

Composting for a Better Global Environment

By Steve Mojo

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By choosing and displaying compostable packaging, today's retailer can be a key player in the drive to improve the global environment.

How can today's new generation of biodegradable and compostable packaging help to address the issues of global warming and carbon sequestration? The answer is by promoting the diversion of tons of food scraps from landfills and incinerators to composting facilities. Compostable plastics, ones that biodegrade during composting, play a critical role in making diversion programs more successful by replacing frequently used plastic items.

In many parts of the world, some of the largest segments of the waste stream consist of food scraps. For example in the United States, the Environmental Protection Agency (EPA) estimates that every year approximately 25 million tons of food scraps⁽¹⁾ end up in landfills or incinerators. That's 16% of the total waste. These food scraps range from overage produce from grocery stores, pre-consumer discards from restaurants and cafeterias to plate scrapings from households. And this is true for many other countries around the globe.

There is a better way!

Food scraps and yard trimmings should be thought of as underutilized feedstocks that when composted will return carbon to the soils, rather than generating methane in landfills. A 2003 lifecycle study from Australia⁽²⁾ demonstrates that the composting of these materials and use in agriculture provides numerous environmental benefits, when compared to normal disposal. These include:

- Improvement in global warming gas generation
- Enhanced carbon sequestration
- Soil structure improvement
- Increased plant productivity
- Reduced water and fertilizer use



The global warming benefits of this study confirm prior findings by the EPA. The studies show that food scrap diversion from landfills would reduce the production of global warming gases to the same extent as taking two million cars off the road annually. Landfills are the single largest generator of anthropomorphic methane, with degradation of food scraps being one of the key contributors to this phenomena. By taking these materials out of the anaerobic environment found in a landfill and composting them aerobically, the overall reduction in methane, more than offsets the increase in carbon dioxide.

Why biodegradable plastics?

Plastics can be found in every aspect of modern living. Foods are packaged in plastics to stay fresher. We eat off plastic plates and drink from plastic cups and bottles. And those plastics that are not recycled are often sent to landfills in plastic trash bags, where they will remain for hundreds of years. As communities and institutions look to divert more waste and improve recycling, the opportunities offered by food scrap diversion become apparent. Also, in areas where typical disposal costs are high, diversion offers the potential for saving money for homeowners and businesses.

Today, source-separated food-scrap diversion programs can be found throughout North America and Europe. Cities such as San Francisco are achieving more than 70% diversion rates from landfills by collect-

ing and composting food scraps. In the northeastern US, supermarkets are sending their unusable scraps to compost sites, in order to save money. In Eastern Canada, Prince Edward Island and Nova Scotia are implementing widespread residential collection. And in the homes of many European communities, there are "biobins" for collecting food scraps. In all of these situations, use of ordinary plastic bags is not appropriate as they become a costly containment to the composting process. The use of compostable plastic bin liners or bags, however, make the programs cleaner and easier; thereby improving participation and increasing the amount of materials diverted. Studies have shown an overall participation rate increase of 10 percentage points when residents and generators are allowed to use compostable collection bags.

There are many other opportunities for products made from these new materials which make a lot of sense. These include those products that can not be economically recycled because they are inefficient to collect and process. For example, plastic coated plates, cups, bowls and food-service items that are often used in cafeterias and other situations. However, as this new industry grows and the properties of the materials improve, more products will appear in the market.



Besides facilitating food-scrap diversion, many of these new plastics have an improved environmental profile when compared to traditional materials. Some are derived entirely from annually renewable resources, such as corn or eucalyptus, and others combine large amounts of biobased feedstocks with biodegradable polymers. Again reducing the need for petroleum feedstocks. Many of the raw materials suppliers for these new products have conducted lifecycle analyses and assessments to demonstrate the improvement in their environmental footprint.

Confusion still exists

At the start of any new market, confusion exists because it takes time for industry to develop the appropriate standards and to educate the public. This is true for the "biodegradable plastics" industry. When these materials were first developed 20 years ago, there was the misconception that plastics that fragmented were "biodegradable." However, this concept has changed in response to composters, consumers and government direction. Today's biodegradable plastics will behave in the same way as yard trimmings and food scraps, when composted. The carbon chains that make up these polymers can be dissected and assimilated by the microbes in the compost pile in order to become an energy source. The end result is carbon dioxide, water and humus. The process is similar to what takes place in human beings after eating a meal or snack.

Today, there are standards that ensure performance. These have been published by the ASTM in the US and by CEN in Europe. These standards serve as the basis for independent certification programs, such as the one run by the Biodegradable Products Institute (BPI). Its symbol is awarded only to those products that meet the appropriate specifications based on independent testing and review.

Visit the BPI's website, to learn more about the biodegradable plastics industry or to find the growing list of approved products: www.bpi-world.org.

Steve Mojo is the executive director of the Biodegradable Products Institute, a trade association dedicated to the promotion and use of biodegradable plastic applications and the collection, diversion and composting of food scraps and yard trimmings. Mojo has worked for some of the leading suppliers of these new materials, and has helped set standards for biodegradable products in the US and Canada. He is a frequent speaker on the topic around the world.

Sources:

- 1) *Municipal Solid Waste in The United States: 2000 Facts and Figures Executive Summary.* US EPA
- 2) *Recycled Organics Unit (2003). Life Cycle Inventory and Life Cycle Assessment for Windrow Composting Systems.* www.recycledorganics.com/publications/#other.