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The Great Untapped Resource Organics offer an incredible recycling opportunity

Jim Mahoney

Luckily for the restaurant industry, Americans love food. You can't drive more than a few blocks in any town without passing a restaurant.

But as much as we love food, we sure throw a lot away—whether it's during preparation in the kitchen or after each meal or snack. These food scraps, along with leaf, yard and wood wastes, are collectively known as organic waste.

North Americans generate more than 80 million tons of organic waste each year. In the United States, approximately one-third of the municipal solid waste stream is organic. However, while approximately 65 percent of yard waste is being diverted from disposal, only 2.5 percent of food waste is currently diverted. Therein lies a huge opportunity to expand our recycling efforts.

Types of Organic Waste

Organics can be separated into three streams that often require different handling and processing procedures.

Residential organics is made up primarily of grass, branches and leaves. In communities where food waste is collected with yard waste, the food waste makes up an average of 6 percent of the total material collected. Residential organics volumes and type of material change by season, requiring unique programs design, depending on location (e.g., southern versus northern states). Volumes can be extremely high during peak season, requiring additional surge capacity and markets.

Commercial organics is usually materials from restaurants and hotels. The handling of food waste is perhaps the most complex for this sector. Industrial organics is generally a source-segregated, clean material that is suitable for high-value processing. Examples include food processors, large food producers and produce warehouses.

The Future of Organics Recycling

In the past, because of a lack of organics recycling services, Americans have primarily mined the power of organics from materials that were disposed of in a landfill. Organic waste in a landfill decomposes and generates methane, which is commonly known as "landfill gas." Many landfills across the country already capture this methane with gas-to-energy facilities to generate electricity for the grid or use it as an alternative to natural gas. It's a start, but now so much more can be accomplished with organics recycling.

When recycled, organics leave behind nutrient-rich materials that can be converted to a variety of products, from compost to heat and power to transportation fuels. The industry's leading companies are addressing the challenge of the diversion and processing of food waste with the ultimate goal to move organic waste up the green value chain.

"There are several opportunities to convert organic waste into beneficial-use products," said Tim Cesarek, managing director of Waste Management's Organic Growth Group. "Today, we are largely working at the lower end of the green value chain, composting the organics and producing lawn and garden amendments. But thanks to the advancement of new technologies, we are quickly working up the value stream to convert organics to heat and power, gasoline and, ultimately, petrochemicals and chemicals."

As you climb the rungs of the Green Value Chain pyramid, the commercial value of the respective end products becomes increasingly higher.

Much of the organic material recycled today is done so via composting. The market for compost, mulch and organic soil amendments is growing as consumers are increasingly demanding alternatives to conventional fertilizers for lawn and garden care, and as municipalities and companies are seeking to increase the recycling of organic materials for beneficial use. In fact, organic compost is considered a part of the green retail market, which has been growing at 20 percent annually.

The Anaerobic Approach

A more advanced technology, anaerobic digestion, accelerates the decomposition of organic materials and can convert food and other organic waste into heat and power. This process also throws off a solid residue, which also can be added to compost to extract the most value. There is also the chemical conversion of organics whereby new technologies are being developed to convert organics residuals into low-carbon, high-quality transportation fuels. Both composting and anaerobic digestion are used today in organics recycling. However, more advanced technologies are just around the corner. At the highest end of the value spectrum are processes that utilize gas-ification and fermentation technologies to convert organic waste to biofuels or chemicals. As the country looks to reduce its dependence on foreign oil, the opportunity to create fuels from renewable sources, such as the high volume of organic waste across the country, becomes all the more valuable.

A Changing Mindset

While food waste can—and eventually will—be collected at the residential level, the commercial and industrial markets are currently the main target. This includes restaurants, grocery stores, food processors and other establishments that handle a high volume of food. Not only are such businesses looking to reduce their disposal costs, but their customers are also demanding that these businesses operate as “green” as possible and build sustainability goals into their everyday practices.

To help bridge the gap between the generators of food wastes, such as restaurants, and the converters of this waste to valuable products, waste companies are stepping in with programs specifically designed for organics recycling. Such programs take into consideration some of the challenges associated with food recycling. These challenges can include collection issues like proper employee training, food odors and pests; transportation issues that can result from the high water content and corresponding weight of organic waste; and determination of the best and highest use recycling option given the characterization of the waste.

“This is an exciting time for organics recycling,” Cesarek said. “Food waste will always remain a major component of our day-today waste collection and processing, but we are now working with restaurants and others to develop organics recycling solutions that benefit not only the establishment and its customers, but the planet as well.”

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