

## Sustainable Packaging Overtakes the Food & Beverage Industry

Sustainable packaging is no longer a want for food and beverage producers, it is now a need. To stay competitive in the current market and to thrive in the future, food and beverage companies must become sustainable. While implementing sustainable systems is certainly a responsibility of socially conscious businesses, applying eco-efficient and green-friendly practices will satisfy consumer demand and will contribute to a significant competitive advantage. As companies plan for future growth, there are four catalysts that will push food and beverage businesses toward sustainability: consumer pressure, retail pressure, international demand and new, developing technologies. Companies that employ resources targeted toward these pressures will realize measured growth, expanded markets and increased margins over the next decade.

Sustainability is a broad term that encompasses many different interpretations. However, based on legislative goals set by European and Asian states, organizations devoted to promoting sustainable and environmental efficient growth and targets set by global brand leaders, a general consensus revolves around source reduction (using less material) and the recovery of material throughout the life cycle of a product. By using less and reusing more, governments and green organizations alike believe source consumption and landfilling will decline and recycling will increase.

### Consumer Pressure

Consumer desire and demand fuels the research and development budgets of food and beverage producers around the world. While being “eco-friendly” has been an important marketing tool over the past decade, new research released by Business Insights details specific pressures that are enabling food and beverage companies to go green. Factors from within the household battle global consumer pressure to go green.

According to the April 2008 report, *Future Food and Drinks Packaging: Emerging Ethical, Food Safe and Convenient Formats, shifts in domestic lifestyle are signaling for more efficient, greener packaging*. “In more mature economies,” the report states, “greater expendable income levels coupled with demographic shifts and a demise in cooking skills, have led to increased demand for more conveniently packaged food and drink formats.”<sup>1</sup> “More fragmented family lives, the growth in the number of women working and growth in single person households”<sup>2</sup> are contributing factors to more efficient and sustainable food products. Packaging needs to be focused on efficiency and convenience for the user. The reduced size of packaging requires fewer raw materials to produce and is more resourcefully disposed of. New flexible products are coming to market. Pouches for drinks and snacks improve convenience for kids on the road or at home and air-tight sealed food products, like the winning package from the 2009 Flexible Packaging Association awards, enables the user to quickly microwave products, while creating a more efficient alternative to boiling water.

The Gross Domestic Product is a measure of national income and output for a given country's economy. It is a measure of growth (or decline) in a country's economy by calculating the total value of all goods and services produced in a particular economy over a fixed time period.

The domestic desire for smaller food packaging and more convenient use is echoed on a global scale. As the Gross Domestic Product of countries like India and China continue to grow, food and beverage markets will expand and its packaging will come under fire for being wasteful and contributing heavily to landfill buildup. The report *Consumer Attitudes Towards Packaging: New Insights and Future Perspectives* predicts “eco-friendly sustainable packaging that is recyclable, reusable/refillable and/or made of biodegradable materials will be more sought after” because “packaging will continue to be targeted as wasteful.”<sup>3</sup> Consumer demand, dictated through consumer advocacy groups and the media target increased landfill use as a motivator in sustainable practice.

Although the intentions of these groups are often in debate, it is clear that “retailers and manufacturers must be seen to be contributing to a greener and more sustainable way of life by the media, the industry and consumers alike”<sup>4</sup> according to the Business Insight report *Trends in Ethical and Sustainable Packaging: Innovation by Product Category*. The research report *The Future of Ethical Food and Drinks: Growth Opportunities In Organic and Sustainable Products and Packaging* points out that “over 46% of all new ethical products introduced in 2007 are marked as recyclable, up from under 27% in 2005.”<sup>5</sup> This increase is an unequivocal reflection on consumer desire.

Consumer health is another motivating factor for food and beverage producers. As an increasing interest in consumer health is driving customers to check packaging labels, the packaging itself can be a major contributor to consumer perception, according to Business Insights.<sup>6</sup> “Packaging plays a major role when products are purchased. After all, it is the first thing seen before making purchase choices and it is widely recognized that over 50% of purchasing decisions are made at the shelf, or point of purchase. Therefore, **packaging that creates differentiation and identity in the relatively homogenous consumer packaged goods industry is highly important.**”<sup>7</sup> Packages that stress environmentally-conscious behaviors and fulfill consumer demand (reduced size for more efficient and sustainable use) will ultimately increase brand awareness and recognition. Packaging that is designed as being environmentally friendly will be the most successful in achieving brand awareness.

## Retailer Pressure

Not only is consumer demand for sustainable products at an all-time high, increasing pressure from retailers is forcing food and beverage companies to restructure the development, production and distribution of its products. Leading retailers, most notably Wal-Mart, Sam’s Club and the UK retailer Marks & Spencer’s are leading initiatives to eliminate waste and landfilling requirements. Wal-Mart has pledged to “eliminate all private label packaging waste by 2010 and to eliminate all packaging waste landfilled by 2025.” “Marks & Spencer’s has committed to a 25% reduction in waste by 2012.”<sup>8</sup> Due to the brand power and global reach associated with these retailers, many food and beverage companies look to fulfill their “scorecard” as a marketing strategy, even if they are not in direct business with Marks & Spencer’s, Wal-Mart or their affiliates.

The Wal-Mart packaging scorecard is a measurement tool that allows suppliers to evaluate themselves relative to other suppliers, based on specific metrics. The metrics in the scorecard evolved from a list of favorable attributes known as the “7 R’s of Packaging”: Remove, Reduce, Reuse, Recycle, Renew, Revenue and Read.

More than just satisfying the retail conglomerates, there are serious advantages to be had by food and beverage companies that go green. According to the June 2008 report, *Trends in Ethical and Sustainable Packaging: Innovation by Product Category*, food and beverage businesses have “embraced ethical packaging initiatives not only because they enhance their ethical profile but also because **many greener packaging technologies, such as lightweight packaging, bring with them cost benefits.**”<sup>9</sup>

These cost benefits can trickle down the supply chain. Flexible, lightweight containers are new to the market which bring sustainable, cost-effective benefits over rigid systems for both internal and external transportation use. Intermediate bulk containers are typically designed to hold the equivalent of 5 to 6 steel drums of product and improve transportation and energy efficiencies associated with bulk shipping. By utilizing flexible products that require less material, weights are reduced and transportation and warehousing efficiencies are maximized.

## International Demand

The food and beverage industry encompasses a wide variety of markets. From local food producers to international managers, markets vary dramatically depending on the company. For many food and beverage companies with complex supply chain systems, international pressures and regulations are important to keep apprised of and are key contributors to the decision making process. As business progresses into the 21st century, some international leaders are beginning to develop packaging regulations to reduce material consumption and waste generation.

The United Nations estimates that the population of the planet will grow from 6.4 billion in 2005 to 9 billion by 2050, roughly a 40% increase in global population.<sup>10</sup> According to the Sustainable Packaging Coalition, “efficient and productive industry engaged in truly sustainable practices is essential to meet the incredible increase in demand for goods and resources that this growth implies. Historically, increased packaging use has accompanied economic growth. A goal of sustainable packaging is to facilitate economic growth by delivering benefits of packaging without the negative impacts associated with traditional packaging designs.”<sup>11</sup> **Environmental packaging regulations are heavily**

Packaging Directive 2004/12/EC covers all packaging and all packaging waste, whether it is used or released at industrial, commercial, office, shop, service, household or any other level, regardless of the material used.

**influencing packaging decisions in Europe and Asia.** As detailed in the report, *Future Food and Drinks Packaging: Emerging Ethical, Food Safe and Convenient Formats*, “packaging directive 2004/12/EC set out recycling and recovery targets to be met by 2008 in Europe. In Japan, the Ministry of Economy, Trade and Industry (METI) has enacted legislation based on the 3R’s ethos (Reduce, Re-use, Recycle). As a result there are high levels of innovation in green packaging including lightweight and bio-based packaging materials.”<sup>12</sup> Regulations that spur sustainable development are important as the industry grows and are essential to food and beverage producers.

Implementing source reduction procedures, by using less material and improving internal and external transportation efficiencies will become an important goal to set for businesses to fulfill future government regulations. It will be important to target companies that believe in sustainability throughout the life cycle to become more cost efficient and ecologically aware.

**The main priority in Europe moving forward is waste prevention and developing packaging solutions to improve the efficient prevention of food waste**, according to Flexible Packaging Europe. Increased use of flexible packaging is a key driver as its use saves more resources than it consumes during its own production. By default, this helps minimize and control unnecessary waste from entering the supply chain. Household and supermarket food-waste account for nearly 77 million tons per year, according to Flexible Packaging Europe. The main catalyst for this is food that was not eaten in time. Flexible packaging offers solutions to these problems, including air-tight sealed pouches and containers that increase the time span of perishable goods, portion controlled packaging, reclosable packaging and adequate barriers to extend shelf life. Improving the longevity of food and beverage items will go a long way to helping the food crisis's in poor countries and aid the global outlook on sustainable food and beverage initiatives.

## New Technologies

The potential benefits of sustainable packaging in the food and beverage industry exist because of new, developing technologies that will improve the quality and preserve the freshness of food items in an eco-friendly way. Dr. Rene Massengale, Associate Professor of Biotechnology at Harrisburg University, detailed some of the emerging trends in sustainable packaging, "food **scientists have developed tools that make active food packaging and smart food technology a reality**. Active packaging is the interaction of the food wrapper with the food product and the environment to remove odors, control spoilage, or preserve quality."<sup>13</sup> Smart and active packaging will be present in Europe and Asia in accordance with the international regulations discussed and will be paramount to improving sustainable practice domestically. Active packaging, such as a drip-absorbent pad in a package of chicken or an odor-absorbing pad in a package of fish provides the consumer with a unique benefit. Smart food technology, Dr. Massengale continues, "is designed to actually monitor the food quality through technology such as freshness, temperature, or quality indicators built into the package and communicate that to either sellers or consumers."<sup>14</sup> This can include a temperature strip on a package, or a ripeness monitor on a vegetable or fruit. These technologies appeal to consumers and retailers because they provide unique solutions to current problems.

Package Format	Product Weight	Weight of Packaging	Product to Package Ratio	Package per 100 g Product
Glass Bottle & Metal Cap	8 ounces (236 g)	198.4 g	1:1	83.9 g
Plastic PET Bottle & Cap	8 ounces (236 g)	22.7 g	10:1	9.6 g
Aluminum Can	8 ounces (236 g)	11.3 g	21:1	4.7 g
Stand-up Flexible Pouch	6.75 ounces (199 g)	5.7 g	35:1	2.8 g

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**Other important technologies that provide sustainable solutions are those from natural resources, providing recyclable, lightweight and biodegradable products.** These technologies are implemented to conserve energy throughout the product's life cycle, creating greater profit margins for the active company and allowing that company a unique selling proposition. In addition, nanotechnology, according to the report *Future Food and Drinks Packaging: Emerging Ethical, Food Safe and Convenient Formats*, "can improve barrier qualities and make packaging lighter, stronger and more resistant to heat."<sup>15</sup> Nanotechnology, or the science of nanocomposites, provides materials with enhanced properties by bonding polymers to nanocrystals, according to Dr. Manuel Marquez, a senior scientist at Kraft Foods and the director of the NanoteK Consortium.<sup>16</sup> According to Dr. Marquez, "the material works by introducing nanocrystals into the plastic that essentially create a maze from which oxygen molecules find it difficult to escape."<sup>17</sup> The technology is currently being used in plastic beer bottles that will provide the beverage with a six-month shelf life. Nanocomposites offer many benefits including lighter weight products, better recyclability and improved transportation efficiencies. Presently, nanocomposites are more expensive than most plastic resins, but prices continue to drop and should be very competitive soon, according to Nanocor officials, a subsidiary of Amcol International Corporation.<sup>18</sup> Nanocor is confident in the future of nanocomposites for many reasons, an important one being that "nanocomposites do not require plastics manufacturers to alter or retool their existing manufacturing process systems,"<sup>19</sup> which will allow seamless integration.

In addition to the packaging that hits store shelves, emerging technology is found in all aspects of the supply chain. Creating unique packaging solutions that stress economic benefit are plausible and provide a path to sustainability. Collapsible packaging that reduces the product-to-package ratio, eliminates wasted space, increases shipping capacity and minimizes inbound shipping costs is one example. This alternative reduces internal and external greenhouse gas emissions during transport and production and maximizes inventory levels, saving time and cutting energy, resulting in improved profit for the end-user. Alternatives to rigid packaging, including flexible pails, drum liners, and intermediate bulk container liners, allow food and beverage companies the unique and sustainable benefits they offer. By using less material to produce the package, costs decrease which drives margin growth.

## The Future of Sustainable Packaging in Food and Beverage

The future in packaging for food and beverage companies is sustainable. This encompasses the entire life cycle of a food or beverage product, from internal systems that improve bulk shipping or warehousing, to packaging systems that appear on store shelves. All signs point to this growing industry. Pressure from retailers and consumers are forcing companies to rethink their packaging methods to satisfy demand. International regulations are pressuring global food and beverage leaders to meet requirements to continue to expand business into the 21st century. These pressures and demands are met by emerging technologies that allow food and beverage companies to grow their operations in a cost-effective manner. Leaders that have the foresight moving into the future will invest in these solutions and will ultimately reap its benefits.

<sup>1</sup> [http://www.researchandmarkets.com/reportinfo.asp?report\\_id=606334](http://www.researchandmarkets.com/reportinfo.asp?report_id=606334)

<sup>2</sup> [http://www.researchandmarkets.com/reportinfo.asp?report\\_id=606334](http://www.researchandmarkets.com/reportinfo.asp?report_id=606334)

<sup>3</sup> [http://www.researchandmarkets.com/reportinfo.asp?report\\_id=560289](http://www.researchandmarkets.com/reportinfo.asp?report_id=560289)

<sup>4</sup> [http://www.researchandmarkets.com/reports/617086/trends\\_in\\_ethical\\_and\\_sustainable\\_packaging](http://www.researchandmarkets.com/reports/617086/trends_in_ethical_and_sustainable_packaging)

<sup>5</sup> [http://www.researchandmarkets.com/reportinfo.asp?report\\_id=556422](http://www.researchandmarkets.com/reportinfo.asp?report_id=556422)

<sup>6</sup> [http://www.researchandmarkets.com/reportinfo.asp?report\\_id=560289](http://www.researchandmarkets.com/reportinfo.asp?report_id=560289)

<sup>7</sup> [http://www.researchandmarkets.com/reportinfo.asp?report\\_id=560289](http://www.researchandmarkets.com/reportinfo.asp?report_id=560289)

<sup>8</sup> <http://www.walmart.com/green>

<sup>9</sup> [http://www.researchandmarkets.com/reports/617086/trends\\_in\\_ethical\\_and\\_sustainable\\_packaging](http://www.researchandmarkets.com/reports/617086/trends_in_ethical_and_sustainable_packaging)

<sup>10</sup> <http://www.un.org/News/Press/docs//2007/pop952.doc.htm>

<sup>11</sup> <http://www.sustainablepackaging.org/>

<sup>12</sup> [http://www.researchandmarkets.com/reportinfo.asp?report\\_id=606334](http://www.researchandmarkets.com/reportinfo.asp?report_id=606334)

<sup>13</sup> <http://www.harrisburgu.net/news/article.php?id=352&cid=1&page=1>

<sup>14</sup> <http://www.harrisburgu.net/news/article.php?id=352&cid=1&page=1>

<sup>15</sup> [http://www.researchandmarkets.com/reportinfo.asp?report\\_id=606334](http://www.researchandmarkets.com/reportinfo.asp?report_id=606334)

<sup>16</sup> <http://www.azonano.com/details.asp?ArticleID=857>

<sup>17</sup> <http://www.azonano.com/details.asp?ArticleID=857>

<sup>18</sup> <http://www.azonano.com/details.asp?ArticleID=857>

<sup>19</sup> <http://www.azonano.com/details.asp?ArticleID=857>