 8 Single 1.5 fl. Oz. Plastic Cups in Paperboard Box	Plastic Cups Plastic Lids Paperboard Box	375.6	28.0	403.6	93 / 7		20.6	0	0	0.0	20.6
		Net	375.6	6.4	441.5	85 / 15		4.7	0	0	0.0	4.7
				31.5	441.5			23.1	0	28	6.5	16.7
				65.9	441.5			48.4			6.5	41.9



## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equiv Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards	
			Grams				Lbs. of Pkg/ 4000 Servings				Lbs.		
<b>SALAD DRESSING (cont.)</b> Kroger Salad Magic (Dry) 32 Servings	2.4 oz. 4 Pouches (0.6 oz. ea.) in Paperboard Box (Reconstituted for 32 servings)	Composite Pouches	78.4	11.0	89.4	88 / 12		3.0	0	0	0.0	3.0	
		Paperboard Box		21.7				6.0	0	28	1.7	4.3	
		Net	78.4	32.7	111.1	71 / 29		9.0			1.7	7.3	
Good Seasons (Dry) 8 Servings	.6 oz. Pouch (Reconstituted for 8 Servings)	Foil/LDPE Pouch	136.0	2.2	138.2	98 / 2		2.4	0	0	0.0	2.4	
			Grams				Lbs. of Pkg/ 100 Gallon Liquid				Lbs.		
<b>SHAMPOO</b> Aussie	13.5 Fl. Oz. in Plastic Bottle	HDPE Bottle	411.8	30.6	442.4	93 / 7		64.0	0	21	13.4	50.5	
		Plastic Cap		7.9				16.5	0	0	0.0	16.5	
		Plastic Film Label		1.0				2.1	0	0	0.0	2.1	
		Net	411.8	39.5	451.3	91 / 9		82.6			13.4	69.1	
Aussie	29.2 fl. Oz. Plastic Bottle with Pump Dispenser	HDPE Bottle	890.6	52.7	943.3	94 / 6		50.9	0	21	10.7	40.2	
		Plastic Pump Top		26.8				25.9	0	0	0.0	25.9	
		Plastic Film Label		1.4				1.4	0	0	0.0	1.4	
		Net	890.6	80.9	971.5	92 / 8		78.2			10.7	67.5	
Neutrogena	7 Fl. Oz. Bottle in Paperboard Box	PETE Bottle	218.5	24.7	243.2	90 / 10		99.6	0	31	0.0	99.6	
		Plastic Cap		5.5				22.2	0	0	0.0	22.2	
		Paperboard Box		15.7				63.3	0	0	0.0	63.3	
		Net	218.5	45.9	264.4	83 / 17		185.0			0.0	185.0	
Garnier Fructis	13 fl. Oz. in Plastic Bottle	PETE Bottle	396.5	25.0	421.5	94 / 6		54.3	0	31	16.8	37.4	
		Plastic Cap		7.6				16.5	0	0	0.0	16.5	
		Plastic & Paper Label		1.0				2.2	0	0	0.0	2.2	
		Net	396.5	33.6	430.1	92 / 8		72.9			16.8	56.1	
Dove	8.45 oz. in Plastic Tube	Plastic Tube	257.7	15.2	272.9	94 / 6		50.8	0	0	0.0	50.8	
		Plastic Cap		7.9				26.4	0	0	0.0	26.4	
		Net	257.7	23.1	280.8	92 / 8		77.1			0.0	77.1	
			Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.		
<b>SNACKS</b> Doritos	10.5 oz. Plastic Bag	LDPE/Foil Bag	297.7	8.0	305.7	97 / 3		26.9	0	0	0.0	26.9	
		Doritos	1.25 oz. Plastic Bag	35.4	2.2	37.6	94 / 6		62.1	0	0	0.0	62.1
		Doritos Multi-Pack	6 oz. - 6, 1 oz. Bags in Plastic Bag	LDPE/Foil Pouches	170.1	12.0	182.1	93 / 7		70.5	0	0	0.0
LDPE Bag				12.8				75.2	0	21	15.8	59.4	
Net	170.1			24.8	194.9	87 / 13		145.8			15.8	130.0	

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.
<b>SNACKS (cont.)</b>												
Lay's Classic Mix	20 oz. - 20, 1 oz. Bags in Plastic Bag	LDPE/Foil Pouches	567.0	40.0	607.0	93 / 7		70.5	0	0	0.0	70.5
		LDPE Bag		21.2				37.4	0	21	7.9	29.5
		Net	567.0	61.2	628.2	90 / 10		107.9			7.9	100.1
Lay's Classic Mix	32 oz. - 232, 1 oz. Bags in Paperboard Box	LDPE/Foil Pouches	907.2	64.0	971.2	93 / 7		70.5	0	0	0.0	70.5
		Paperboard Box		265.5				292.7	0	28	81.9	210.7
		Net	907.2	329.5	1236.7	73 / 27		363.2			81.9	281.3
Lay's Stax	5.5 oz. Plastic Canister	Plastic Cannister	155.9	35.0	190.9	82 / 18		224.5	0	16	35.9	188.6
		LDPE Lid		5.1				32.7	0	0	0.0	32.7
		Foil/LDPE Seal		0.5				3.2	0	0	0.0	3.2
		Paper Label		3.5				22.5	0	0	0.0	22.5
		Net	155.9	44.1	200.0	78 / 22		282.9			35.9	247.0
Pringle's	5.96 oz. in Paperboard/Metal Canister	Paper/Metal Container	169.0	40.7	209.7	81 / 19		240.8	15	0	36.1	204.7
		Plastic Lid		2.9				17.2	0	0	0.0	17.2
		Composite Seal		0.6				3.6	0	0	0.0	3.6
		Net	169.0	44.2	213.2	79 / 21		261.5			36.1	225.4
Pringle's Cups	12.69 oz. 18-Plastic Tubs in Paperboard Sleeve	PP Tubs	359.8	127.8	487.6	74 / 26		355.2	0	11	39.1	316.1
		Foil/LDPE Lids		14.4				40.0	0	0	0.0	40.0
		Plastic Overwrap		5.0				13.9	0	0	0.0	13.9
		Paperboard Carton		69.1				192.1	0	12	23.0	169.0
		Net	359.8	216.3	576.1	62 / 38		601.2			62.1	539.0
<b>SOAP - BAR</b>				Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.
Dove	3.17 oz. in Paperboard Box	Paperboard Box	89.9	8.0	97.9	92 / 8		89.0	0	28	24.9	64.1
Dove	16 oz. - 4, 4 Oz. Bars in Boxes with Plastic Wrapper	Paperboard Boxes	453.6	36.0	489.6	93 / 7		79.4	0	28	22.2	57.1
		Plastic Overwrap		2.5				5.5	0	0	0.0	5.5
		Net	453.6	38.5	492.1	92 / 8		84.9			22.2	62.7
<b>SOAP - LIQUID</b>				Grams				Lbs. of Pkg/ 100 Gallon Liquid				Lbs.
Soft Soap Kitchen	8 fl. Oz. Plastic Bottle with Pump Dispenser	PETE Bottle	250.4	25.2	275.6	91 / 9		88.9	0	31	27.6	61.3
		Plastic Pump		26.5				93.5	0	0	0.0	93.5
		Plastic Film Label		1.7				6.0	0	0	0.0	6.0
		Net	250.4	53.4	303.8	82 / 18		188.4			27.6	160.8

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 100 Gallon Liquid				Lbs.
<b>SOAP - LIQUID (cont.)</b> Soft Soap	56 fl. Oz. Plastic Bottle (Refill)	PETE Bottle	1752.8	60.0	1812.8	97 / 3		30.2	0	31	9.4	20.9
		Plastic Cap		5.1				2.6	0	0	0.0	2.6
		Paper/Plastic Labels		1.3				0.7	0	0	0.0	0.7
		Net	1752.8	66.4	1819.2	96 / 4		33.5			9.4	24.1
Soft Soap	5.5 fl. Oz Plastic Bottle with Pump Dispenser	PETE Bottle	172.2	17.3	189.5	91 / 9		88.8	0	31	27.5	61.2
		Plastic Pump		10.9				55.9	0	0	0.0	55.9
		Paper & Plastic Labels		0.4				2.1	0	0	0.0	2.1
		Net	172.2	28.6	200.8	86 / 14		146.7			27.5	119.2
Dove Body Wash	22 fl. Oz. Plastic Bottle	HDPE Bottle	688.6	44.2	732.8	94 / 6		56.7	0	21	11.9	44.8
		Plastic Cap		7.4				9.5	0	0	0.0	9.5
		Net	688.6	51.6	740.2	93 / 7		66.2			11.9	54.3
<b>SOFT DRINKS, CARBONATED</b> Coke Zero	2 Litre Plastic Bottle	PETE Bottle	1998.9	47.5	2046.4	98 / 2		19.8	0	31	6.1	13.7
		Plastic Cap		2.8				1.2	0	0	0.0	1.2
		Plastic Film Label		0.8				0.3	0	0	0.0	0.3
		Net	1998.9	51.1	2050.0	98 / 2		21.3			6.1	15.2
Coke Zero	1.25 Litre Plastic Bottle	PETE Bottle	1247.8	38.4	1286.2	97 / 3		25.7	0	31	8.0	17.7
		Plastic Cap		2.8				1.9	0	0	0.0	1.9
		Plastic Film Label		0.6				0.4	0	0	0.0	0.4
		Net	1247.8	41.8	1289.6	97 / 3		28.0			8.0	20.0
Canada Dry Ginger Ale	144 fl. oz. 12-12 oz. Cans in Paperboard Box	Aluminum Cans	4258.1	157.2	4415.3	96 / 4		30.8	0	55	16.9	13.9
		Paperboard Box		89.8				17.6	0	28	4.9	12.7
		Net	4258.1	247.0	4505.1	95 / 5		48.4			21.9	26.5
Coke	101.4 fl. oz. 6-500 ml. Plas. Btls. with Loop Carrier	PETE Bottles	2998.4	133.2	3131.6	96 / 4		37.1	0	31	11.5	25.6
		Plastic Caps		16.8				4.7	0	0	0.0	4.7
		Plastic Film Labels		2.4				0.7	0	0	0.0	0.7
		LDPE Loop Carrier		4.4				1.2	0	0	0.0	1.2
		Net	2998.4	156.8	3155.2	95 / 5		43.6			0.0	32.1
Coke	60 fl. oz. 8-7.5 oz. Cans with Loop Carrier	Aluminum Cans	1774.2	103.6	1877.8	94 / 6		48.7	0	55	26.8	21.9
		LDPE Loop Carrier		3.4				1.6	0	0	0.0	1.6
		Net	1774.2	107.0	1881.2	94 / 6		50.3			26.8	23.5

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equiv Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
<b>SOFT DRINKS, CARBONATED (cont.)</b>			Grams				Lbs. of Pkg/ 100 Gallon Liquid				Lbs.	
Coca Cola Life	72 fl. oz. 6-12 oz. Cans with Loop Carrier	Aluminum Cans	2129.0	77.7	2206.7	96 / 4		30.5	0	55	16.7	13.7
		LDPE Loop Carrier		3.6				1.4	0	0	0.0	1.4
		Net	2129.0	81.3	2210.3	96 / 4		31.9			16.7	15.1
Coke	48 fl. oz. 6-8 oz. Glass Bottles in Paperboard Carrier	Glass Bottles	1419.4	1018.2	2437.6	58 / 42		598.6	0	41	245.4	353.2
		Steel Caps		12.3				7.2	0	79	5.7	1.5
		Paperboard Carrier		55.5				32.6	0	28	9.1	23.5
		Net	1419.4	1086.0	2505.4	57 / 43		638.4			260.3	378.2
Coke Zero	8.5 fl. oz. Metal Bottle with Loop Carrier	Aluminum Bottle	236.6	23.9	260.5	91 / 9		79.3	0	55	43.6	35.7
		Aluminum Cap		1.5				5.0	0	0	0.0	5.0
		Net	236.6	25.4	262.0	90 / 10		84.3			43.6	40.7
<b>SOFT DRINKS, POWDERED</b>			Grams				Lbs. of Pkg/ 4000 Servings				Lbs.	
Kool Aid 8 Servings	.22 oz. Composite Pouch	Composite Pouch	6.5	1.2	7.7	84 / 16		1.3	0	0	0.0	1.3
Kool Aid Low Calorie Mix 12 Servings	.37 oz. - 6 Packets in Paperboard Box	Foli & Plastic Packets	10.5	3.3	13.8	76 / 24		2.4	0	0	0.0	2.4
		Paperboard Box		13.2				9.7	0	0	0.0	9.7
		Net	10.5	16.5	27.0	39 / 61		12.1			0.0	12.1
Crystal Light 40 Servings	1.85 oz. Plastic Canister with Plastic Product Tubs	PP Container	52.5	26.6	79.1	66 / 34		5.9	0	11	0.6	5.2
		PP Lid		2.7				0.6	0	11	0.1	0.5
		Foil & Plastic Packets		5.8				1.3	0	0	0.0	1.3
		Plastic Label		2.6				0.6	0	0	0.0	0.6
		Net	52.5	37.7	90.2	58 / 42		8.3			0.0	7.6
Kool Aid 32 Servings	19 oz. Plastic Container	HDPE Canister	538.6	38.2	576.8	93 / 7		10.5	0	21	2.2	8.3
		Plastic Lid		17.6				4.9	0	0	0.0	4.9
		Plastic Film Label		1.8				0.5	0	0	0.0	0.5
		Net	538.6	57.6	596.2	90 / 10		15.9			2.2	13.7
<b>SOFT DRINKS - SPORTS</b>												
Gatorade Liquid 5 Servings	64 fl. Oz. Plastic Bottle	PETE Bottle	1892.4	77.1	1969.5	96 / 4		136.0	0	31	42.2	93.8
		Plastic Cap		4.6				8.1	0	0	0.0	8.1
		Plastic Film Label		0.9				1.6	0	0	0.0	1.6
		Net	1892.4	82.6	1975.0	96 / 4		145.7			42.2	103.5
Gatorade Powder 23 Servings	18.4 oz. Plastic Container	HDPE Container	521.6	39.2	560.8	93 / 7		15.0	0	21	3.2	11.9
		PP Lid		11.3				4.3	0	0	0.0	4.3
		Composite Seal		1.9				0.7	0	0	0.0	0.7
		Plastic Film Label		2.8				1.1	0	0	0.0	1.1
		Net	521.6	55.2	576.8	90 / 10		21.2			3.2	18.0

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equiv Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 4000 Servings				Lbs.
<b>SOFT DRINKS - SPORTS (cont.)</b>												
Gatorade Liquid 2.5 Servings	32 fl. oz. Plastic Bottle	PETE Bottle	946.2	47.2	993.4	95 / 5		166.5	0	31	51.6	114.9
		Plastic Cap		4.6				16.2	0	0	0.0	16.2
		Plastic Film Label		1.1				3.9	0	0	0.0	3.9
		Net	946.2	52.9	999.1	95 / 5		186.6			51.6	135.0
<b>SOUP</b>												
Campbell Chicken RTE 2 Servings	14 oz. Plastic Pouch	Plastic Pouch	395.9	9.2	405.1	98 / 2		40.6	0	0	0.0	40.6
Bear Creek Minestrone Mix 8 Servings	9.3 oz. Plastic Pouch	Plastic Pouch	263.6	7.8	271.4	97 / 3		8.6	0	0	0.0	8.6
Imagine Creations 4 Servings	32 fl. oz. Aseptic Carton	Composite Carton	946.2	35.4	981.6	96 / 4		78.0	0	10	7.8	70.2
Imagine Creations 2 Servings	17.3 oz. Aseptic Carton	Composite Carton	490.0	21.3	511.3	96 / 4		93.9	0	10	9.4	84.5
Dole 3 Servings	26 oz. Aseptic Carton	Composite Carton	737.0	27.2	764.2	96 / 4		80.0	0	10	8.0	72.0
Progresso 2 Servings	18.5 oz. Metal Can	Steel Can	524.0	71.9	595.9	88 / 12		317.0	0	71	225.1	91.9
		Paper Label		2.7				11.9	0	0	0.0	11.9
		Net	524.0	74.6	598.6	88 / 12		328.9			225.1	103.8
Campbell's Condensed 2.5 Servings	10.5 Oz. Metal Can	Steel Can	297.7	40.4	338.1	88 / 12		142.5	0	71	101.2	41.3
		Paper Label		1.8				6.3	0	0	0.0	6.3
		Net	297.7	42.2	339.9	88 / 12		148.9			101.2	47.7
Red Mill (Dry Mix) 14 Servings	26 oz. Plastic Bag	Plastic Bag	737.1	9.8	746.9	99 / 1		6.2	0	0	0.0	6.2
Lipton Cup-a-Soup (Dry Mix) 4 Servings	1.8 oz. Paperboard Box	Comp. Envelopes	51.4	7.6	59.0	87 / 13		16.8	0	0	0.0	16.8
		Paperboard Box		14.9				32.8	0	28	9.2	23.7
		Net	51.4	22.5	73.9	70 / 30		49.6			9.2	40.4
Healthy Choice 2 Servings	14 oz. Plastic Bowl	PP Bowl	396.9	32.2	429.1	92 / 8		142.0	0	11	15.6	126.4
		Steel Lid		6.0				26.5	0	79	20.9	5.6
		Plastic Lid & Label		10.2				45.0	0	0	0.0	45.0
		Net	396.9	48.4	445.3	89 / 11		213.4			36.5	176.9

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equiv Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 4000 Servings				Lbs.
<b>SOUP (Cont.)</b>												
Campbell's Soup on the Go 1 Serving	10.75 oz. Plastic Container	PP Container	304.7	26.7	331.4	92 / 8		235.4	0	11	25.9	209.6
		Foil & Plastic Seal		0.8				7.1	0	0	0.0	7.1
		Plastic Lid & Label		5.9				52.0	0	0	0.0	52.0
		Net	304.7	33.4	338.1	90 / 10		294.5			25.9	268.6
Maruchan Instant Ramen 1 Serving	2.25 oz. Plastic Container in Paperboard Sleeve	EPS Cup	63.8	4.6	68.4	93 / 7		40.6	0	0	0.0	40.6
		Plastic Lid		0.8				7.1	0	0	0.0	7.1
		Plastic Wrap		0.6				5.3	0	0	0.0	5.3
		Paperboard Sleeve		7.9				69.7	0	28	19.5	50.2
		Net	63.8	13.9	77.7	82 / 18		122.6			19.5	103.1
<b>SOUP, FRESH REFRIGERATED</b>												
Whole Foods Jambalaya 3 Servings	24 oz. Plastic Pouch	Plastic Pouch	680.4	10.0	690.4	99 / 1		29.4	0	0	0.0	29.4
Fresh Foods 3 Servings	24 oz. Plastic Tub	PP Container	680.4	23.0	703.4	97 / 3		67.6	0	11	7.4	60.2
		LDPE Lid & Label		8.4				24.7	0	0	0.0	24.7
		Plastic Seal		0.9				2.6	0	0	0.0	2.6
		Plastic Film Label		0.6				1.8	0	0	0.0	1.8
		Net	680.4	32.9	713.3	95 / 5		96.7			7.4	89.3
In the Soup 3 Servings	24 oz. Glass Jar	Glass Jar	680.4	354.0	1034.4	66 / 34		1040.6	0	15	156.1	884.5
		Steel Lid		13.6				40.0	0	79	31.6	8.4
		Paper Label		2				5.9	0	0	0.0	5.9
		Net	680.4	369.6	1050.0	65 / 35		1086.4			187.7	898.8
<b>SPINACH</b>												
Simple Truth Fresh	5 oz. Plastic Carton	PP Container	141.8	51.5	193.3	73 / 27		363.2	0	11	40.0	323.2
		Paper Label		1.2				8.5	0	0	0.0	8.5
		Net	141.8	52.7	194.5	73 / 27		371.7			40.0	331.7
Dole Fresh	6 oz. Bag	Plastic Bag	170.1	6.0	176.1	97 / 3		35.3	0	0	0.0	35.3
Stahlbush Farms Frozen	10 oz. Bag	Paper & Plastic Bag	283.5	9.1	292.6	97 / 3		32.1	0	0	0.0	32.1
Cascadian Farms Frozen	10 oz. Paperboard Carton	Paperboard Carton	283.5	23.0	306.5	92 / 8		81.1	0	28	22.7	58.4
		Plastic Bag		3.5				12.3	0	0	0.0	12.3
		Net	283.5	26.5	310.0	91 / 9		93.5			22.7	70.8

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
			Grams					Lbs. of Pkg/ 1000 Lbs. of Pdct				
												Lbs.
<b>SPINACH (cont.)</b> Kroger	14 oz. Can	Steel Can	396.9	58.5	455.4	87 /	13	147.4	0	79	116.4	31.0
		Paper Label		2.4				6.0	0	0	0.0	6.0
		Net	396.9	60.9	457.8	87 /	13	153.4			116.4	37.0
Kroger	7.75 oz. Can	Steel Can	219.7	40.0	259.7	85 /	15	182.1	0	79	143.8	38.2
		Paper Label		1.5				6.8	0	0	0.0	6.8
		Net	219.7	41.5	261.2	84 /	16	188.9			143.8	45.1
<b>STRAWBERRIES</b>												
Central West Fresh	32 oz. in Plastic Carton	PETE Carton	907.2	44.0	951.2	95 /	5	48.5	0	3	1.5	47.0
		Paper Labels		0.2				0.2	0	0	0.0	0.2
		Net	907.2	44.2	951.4	95 /	5	48.7			1.5	47.3
Kroger Private Selection Frozen	16 oz. Plastic Bag	Plastic Bag	453.6	10.8	464.4	98 /	2	23.8	0	0	0.0	23.8
Kroger Private Selection Frozen	16 oz. Tub	PP Tub	453.6	13.7	467.3	97 /	3	30.2	0	11	3.3	26.9
		HDPE Lid		9.0				19.8	0	21	4.2	15.7
		Paper Labels		1.0				2.2	0	0	0.0	2.2
		Plastic Seal		0.3				0.7	0	0	0.0	0.7
		Net	453.6	24.0	477.6	95 /	5	52.9			7.5	45.4
<b>SWEETENER</b>			Grams					Lbs. of Pkg/ 10,000 Servings				
Truvia 340 Servings	24 oz. Pouch	Plastic Pouch	680.4	15.7	696.1	98 /	2	1.0	0	0	0.0	1.0
		Plastic Cap		1.3				0.1	0	0	0.0	0.1
		Net	680.4	17.0	697.4	98 /	2	1.1			0.0	1.1
Kroger Stevia Blend 140 Servings	9.8 oz. in Plastic Jar	PETE Jar	277.8	30.6	308.4	90 /	10	4.8	0	31	1.5	3.3
		Plastic Lid		11.8				1.9	0	0	0.0	1.9
		Foil & Plastic Seal		1.3				0.2	0	0	0.0	0.2
		Net	277.8	43.7	321.5	86 /	14	6.9			1.5	5.4
Kroger Stevia Blend 80 Servings	5.6 oz. - Packets in Paperboard Box	Paper Packets	158.8	30.8	189.6	84 /	16	8.5	0	0	0.0	8.5
		Paperboard Box		18.8				5.2	0	28	1.5	3.7
		Net	158.8	49.6	208.4	76 /	24	13.7			1.5	12.2
Kroger Stevia Blend 40 Servings	2.8 oz. - Packets in Paperboard Box	Paper Packets	79.4	15.4	94.8	84 /	16	8.5	0	0	0.0	8.5
		Paperboard Box		15.7				8.7	0	28	2.4	6.2
		Net	79.4	31.1	110.5	72 /	28	17.1			2.4	14.7
Kroger Stevia Blend Liquid 160 Servings	1.68 fl. Oz. in Plastic Bottle	Plastic Bottle	50.0	15.4	65.4	76 /	24	2.1	0	0	0.0	2.1
		Plastic Overwrap		15.7				2.2	0	0	0.0	2.2
		Net	50.0	31.1	81.1	62 /	38	4.3			0.0	4.3

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 100 Gallon Liquid				Lbs.
<b>TABLE SYRUP</b> Kroger Private Selection	12 Fl. Oz. Glass Bottle	Glass Bottle	474.0	309.5	783.5	60 / 40		727.8	0	15	109.2	618.6
		Plastic Cap & Seal		2.4				5.6	0	0	0.0	5.6
		Paper Label		0.8				1.9	0	0	0.0	1.9
		Net	474.0	312.7	786.7	60 / 40		735.3			109.2	626.2
Maple Gold	12 Fl. Oz. Foil & Plastic Pouch and Plastic Spout	Pouch and Spout	474.0	10.8	484.8	98 / 2		25.4	0	0	0.0	25.4
		Plastic Cap and Seal		1.5				3.5	0	0	0.0	3.5
		Net	474.0	12.3	486.3	97 / 3		28.9			0.0	28.9
Kroger Original	12 Fl. Oz. Plastic Bottle	PETE Bottle	474.0	23.7	497.7	95 / 5		55.7	0	31	17.3	38.5
		Plastic Cap		4.1				9.6	0	0	0.0	9.6
		Composite Seal		0.2				0.5	0	0	0.0	0.5
		Paper Label		0.6				1.4	0	0	0.0	1.4
		Net	474.0	28.6	502.6	94 / 6		67.3			17.3	50.0
Mrs. Butterworth	24 fl. Oz. Plastic Bottle	PETE Bottle	948.0	40.8	988.8	96 / 4		48.0	0	31	14.9	33.1
		Plastic Cap		3.6				4.2	0	0	0.0	4.2
		Composite Seal		0.2				0.2	0	0	0.0	0.2
		Paper Label		1.2				1.4	0	0	0.0	1.4
		Net	948.0	45.8	993.8	95 / 5		53.9			14.9	39.0
Log Cabin	22 fl. Oz. in Plastic Jug	HDPE Bottle	869.0	63.9	932.9	93 / 7		82.0	0	21	17.2	64.8
		Plastic Cap		3.6				4.6	0	0	0.0	4.6
		Composite Seal		0.2				0.3	0	0	0.0	0.3
		Paper Label		1.9				2.4	0	0	0.0	2.4
		Net	869.0	69.6	938.6	93 / 7		89.3			17.2	72.1
<b>TOOTHPASTE</b> Crest	6.4 oz. Plastic Tube and Paperboard Box			Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.
		Plastic & Foil Tube	181.4	6.3	187.7	97 / 3		34.7	0	0	0.0	34.7
		Plastic Cap		1.0				5.5	0	0	0.0	5.5
		Paperboard Box		12.9				71.1	0	28	19.9	51.2
		Net	181.4	20.2	201.6	90 / 10		111.4			19.9	91.4
Crest 3-D	3.0 oz. Plastic Tube and Paperboard Box	Plastic & Foil Tube	85.1	5.7	90.8	94 / 6		67.0	0	0	0.0	67.0
		Plastic Cap		5.9				69.3	0	0	0.0	69.3
		Paperboard Box		11.7				137.5	0	28	38.5	99.0
		Net	85.1	23.3	108.4	79 / 21		273.8			38.5	235.3
Crest Complete	4.6 oz. Plastic Squirt Bottle	PP Bottle & Lid	130.2	18.0	148.2	88 / 12		138.2	0	11	15.2	123.0
		Plastic Label		0.8				6.1	0	0	0.0	6.1
		Net	130.2	18.8	149.0	87 / 13		144.4			15.2	129.2



## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equiv Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
			<u>Grams</u>				<u>Lbs. of Pkg/ 1000 Lbs. of Pdct</u>				<u>Lbs.</u>	
<b>TOOTHPASTE (cont.)</b>												
Colgate Optic white	3.4 oz. Plastic Tube and Paperboard Box	Plastic & Foil Tube	96.4	7.2	103.6	93 / 7		74.7	0	0	0.0	74.7
		Plastic Cap		4.9				50.8	0	0	0.0	50.8
		Paperboard Box		13.8				143.2	0	28	40.1	103.1
		Net	96.4	25.9	122.3	79 / 21		268.7			40.1	228.6
			<u>Grams</u>				<u>Lbs. of Pkg/ 1000 Lbs. of Pdct</u>				<u>Lbs.</u>	
Toms of Maine	4.2 oz. Plastic Tube	Plastic Tube	119.0	6.8	125.8	95 / 5		57.1	0	0	0.0	57.1
		Plastic Cap		6.5				54.6	0	0	0.0	54.6
		Foil Seal		0.1				0.8	0	0	0.0	0.8
		Net	119.0	13.4	132.4	90 / 10		112.6			0.0	112.6
			<u>Grams</u>				<u>Lbs. of Pkg/ 1000 Lbs. of Pdct</u>				<u>Lbs.</u>	
<b>TUNA</b>												
<b>Large Size</b>												
Star Kist	12 oz. Can	Steel Can	340.3	53.8	394.1			158.1	0	71	112.2	45.8
		Paper Label		1.2				3.5	0	0	0.0	3.5
		Net	340.3	55.0	395.3	86 / 14		161.6			112.2	49.4
Star Kist	11 oz. Pouch	Foil/LDPE Pouch	311.9	12.2	324.1	96 / 4		39.1	0	0	0.0	39.1
			<u>Grams</u>				<u>Lbs. of Pkg/ 1000 Lbs. of Pdct</u>				<u>Lbs.</u>	
<b>Standard Size</b>												
Star Kist	5 oz. Can	Steel Can	141.8	28.8	170.6			203.1	0	71	144.2	58.9
		Paper Label		0.7				4.9	0	0	0.0	4.9
		Net	141.8	29.5	171.3	83 / 17		208.0			144.2	63.8
Bumble Bee	5 oz. Pouch	Foil/LDPE Pouch	141.8	6.4	148.2	96 / 4		45.1	0	0	0.0	45.1
			<u>Grams</u>				<u>Lbs. of Pkg/ 1000 Lbs. of Pdct</u>				<u>Lbs.</u>	
<b>Single Serve Size</b>												
Star Kist	2.6 oz. Pouch	Foil/LDPE Pouch	73.7	5.7	79.4	93 / 7		77.3	0	0	0.0	77.3
			<u>Grams</u>				<u>Lbs. of Pkg/ 1000 Lbs. of Pdct</u>				<u>Lbs.</u>	
Bumble Bee	9 oz. 3 -3 oz Cans in Paperboard Sleeve	Steel Cans	255.2	68.1	323.3			266.8	0	71	189.5	77.4
		Paper Labels		1.8				7.1	0	0	0.0	7.1
		Can	255.2	69.9	325.1	78 / 22		273.9				84.4
		Paperboard Sleeve		12.2				47.8	0	28	13.4	34.4
		Net	255.2	82.1	337.3	76 / 24		321.7			202.8	118.9
			<u>Grams</u>				<u>Lbs. of Pkg/ 1000 Lbs. of Pdct</u>				<u>Lbs.</u>	
Kroger	9 oz. 3 -3 oz Cans in in Plastic Shrink Wrap	Steel Cans	255.2	74.1	329.3			290.4	0	71	206.2	84.2
		Paper Labels		2.1				8.2	0	0	0.0	8.2
		Can	255.2	76.2	331.4	77 / 23		298.6				92.4
		Plastic Shrink Wrap		1.6				6.3	0	0	0.0	6.3
		Net	255.2	77.8	333.0	77 / 23		304.9			206.2	98.7

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equiv Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 100 Gallon Liquid				Lbs.
<b>WATER</b> Eldorado	1 Gallon Jug (3.78 Litre)	HDPE Jug	3780.0	63.5	3843.5	98 / 2		14.0	0	28	3.9	10.1
		LDPE Cap		2.8				0.6	0	0	0.0	0.6
		Paper Label		0.9				0.2	0	0	0.0	0.2
		Net	3780.0	67.2	3847.2	98 / 2		14.8				3.9
Arrowhead	3 Litre Plastic Jug	PETE Jug	3000.0	77.5	3077.5	97 / 3		21.6	0	31	6.7	14.9
		Plastic Cap		3.9				1.1	0	0	0.0	1.1
		Paper Label		1.2				0.3	0	0	0.0	0.3
		Net	3000.0	82.6	3082.6	97 / 3		23.0				6.7
Dasani	16.9 fl oz. (500 mL) Plastic Bottle	PETE Bottle	500.0	12.9	512.9	97 / 3		21.5	0	31	6.7	14.9
		Plastic Closure		2.3				3.8	0	0	0.0	3.8
		Plastic Film Label		0.3				0.5	0	0	0.0	0.5
		Net	500.0	15.5	515.5	97 / 3		25.9				6.7
Aqua Hydrate	16.9 fl. Oz. (500 mL) Plastic Bottle	PETE Bottle	500.0	23.6	523.6	95 / 5		39.4	0	31	12.2	27.2
		Plastic Closure		2.1				3.5	0	0	0.0	3.5
		Film Label		1.6				2.7	0	0	0.0	2.7
		Net	500.0	27.3	527.3	95 / 5		45.6				12.2
Eldorado	3.0 Litres 6-500ml Bottles Plastic Loop Carrier	PETE Bottles	3000.0	117.0	3117.0	96 / 4		32.6	0	31	10.1	22.5
		Plastic Caps		13.8				3.8	0	0	0.0	3.8
		Plastic Film Labels		2.4				0.7	0	0	0.0	0.7
		HDPE Carrier		12.8				3.6	0	0	0.0	3.6
		Net	3000.0	146.0	3146.0	95 / 5		40.6				10.1
King Soopers	12 Litres 24 -500ml Bottles with Plastic Overwrap	PETE Bottles	12000.0	184.8	12184.8	98 / 2		12.9	0	31	4.0	8.9
		Plastic Caps		20.4				0.2	0	0	0.0	0.2
		Plastic Film Labels		4.8				0.3	0	0	0.0	0.3
		Plastic Overwrap		24.2				1.7	0	0	0.0	1.7
		Net	12000.0	234.2	12234.2	98 / 2		16.3				4.0
S. Pellegrino	1.5 L - 6 x 250 mL Glass Bottles Paperboard Carton	Glass Bottles	1500.0	936.0	2436.0	62 / 38		521.0	0	15	78.1	442.8
		Metal & Plastic Caps		7.2				4.0	0	0	0.0	4.0
		Paper Labels		8.4				4.7	0	0	0.0	4.7
		Paperboard Carton		25.0				13.9	0	28	3.9	10.0
		Net	1500.0	976.6	2476.6	61 / 39		543.6				82.0
S. Pellegrino	750 ml Glass Bottle	Glass Bottle	750.0	445.8	1195.8	63 / 37		497.2	0	15	74.6	422.6
		Plastic Seal		0.4				0.4	0	0	0.0	0.4
		Metal Cap		0.8				0.9	0	79	0.7	0.2
		Paper Labels		3.0				3.3	0	0	0.0	3.3
		Net	750.0	450.0	1200.0	63 / 38		501.9				75.3

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equiv Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 100 Gallon Liquid				Lbs.
<b>WATER (cont.)</b>												
Perrier	10-8.45 oz. (250 mL) Cans	AL Cans	2500.0	106.0	2606.0	96 / 4		35.4	0	55	19.5	15.9
	Aluminum Cans	Paperboard Carton		74.4				24.8	0	28	7.0	17.9
		Net	2500.0	180.4	2680.4	93 / 7		60.2			26.4	33.8
				Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.
<b>YOGURT - BULK</b>												
Stonyfield	32 oz. Plastic Container	PP Container	907.2	23.6	930.8	97 / 3		26.0	0	11	2.9	23.2
		Plastic Lid		5.3				5.8	0	0	0.0	5.8
		Foil/LDPE Seal		1.4				1.5	0	0	0.0	1.5
		Net	907.2	30.3	937.5	97 / 3		33.4			2.9	30.5
Glen Oaks	24 oz. Plastic Bottle	HDPE Bottle	680.4	33.5	713.9	95 / 5		49.2	0	21	10.3	38.9
		Plastic Lid		2.8				4.1	0	0	0.0	4.1
		Plastic Film Label		3.3				4.9	0	0	0.0	4.9
		Net	680.4	39.6	720.0	95 / 6		58.2			10.3	47.9
White Mountain	16 Fl. Oz. in Glass Jar	Glass Jar	480.0	258.9	738.9	65 / 35		539.4	0	15	80.9	458.5
		Plastic Lid & Seal		10.0				20.8	0	0	0.0	20.8
		Paper Label		1.0				2.1	0	0	0.0	2.1
		Net	480.0	269.9	749.9	64 / 36		562.3			80.9	481.4
Noosa	16 oz. in Plastic Container	PP Container	453.6	16.2	469.8	97 / 3		35.7	0	11	3.9	31.8
		Plastic Lid		5.8				12.8	0	0	0.0	12.8
		Foil Seal		1.5				3.3	0	0	0.0	3.3
		Net	453.6	23.5	477.1	95 / 5		51.8			3.9	47.9
<b>YOGURT - SINGLE SERIVE</b>												
Noosa	8 oz. in Plastic Container	PP Container	226.8	12.5	239.3	95 / 5		55.1	0	11	6.1	49.1
		Plastic Lid		5.8				25.6	0	0	0.0	25.6
		Foil Seal		1.5				6.6	0	0	0.0	6.6
		Net	226.8	19.8	246.6	92 / 8		87.3			6.1	81.2
Smari	6 oz. in Plastic Cup	PP Cup	170.1	6.4	176.5	96 / 4		37.6	0	11	4.1	33.5
		Foil Lid		1.0				5.9	0	0	0.0	5.9
		Paperboard Label		3.1				18.2	0	28	5.1	13.1
		Net	170.1	10.5	180.6	94 / 6		61.7			9.2	52.5
Yoplait	6 oz. Plastic Cup	PP Cup	170.1	7.2	177.3	96 / 4		42.3	0	11	4.7	37.7
		Foil Lid		0.5				2.9	0	0	0.0	2.9
		Net	170.1	7.7	177.8	96 / 4		45.3			4.7	40.6

## Packaging Efficiency Study

Category/Product	Package Type	Material Type	Pdct Wght	Pkg Wght	Total Wght	% Pdct	% Pkg	Equip Pkg Comparison	% From Rec. Mat.	% Recycled	Recycle Credit	Net Discards
				Grams				Lbs. of Pkg/ 1000 Lbs. of Pdct				Lbs.
<b>YOGURT - SINGLE SERVE (cont.)</b>												
Muller	5.3 oz in Plastic Container	Plastic Container	150.3	9.4	159.7	94 / 6		62.5	0	0	0.0	62.5
		Foil Lid		0.8				5.3	0	0	0.0	5.3
		Paper Label		0.3				2.0	0	0	0.0	2.0
		Net	150.3	10.5	160.8	93 / 7		69.9			0.0	69.9
Oikos	5.3 oz. In Plastic Cup	PP Cup	150.3	7.0	157.3	96 / 4		46.6	0	11	5.1	41.5
		Foil Lid		0.5				3.3	0	0	0.0	3.3
		Paper Label		1.0				6.7	0	0	0.0	6.7
		Net	150.3	8.5	158.8	95 / 5		56.6			5.1	51.4
Fage	5.3 oz in Plastic Container	PP Container	150.3	9.0	159.3	94 / 6		59.9	0	11	6.6	53.3
		Foil Lid		1.0				6.7	0	0	0.0	6.7
		Paper Label		2.6				17.3	0	0	0.0	17.3
		Net	150.3	12.6	162.9	92 / 8		83.8			6.6	77.2
Stoneyfield Yo-kids	3.7 oz. Squeeze Pouch	Plastic Pouch	104.9	5.2	110.1	95 / 5		49.6	0	0	0.0	49.6
		Plastic Cap		3.6				34.3	0	0	0.0	34.3
		Net	104.9	8.8	113.7	92 / 8		83.9			0.0	83.9
<b>YOGURT- SINGLE SERVE MULTI-PACKS</b>												
Dannon Danimals	16 oz. - 4- 4 oz. Squeezable Pouches in Paperboard Boxes	Compositie Pouches	453.6	21.4	475.0	95 / 5		47.2	0	0	0.0	47.2
		Plastic Caps		13.0				28.7	0	0	0.0	28.7
		Paperboard Box		48.0				105.8	0	28	29.6	76.2
		Net	453.6	82.4	536.0	85 / 15		181.7			29.6	152.0
Activia 4-Pack	16 oz. - 4-4 oz. Containers	PS Cups	453.6	14.4	468.0	97 / 3		31.7	0	11	3.5	28.3
		Foil Lids		1.0				2.2	0	0	0.0	2.2
		Paper Labels		4.0				8.8	0	0	0.0	8.8
		Net	453.6	19.4	473.0	96 / 4		42.8			3.5	39.3
Yo-Kids Squeezables	16 oz. - 8 -2 oz. Plastic Tubes in Paperboard Box	LDPE Tubes	453.6	10.4	464.0	98 / 2		22.9	0	21	0.0	22.9
		Paperboard Box		34.5				76.1	0	28	9.1	66.9
		Net	453.6	44.9	498.5	91 / 9		99.0			9.1	89.9
Oikos 4-Pack	21.2 oz. - 4-5.3 oz. Plastic Containers in Paperboard Box	PP Cups	601.0	28.0	629.0	96 / 4		46.6	0	11	5.1	41.5
		Foil Lids		4.0				6.7	0	0	0.0	6.7
		Paper Labels		2.0				3.3	0	0	0.0	3.3
		Paperboard Box		24.0				5.3	0	28	1.5	3.8
		Net	601.0	58.0	659.0	91 / 9		61.9			1.5	55.3