BUILDING AN INFRASTRUCTURE

OHIO TARGETS FOOD RESIDUALS COMPOSTING

WHILE RECYCLING of paper and yard trimmings has grown rapidly in Ohio in the last 30 years — now up to 50 percent for paper and 62 percent for green materials — the recovery rate for food residuals is at less than three percent. To turn things around, the Ohio Environmental Protection Agency (OEPA) and the Ohio Department of Natural Resources' (ODNR) Division of Recycling & Litter Prevention have teamed up to get the word out about community and business food scraps composting.

Analysis of waste at Youngstown State University showed that 35 percent consisted of food residuals.

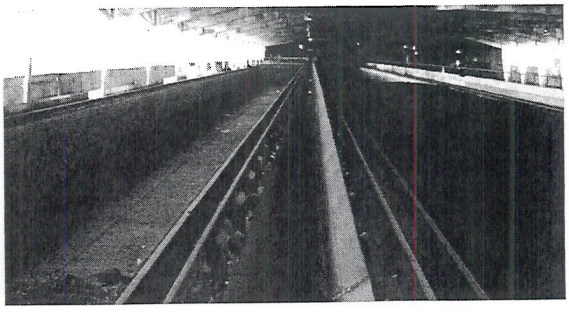
To demonstrate its commitment, ODNR provided a number of grants in support of food residuals diversion. Reports Chet Chaney, Community & Market Development Manager with ODNR, the grants and related projects include:

- Paygro, a division of Garick Corp., received a $250,000 Market Development Grant in 2006 to purchase and install a grinding and conveying system to process food waste material collected from Dole Corp., Whole Foods and Ohio State University, among other producers. This system complements its in-vessel composting unit and helps provide a base material for the end product.
- Kurtz Brothers, Inc. received a $250,000 Market Development Grant in 2007 to purchase and install an anaerobic digester system to process fats, greases and food residuals collected from the City of Columbus, area restaurants and food wholesalers.
- Ohio University received a $250,000 Market Development Grant in 2007 to purchase and install an in-vessel composting system to process food waste material collected from on-campus food facilities with the potential of receiving waste material from community restaurants. This system will serve as the largest college/university in-vessel composting unit in Ohio.
- The Division of Recycling & Litter prevention completed implementation of a food waste awareness project funded by the US EPA - Region 5, in cooperation with Barnes Nursery and John Connolly (JF Connolly & Associates), who served as the consultant on this project. The project's goal was to survey the extent of food waste production in the Erie County, Ohio area, develop potential collection points and transportation systems. Currently, Barnes Nursery is composting food waste from Whole Foods in Cleveland and several resort operations.
- The Division has developed a partnership with the Ohio Grocers' Association (OGA) with the intent to develop an Ohio version of a "Supermarket Composting Handbook." The manual will be distributed to OGA's membership and will provide a format for store managers to develop and implement an in-store food waste collection program. In addition, ODNR is working with the association to develop its own pilot food waste composting program centered on member stores and current processors.

State takes a variety of steps, including grants, education and outreach, to increase diversion of food scraps from landfills.

Jerome Goldstein

OEPA, a regulatory agency, categorizes composting facilities into four classes based on materials the facility can accept. Class I can accept all MSW; Class II sites are eligible to receive and process residuals from external sources, as well as yard and animal waste; Class III accepts yard trimmings and animal waste; Class IV only takes yard trimmings. After obtaining a registration, license and financial assurance, Class II facilities may begin accepting and composting feedstocks by using an



Mixed salad residuals with bulking agent (right) arrives at Paygro facility, and moved to the twin-bay in-vessel composting system (far right).

approved composting method, developing a contingency plan and keeping a daily log of operations.

"We're taking steps to increase food waste composting in the state," says OEPA specialist Angel Arroyo-Rodrigues. "We're promoting the concept with large generators as well as smaller ones." Ohio residents throw away an estimated average of 474 pounds per person annually. In June, OEPA launched a Food Scraps Management website (http://www.epa.state.oh.us/ocapp/food_scrap/index.html), with links to OEPA's composting regulations, success stories and resources.

The next goal is to bring stakeholders together and start identifying benefits and barriers, says Joe Goicochea of OEPA. "In the past three years, Ohio has received interest from schools, universities, small restaurants, hospitals, festival planners and others that generate food residuals." For example, a waste audit at Youngstown State University (YSU) revealed that 35 percent of the University's waste stream consisted of food residuals. With support from the Mahoning County Solid Waste District, YSU invested in an in-vessel composting system, expanding the project next fall to include all meals served. Expansion will divert more than 20 tons/year of food residuals from landfills, with the compost used by the grounds department.

PROCESSOR PERSPECTIVES

Paygro is a major supplier of compost and mulch products, based in South Charleston, Ohio. At its Class II composting site between Dayton and Columbus, the company processes about 75,000 cubic yards (cy)/ year of feedstocks that include yard trimmings, manure and food waste (grains, vegetables, fruits, dairy products and meats). Its new grinder, purchased with the ODNR grant, is a 900-HP electric model, chosen for its low environmental impact. The system allows Paygro to receive food waste mixed with biodegradable packaging or food residuals that need to be ground before composting. The grinder will allow the throughput capacity of the current in-vessel composting system to be maximized so that an additional 5,100+ tons/year of food waste can be processed.

Composting takes place in two aerated concrete beds (vessels) that are 400 feet long, 20 feet wide and ten feet deep, with a combined capacity of nearly

FOOD RESIDUALS RECYCLING AT OHIO STATE FAIR

A PILOT project at the 12-day Ohio State Fair this summer resulted in about two tons of food waste collected and diverted to composting at the Paygro facility in South Charleston. Two food service operations were chosen for the pilot because of the relatively high volumes of food preparation waste and leftover food scraps generated — as well as the ease of collection. Ranahan's Restaurant serves 600 to 800 meals to the public per day; the Rhodes Center Cafeteria serves a total of 1,200 meals/day. The 2007 Ohio State Fair Food Waste Recycling Project was the result of a directive from Ohio Governor Ted Strickland, and administered by the Ohio Department of Natural Resources (ODNR). In addition to diverting food scraps from this event, ODNR used the pilot to help determine the feasibility of expanding food waste collection to include various other events at the Ohio Expo Center, where the State Fair is held.

Only preconsumer food waste was diverted for the pilot. Heavy plastic 90-gallon wheeled trash carts supplied by the Solid Waste District of Columbus, Ohio (SWACO), were used to collect materials. Paygro staff handled the loading, transportation, unloading and composting of the food waste. Containers were hauled on a high-sided, single axle trailer with a bed size of 6-feet by 10-feet, which was easily pulled by a half-ton pickup truck. Trailer capacity was eight containers, which were secured with cargo straps and the lids were strapped down. The decision to do every other day collection was adequate to minimize odors.

Food waste from the two restaurants varied in consistency, based on the menu being served, fair attendance and the diligence of the food service workers. Workers at one facility did a good job of source separation, allowing very little contamination from packaging or other sources to end up in the carts. Staff members at the other facility were not as diligent about removing packaging, and occasionally put the food waste into plastic trash bags before putting it in the cart. Some contamination was attributed to fairgoers thinking the containers were for trash (the carts were easily accessible to fairgoers). In future years, the containers will be clearly marked.

Because any food can become an odor problem if not properly handled, residuals are covered quickly with bulking agent, primarily ground yard trimmings and sawdust.

At Barnes Nursery in Ohio, food residuals are emptied from a truck that delivers fruit and vegetable trimmings, outdated bakery goods, and other organics.

6,000 cy. Fans located every 40 feet provide aeration at a maximum rate of 5,000 ft^3 per minute (CFM). Materials in the in-vessel system are sufficiently composted within two to three weeks to then be moved to curing piles. This method is ideally suited to the processing of somewhat variable food wastes, because forced aeration and mechanical turning are combined in one process, allowing maximum interaction between air, feedstocks and microorganisms.

Paygro has been successfully recycling over 300 tons of food waste per week from Ohio sources including a packaged salad plant, a frozen pizza manufacturer, a livestock feed producer and an upscale grocery chain. Paygro is also receiving food waste from the Ohio State Fair (see sidebar), and expects to begin food waste projects with a sausage producer, a large cafeteria food service provider, a major university and a large manufacturing plant with several organic waste streams.

All food waste arriving at Paygro is unloaded in the "salad bowl," a large concrete-lined leachate containment area. Because any food waste can soon become an odor problem if not handled properly, the material is covered as soon as possible with bulking agent, primarily ground yard waste and sawdust. Leachate and storm water from this area flow to a filtered drain that leads to a pump station. The leachate is then pumped to the aerated primary settling lagoon. Decanted water from this lagoon flows to a secondary polishing pond, where additional solids settling occurs. The lagoons will eventually be pumped to land application.

Garick charges tipping fees for all food waste streams it receives. It purchased New Milford Farms in December 2006 from Nestle USA, and also owns and operates other facilities in the eastern U.S., including Smith Garden Products in Cumming, Georgia (near Atlanta), Tarheel Bark in Harrisburg, North Carolina (near Charlotte) and a bagging operation for mushroom compost at Loudon, Tennessee.

"Just in the past year or so, we've seen a major shift in thinking on the part of food waste generators," says Doug Alderman, Garick's Director of Agricultural and Environmental Business. "They are now interested in diverting food waste away from the landfills. Contamination of the food waste with plastic bags and other items has been an issue for us. We recently created a Foreign Materials Policy that states we have the right to charge tipping fees equal to those of local landfills if we continue to receive contaminated material. We've seen much cleaner food waste as a result."

Beneficial reuse of food waste is all about logistics — how to collect it, keep the contaminants to a minimum, transport it without leakage and at low cost, process it quickly, minimize the odor and handle the moisture. "It may not be rocket science, but it's definitely a challenge, and we like a challenge," sums up Alderman.

INCREASING PROJECTS IN THE STATE

In addition to the university and commercial projects just described, other food residuals composting sites in Ohio are located at: Barnes Nursery, Inc. in Huron; Gorman Heritage Farm in Cincinnati; Hirzel Farms Organic Composting in Pemberville; Price Farms Organics in Delaware; and Columbus Academy in Gahanna.

At the small-scale end of the spectrum, the Columbus Academy Composting project was launched last October by seniors Joe Sanfilippo and Richard Bracken, who used the Mansfield Middle School in Connecticut as a model. The Academy uses a four-bin system made from recyclable plastic lumber, which receives about 400 cubic feet of discards from the cafeteria. Students and faculty separate food into compostable and noncompostable waste; finished compost is applied to the 231-acre campus by the Facilities Department.

Moving up the size spectrum, Barnes Nursery in Erie County (north central Ohio) is a Class II site that recycles more than 20,000 tons/year of yard trimmings, food, and farm and industrial residuals into quality compost. The accepted food waste includes — but is not limited to — fruit and vegetable trimmings, outdated bakery goods and dough, dairy products, seafood, coffee grounds, tea bags, floral waste, egg shells, slurry from the pulper, meat and liquids (beer, wine, juices, etc.).

In 2007, Erie County landfill rates went to $40.75/ton. Barnes' composting tip fees are about $26/ton. The next issue of *BioCycle* will have a detailed article on findings of the Barnes Nursery food waste composting outreach and education project funded by a grant from Region 5 USEPA through ODNR. The project worked to identify local businesses that would participate in a food residuals diversion program, as well as ensure that Barnes Nursery/Composting has adequate infrastructure to process the organics.

As the cost differential between landfilling and composting increases, more generators are shifting the financial advantage to food diversion. Many successful projects have been jump-started through grants by the Ohio Department of Natural Resources — such as Paygro, Barnes, Ohio University and Kurtz Bros. "It's ultimately the composting industry and businesses that generate food residuals that will push this initiative to the next level," emphasizes Goicochea. "OEPA and ODNR are here to connect the dots. One of our biggest challenges is to establish a composting facility infrastructure throughout Ohio, since commercial facilities are limited. There is interest among yard waste composting facility operators to change their classification in order to accept food residuals." ■