FOOD PACKAGING STUDY
A REPORT ON ENVIRONMENTAL IMPACT

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Research Project
Presented to the Ashland Food Cooperative
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INTRODUCTION

The Ashland Food Cooperative approached the Siskiyou Environmental Education Center and the SOU Environmental Studies Department to assist in its investigation of the environmental impact of food packaging. This report is the result of that collaboration.

The purpose of this study is to help managers, buyers, and customers of the Ashland Food Cooperative make decisions as to which products to buy or not to buy based on the degree of environmental harm each product (and its packaging) causes.

The materials that are found in food packaging include: glass, plastic, cardboard and metal. This study focused on the environmental impact of glass, plastics, bleached paperboard and aluminum soda cans. Steel and tin cans were difficult to properly identify and were excluded from the study. Oregon State Senate Bill 459A.650-660 (SB66) states that all rigid plastic containers between 8 oz. and 5 gallons must have a recycling triangle imprint displaying its plastic type. Thus, rigid plastic containers, easy to identify, were included in the study, while non-rigid plastic containers were excluded because of their unknown composition. Also included in this report is an environmental evaluation of paper and plastic bags.

DISCUSSION ABOUT PACKAGING IN GENERAL

All packaging materials impact the environment. The environmental impacts of the manufacture, use and disposal of packaging materials includes the formation of greenhouse gasses (e.g. CO_2), the release of toxins (e.g. vinyl chloride monomer) and the scarring of landscape (e.g. mining pits). According to the Institute of Lifecycle Environmental Assessment (ILEA), there are quantifiable environmental costs to the manufacture, use and disposal of packaging materials (1992).

Packaging represents approximately one-third of municipal waste in the United States (Ackerman 1997). What to do with packaging once it has been used is of concern to many people. Yet, it is important not to lose sight of the **valuable function of packaging** even if it seems wasteful to throw something away after only one use. Packaging protects food during transportation, preserves food from spoilage and makes food appealing to consumers (Ackerman 1997). Packaging also allows for a more efficient distribution of food that reduces food waste for the consumer. According to Frank Ackerman from Tufts University, the home preparation of fresh fruits and vegetables leads to the discard of substantial food waste (1997). Ackerman concludes that "[t]here seems to be an inverse relationship between the quantities of food waste and the amount of packaging waste, with richer countries generating more of the latter" (1997).

Product manufacturers have incentive to use more packaging when the payoffs are increased sales (Ackerman 1997). Cost calculations show that the environmental costs of increased packaging are insignificant to producers (Ackerman 1997). This is especially problematic when producers assume that the consumers are accepting of increased packaging and desire even more (Ackerman 1997). When sales of products with minimal packaging increase, and sales of the most wastefully packaged products decrease, this will be the most effective way to communicate the desire for reduced packaging to the manufacturers.

ESTIMATING THE TOTAL COST OF FOOD PACKAGING

The Tellus Study says there are three groups of costs in the production and disposal of food packaging, so the equation for the "Full Cost" of food packaging may be expressed as follows:

Full cost of packaging production and disposal =

- Environmental costs (pollutant costs) of packaging production +
- Conventional (monetary) costs of disposal +
- Environmental costs (pollutant costs) of disposal

Environmental Costs of Production

The environmental costs of pollutants created during the manufacturing stage was determined by using he pollutant price (that is, the amount it costs to abate the substance) multiplied by the amount of pollutant released per disposal method. The total environmental cost for manufacturing the packaging material was determined by multiplying each pollutant's price by the amount of each pollutant released to the environment per ton of material produced.

Conventional Costs of Disposal

Conventional costs of disposal included the cost for incineration, landfill and recycling, and used New Jersey's solid waste system as a baseline.

Environmental Costs of Disposal

The environmental costs of disposal were determined using the pollutant price (that is, the amount it costs to abate the substance) multiplied by the amount of pollutant released per disposal method:

> -For **landfills**, the pollutants per ton of landfilled waste were estimated and these were added to the waste stream components based on the quantities and chemical composition of wastes.
> -For **incinerators**, the air pollutants and ash produced by burning a ton of waste were estimated and these were added to the waste stream components based on the quantities and chemical composition of wastes.
> -For **recycling**, the air pollutants associated with recycling a ton of recycled waste were estimated and these were added to the waste stream components based on the quantities of waste. One published study was used that measured ambient air pollution levels at a fairly small recycling facility. Only one data set was used due to the lack of published data on recycling facility emissions.
> -For, **landfilling, incineration and recycling**, the air pollutants associated with collecting a ton of waste were estimated, and these were added to the waste stream components based on the quantities and volumes of wastes.

PLASTIC PACKAGING

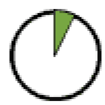
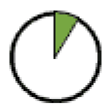
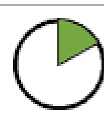
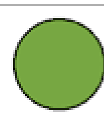
SPI #[2]	Plastic Name	$/Ton	Common Uses
2 HDPE	High-density polyethylene	 290	Milk jugs, liquid detergent bottles, grocery bags
4 LDPE	Linear low-density polyethylene	 340	Plastic films (bread bags, produce bags, shrink wrap)
5 PP	Polypropylene	 370	Plastic lids, packaging, automotive, appliances, carpeting
6 PS	Polystyrene	 390	Styrofoam, cold food containers, insulation, disposable plates, cutlery, automotive parts, toys, housewares, appliance parts, wall tiles, radio, TV housings, furniture, luggage
1 PETE	Polyethylene terephthalate	 850	Soda bottles
3 V	Polyvinyl chloride	 5100	Construction piping, plastic bottles, upholstery, flooring, wall coverings, sidings

Table 1 - $/ ton is the environmental impact cost of manufacturing each plastic. HDPE, LDPE, PP, and PS have roughly the same environmental impact rating. PETE is about twice as high as these four. PVC is nearly six times higher than PETE primarily because of carcinogenic emissions. The environmental cost of disposal is $4 per ton excluding PETE, which is $5 per ton. Recycling was excluded from analyzing plastic because only 1.8% of packaging plastic is recycled.

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PAPER PACKAGING

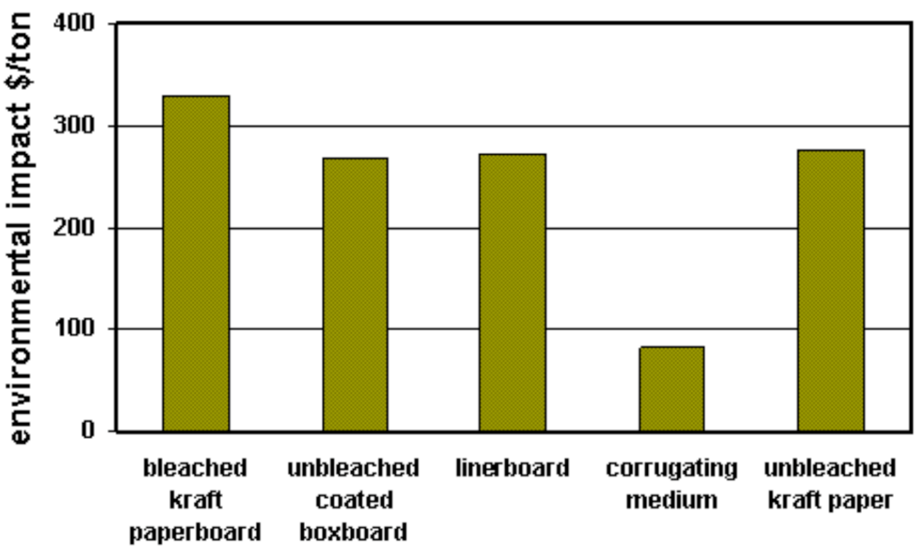

Figure 1 - The environmental cost of five paperboard products. Bleached paper board is used in milk cartons and ice cream containers. Unbleached coated boxboard is used in cereal boxes. Linerboard is flat cardboard. Corrugating medium is the material between two pieces of linerboard. Finally, an example of unbleached paper is wrapping paper.

The charts above were taken from the Institute for Lifecycle Environmental Assessment website.

PRODUCTS AT AFC

Dry Goods	Net Wt. (oz)	Total Wt. (oz)	Package Wt. (oz)	Package Type	Environmental Cost ($)
Woodstock Farms Organic Classic Peanut Butter	16	25.12	9.12	glass	.016-.024
Solana Gold Organic Apple Sauce	24	35.04	11.04	glass	.019-.029
Pavel's Yogurt	32	33.12	1.12	#5	0.013
Muir Glen Organic Tomato Basil Pasta Sauce	25.5	38.56	13.06	glass	0.022
Redwood Hill Farm Yogurt	32	33.28	1.28	#5	0.015
Spicy Sprout Mix Sunshine Sprouts	5	Avg. (of 5): 6.40	1.4	#6	0.017
Waleed's Cilantro and Jalepino Pita Chips	20	22.24	2.24	#6	0.027
Xylichew	3.88	4.8	0.92	#2	0.008
Oregon Orchard Natural Hazelnuts	16	18.4	2.4	#3	0.383
8 oz. Westbrae Yellow Mustard	8	9.6	1.6	#4	0.017
Salsa Hecho in Pacific Northwest	24	25.28	1.28	#5	0.015
Miso Master Organic	16	17.92	1.92	#2	0.0174
Cibo Naturals Kalamata Olive Dip	7	7.84	0.84	#1	0.022
Global Pantry Feta Spread	8	8.48	0.48	#5	0.006
Driscolls Org. Rasp.	6	Avg. (of 5): 6.53	0.53	#6	0.006
24 fl. Oz. Cascadian Farm Kosher Dills	24 fl. Oz.	Empty Container	11.84	glass	.020-.031
Liquids					
64 fl. Oz. Organic Valley Half Gallon Lowfat Milk	66.76	71.36	4.6	bleached paperboard	0.047
128 fl. Oz.Organic Valley Reduced Fat Milk	133.52	140.96	7.44	#2	0.067
64 fl. Oz. Noris Grade A 2% Milk Half Gallon	66.76	101.92	35.16	glass	.060-.093
64 fl. Oz. Martinelli's Organic Apple Juice	66.76	77.92	11.16	# 7 (other) plastic	N/A
128 fl. Oz. Santa Cruz Organic Apple Juice	133.52	185.44	51.92	glass	.089-.138
32 fl. Oz. RW Kudson Juice	32 fl. Oz.	Empty Container	15.68	glass	.027-.042
20 fl. Oz Glaceau Fruit Water	20.86	23.04	2.18	#1	0.058
33.8 fl. Oz. Crystal Geyser	35.26	37.12	1.86	#1	0.049
23.9 Fl. Oz. Juice Squeeze	24.93	42.72	17.79	glass	.031-.047

12 oz. Blue Sky Soda	12.52	13.76	1.24	aluminum	.012-.074

METHODS USED IN THE CREATION OF THE AFC PRODUCTS CHART

A survey of 20 products was done to determine their net weight, total weight, package weight and the percent package composition (by weight). The values were significant to hundredths of an ounce. Each product was weighed using the digital scale in the bulk section. After recording the weight (total weight) from the scale it was compared to the reported net weight of the product from its package. The net package weight value was reached when the net weight was subtracted from the total weight. All data was recorded in Table 1.

The criterion for environmental cost, utilized by the Institute of Lifecycle Environmental Assessment study, was determined by what society was willing to pay to keep the associated pollutants from entering the environment. While the costs determined by the study are not the actual environmental costs, they are useful for comparison purposes. These are the costs used in the evaluation of selected Coop products.

In the study, lid weight was included even though it is not recyclable and made of different material than the package or bottle itself. In the course of the study it was discovered that the labeled product (net weight) was not exact. To account for this discrepancy in two products the averages of five raspberries and sprouts packages were taken. Empty containers would have eliminated the error. The fresh water volume to weight conversion was used (1 cc to 1 g) for liquids such as juice, milk and carbonated beverages.

To determine the environmental cost per container, the environmental costs per ton given in the Tellus study were used. To determine the environmental costs Tellus included all direct energy use and controlled emissions within a one step range. This means that the environmental impact of the coal used to make the electricity which was used in the production of the material was included (ILEA 1992). However, the environmental impact created from mining and processing the coal was excluded (ILEA 1992).

DISCUSSION ABOUT THE AFC PRODUCTS CHART

The AFC Products Chart contains the data collected for 26 products found at the Ashland Food Co-op. In the far right hand column are the environmental costs calculated from the package weight and the figures produced in the Tellus Study. The most expensive container was the Oregon Orchard Natural Hazelnuts; it was the only PVC container surveyed. The 64 fl. Oz. Martinelli's Organic Apple Juice package was #7 plastic, for which there was no environmental cost information, and thus it was impossible to determine its environmental cost.

For glass packages there was range of prices that depend on the recycled content for the container. The environmental costs for glass are $55 and $85 per ton for recycled and virgin materials, respectively (Tellus Study 1997). Aluminum also had a range because of the differences in costs between virgin and recycled materials. The difference here is significant. The environmental costs for aluminum are $1,900 and $310 per ton for virgin and recycled material, respectively (Tellus Study 1997).

According to the EPA document, "Life Cycle Design of Milk and Juice Packaging" refillable HDPE #2 (high density polyethylene) containers had the smallest impact on the environment and had the cheapest life cost. In comparison, a single use glass containers cost the most. Life cost was determined by examining seven processes of the manufacture, use and disposal of the product including: empty container, transportation (fueling), filling equipment, municipal waste collection, recycling, incineration and landfill disposal.

Other findings show that there are significant benefits of purchasing items in bulk: In 1992 studies were conducted at 19 Northern Californian grocery stores. The researchers discovered that, on average, prices for one pound goods were 53 percent lower when purchased bulk, than pre-packaged similar goods. It was noted that the savings of bulk over packaged items varied greatly depending on the product (Keoleian and Menery 1991). Bulk items greatly reduce packaging costs.

PACKAGING TYPES ANALYZED:

Plastics

Plastics are made from nonrenewable petroleum and natural gas (BEC 2003). Plastic cannot be recycled into new food containers for sanitation reasons, unless it meets stringent FDA standards that ensure the recycling process eliminates food particles from the packages (FDA 2003). Plastics can, however, be readily recycled into things such as ski jackets, carpeting, park benches and traffic cones (UNIDO). In Ashland, the recycling center presently accepts #1 plastic bottles and #2 milk jugs (Jackson County Recycling Partnership 2005).

The following gives each plastic recycling number and its corresponding chemical makeup:

#1- PET (polyethylene terephthalate)
#2- HDPE (high density polyethylene)
#3- PVC (polyvinal chloride)
#4-LDPE (low density polyethylene)
#5-P/P (polypropylene)
#6- P/S (polystyrene)
#7- other, including multi-layer
(NAPCOR 2005).

According to Ackerman and the Tellus Study, #3 polyvinal chloride (PVC) packaging materials are the worst for the environment and human health (1997 and 1996). Only PVC production creates and emits chlorinated chemicals, which are cancer causing substances (Ackerman 1997). The manufacture of PVC releases ethylene dichloride and vinyl chloride substances that may not only cause cancer but also trigger other health problems such as liver, kidney and neurological damage (BEC 2003). The Tellus Study reports the environmental cost for PVC is the highest of all plastics studied ($5100 per ton), primarily due to the creation of cancer causing substances (1992).

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According to the Butte Environmental Council (BEC), an education, advocacy, and recycling organization in Northern California, the dangers of plastic production are manifest not only in the sheer volume of waste (75 billion pounds of plastic products and packaging per year in this country) but also in every step of the production process (2003). The Tellus Study reports that 99% of the energy that goes into packaging is spent in the production process (1996). The BEC notes that toxic substances are used and hazardous wastes are created in the production of plastics and furthermore, the production of plastic products and packaging is one of the most chemically intensive activities (2003). The US EPA reports that 35 of the 47 chemical plants ranked highest in carcinogenic emissions are involved in plastic production (BEC 2003). Those who work at these plants are placed at larger risk of injury or death due to exposure to toxic emissions and/or chemical explosions (BEC 2003). Toxins such as lead and cadmium can be added to plastics to serve as colorants, stabilizers and plasticizers (BEC 2003).

Chemicals found in plastics may also reduce sperm level (BEC 2003). In October 2003, a panel convened by the National Institutes of Health found that DEHP, the most commonly used plasticizer, was a developmental toxin (BEC 2003). DEHP, which is used in plastic food packaging, children's toys and medical devices, has the potential to leach out of plastics (BEC 2003).

Glass

According to Treehugger.com, when the transport of the product is factored in, there could be as many as two tons of CO_2 produced for every 1 ton of glass (Treehugger 2004). Sand mining is also reported to be an environmentally detrimental undertaking (Treehugger 2004). However, finished glass is inert and non-toxic, it is also easy to clean and maintain; its dense surface inhibits bacterial growth and contamination (Treehugger 2004). While glass has the least amount of environmental impact of all the materials surveyed, it was also the heaviest (ILEA 1996). It takes more glass per product unit to package. Transportation costs for glass are more significant than any other of the packages studied (Treehugger 2004).

Aluminum

According to the Tellus Study recycling of aluminum reduces the energy used to produce a ton of new sheet stock by 96% (1992). The decrease is largely due to eliminating the mining and smelting process (ILEA 1992). The production of aluminum cans results in the emission of greenhouse gasses, sulfur dioxide and nitrogen oxide – both contributors to smog and acid rain; strip mining for bauxite and coal causing soil erosion and reduced wildlife habitat; toxic runoff from mining sites; solid wastes and liquid effluents from smelting and other industrial processes; and the filling of landfills (Gitlitz 2002).

Conclusion about packaging types

In comparing half-gallon juice containers the Tellus study recommends that consumers choose HDPE #2 plastic; it has a cost per unit of $.04. Paperboard is a better choice when comparing to glass and recycled glass; its environmental cost per unit is only $.06 compared with $.19 and $.15 respectively. This comparison is relevant for milk containers, too.

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In general it is best for consumers to avoid PETE #1, PVC #3 and virgin aluminum packages. While glass has a low environmental cost, it requires relatively large amounts to be effective, thus glass should also be avoided when possible (refer to Fast Packaging Fact #10). Between recycled aluminum, plastic (other than #1 and #3), and paper, the product with the least amount of packaging should be selected.

RECOMMENDATIONS BY OTHER ORGANIZATIONS:

Further findings pertinent to this research which help educate consumers include resources created by environmental organizations, corporations and governmental agencies.

The **United Nations Industrial Development Organization** recommends the following techniques to save landfill space:

I. Refill product containers through dispensing systems at retail outlets.
II. Reuse containers which have been standardized to assist in reuse applications.
III. Reuse infrequently purchased, durable and distinctive containers in the home.
IV. Reuse frequently purchased containers in the home.

The **Environmental Protection Agency (EPA)** has a more developed list for consumers. It is called the "Recommended 13 Steps to being a more Environmentally Aware Consumer" (found in The Environmental Consumer's Handbook October 1990).

1. Buy reusable products and avoid disposable goods.
2. Buy, maintain, and repair durable products.
3. Reuse bags, containers, paper, boxes and other items.
4. Select products with the most purposeful, least wasteful packaging.
   - Avoid buying goods with unnecessary packaging, such as "bubble-packs" that wrap items in plastic seals with cardboard backing just for display, or "double packaging" such as a bottle inside a box.
   - Avoid packaging made with mixed materials, such as containers made of paper laminated with plastic or foil. Given two equivalent products, choose the one packaged more simply, with a single, recyclable material.
   - Buy fresh produce sold without packaging whenever possible. Avoid using plastic bags for purchases such as a couple of cucumbers, cloves of garlic, or lemons.
   - Let store managers know you want less packaging. Ask clerks not to double or triple wrap your purchases.
5. Buy concentrates, larger-sized containers, or products in bulk.
6. Buy products that can be recycled and make sure to recycle them.
7. Buy products made of recycled materials.
8. Buy nonhazardous products for use around the house.
9. Compost food and yard wastes.
10. Borrow, rent, or share things you use infrequently.
11. Buy, sell, and donate used and secondary goods such as clothes, furniture, and appliances.
12. Make your preferences known to merchants, politicians, and community leaders.
13. Be creative – look for opportunities to practice source reduction!

Whole Foods Market also had a list designed to help consumers. They outlined 25 points to help guide behavior. The suggestions relevant to this report include urging consumers to

1) Buy local (better tasting, less impact on the environment through reduced transportation cost and it supports local economies);
2) Support companies that use packaging most efficiently;
3) Avoid buying disposable items, such as non-refillable razors, alkaline batteries etc.
4) Recycle;
5) Buy in bulk;
6) Reuse shopping bags; and
7) Buy recycled products.

COMPARISON BETWEEN PAPER AND PLASTIC BAGS

The information in this study about paper/plastic grocery bags is interesting, but doesn't leave the reader with a clear winner as the answer to that familiar question "Paper or plastic?". The only conclusion that can be made is to reuse the bag, whether paper or plastic, to reduce environmental impact.

According to the EPA, plastic grocery bags consume 40% less energy to produce and generate 80% less solid waste than paper bags. On the other hand, plastic bags can take 5-10 years to decompose, in comparison to paper bags which take approximately one month to decompose.

The EPA informs us that:

> The life cycle of paper bags begins with timber harvesting, and goes onto pulping, paper and bag making, product use and waste disposal. For plastic (polyethylene) bags, the steps involve petroleum or natural gas extraction, ethylene manufacture, ethylene polymerization, bag processing, product use and waste disposal. In all of these steps, energy is required and wastes are generated.

Other facts from the EPA regarding paper and plastic grocery bags:

- Paper sacks generate 70 percent more air pollutants and 50 times more water pollutants than plastic bags.
- Paper bags are made from trees, which are a renewable resource. Most plastic bags are made from polyethylene, which is made from crude oil and natural gas, nonrenewable resources.
- Paper is accepted in most recycling programs while the recycling rate for plastic bags is very low. Research from 2000 shows 20 percent of paper bags were recycled, while one percent of plastic bags were recycled.
- Plastic bags were first introduced in 1977 and now account for four out of every five bags handed out at grocery stores.
- 2000 plastic bags weigh 30 pounds, 2000 paper bags weigh 280 pounds. The latter takes up a lot more landfill space.
- It takes 91 percent less energy to recycle a pound of plastic than it takes to recycle a pound of paper. It takes more than four times as much energy to manufacture a

paper bag as it does to manufacture a plastic bag. Energy to produce the bags (in British thermal units): Safeway plastic bags: 594 BTU; Safeway paper bags: 2511 BTU.

- Current research demonstrates that paper in today's landfills does not degrade or break down at a substantially faster rate than plastic does. In fact, nothing completely degrades in modern landfills due to the lack of water, light, oxygen, and other important elements that are necessary for the degradation process to be completed.

- Incineration can decrease the quantity of plastic and paper bags. However, incineration causes air pollution and creates ash, which has to be landfilled.

The EPA recommends that consumers purchase reusable bags or reuse paper or plastic bags at the store. This agrees with the conclusion given above. The agency notes that a strong, reusable bag (i.e. canvas) only needs to be used 11 times to have a lower environmental impact than using 11 disposable plastic bags.

<u>Fast Facts about Packaging:</u>

1. The environmental cost of package production contributes 99% of the environmental harm. (Tellus Study)

2. People in the US throw away 2.5 million plastic bottles every hour and less than 3% are recycled. (http://www.unido.org/file-storage/download/?file_id=32126)

3. 150 billion beverage containers are sold annually in the U.S. (http://scholar.lib.vt.edu/ejournals/SPT/v2n2/pdf/ackerman.pdf)

4. In 1993: Of the estimated 19.3 million tons of plastics burned or buried in landfills, 8.1 million tons, or 63 pounds per person per year, were plastic packaging materials. http://www.ecologycenter.org/ptf/report1996/report1996_06.html)

5. In New York City alone, one less grocery bag per person per year would reduce waste by five million pounds and save $250,000 in disposal costs. (http://www.epa.gov/boston/communities/shopbags.html)

6. When one ton of paper bags is reused or recycled, three cubic meters of landfill space is saved and 13 - 17 trees are spared! In 1997, 955,000 tons of paper bags were used in the United States. (http://www.epa.gov/boston/communities/shopbags.html)

7. The weight of packaging has decreased significantly over the years:

   - In 1970, the weight of a metal can for baked beans was 68.9 g. In 1990 the same size can weighed 56.6 g.

   - In 1950, a glass milk bottle weighed 397 g. In 1990, the same size bottle weighed 245g.

   - In 1983 a 1.5 litre PET plastic soft drinks bottle weighed 66 g. In 1990, the weight has been reduced to 42 g.

- In 1950 a tinplate beer can weighed 91 g. In 1990 an aluminum beer can weighed only 17 g, and was fully recoverable for recycling. (http://www.ifst.org/ifstfaq3.htm#JUMPToC7)

Fast Facts about Packaging (cont.)

8. Nine percent of the amount you spend on any product is probably the cost of its packaging.
(http://edis.ifas.ufl.edu/AE207)

9. When one ton of plastic bags is reused or recycled, the energy equivalent of 11 barrels of oil are saved.
(http://www.epa.gov/boston/communities/shopbags.html)

10. The energy (fossil fuels) used over the entire life of the glass package for its manufacture and transport exceeds the energy that goes into the manufacturing and transporting of a plastic container.
(http://www.stonyfield.com/EarthActions/EnvironmentalPackaging.cfm)

11. Packaging represents roughly one-third of municipal waste in the United States. (Ackerman, Tufts University)

12. Studies show that plastic represents 50 to 80 percent of the volume of litter collected from roads, parks and beaches, and 90 percent of floating litter in the marine environment.
(http://www.becnet.org/ENews/01sp_plastic.html)

13. Less than 5% of the total environmental cost of packaging is in the disposal. Over 95% of the environmental cost is in the production of the package.
(http://www.stonyfield.com/EarthActions/EnvironmentalPackaging.cfm)

14. The energy (fossil fuels) used over the entire life of the glass package for its manufacture and transport exceeds the energy that goes into the manufacturing and transporting of a plastic container.
(http://www.stonyfield.com/EarthActions/EnvironmentalPackaging.cfm)

15. The 32 oz. containers (quarts) consumed 27% less energy to produce and distribute than the 8 oz. containers. If all Stonyfield Farm yogurt were sold in 32 oz. containers, the annualized energy savings would be equivalent to 11,250 barrels of oil.
(http://www.stonyfield.com/EarthActions/EnvironmentalPackaging.cfm)

16. … if #5 plastic recycling isn't available in your community, and you can't tolerate the idea of not recycling them, you are welcome to return your *CLEAN* Stonyfield Farm cups and lids to us, and […] they'll get recycled.
(http://www.stonyfield.com/EarthActions/EnvironmentalPackaging.cfm)

17. In the last decade, Americans wasted 7.1 million tons of cans: enough to manufacture 316,000 Boeing 737 airplanes.
(http://www.container-recycling.org/publications/trashedcans/TCExecSum.pdf)

18. Had the 50.7 billion cans wasted in 2001been recycled, they could have saved the energy equivalent of 16 million barrels of crude oil--enough energy to generate electricity for 2.7 million U.S. homes for a year.
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