EFFICIENCY AND ECONOMICS

HAULER, COMPOSTER PARTNERSHIP SUCCEEDS IN DIVERTING FOOD RESIDUALS

OODHUE, Ltd. in Wrightstown, New Jersey opened the doors of its composting facility in 1980. Located on 156 acres, much of it surrounded by a military base, protected wetlands and agricultural land, Woodhue originally was permitted by the New Jersey Department of Environmental Protection (DEP) to accept and compost food processing residuals, and by the mid-1980s, was taking 35,000 cubic yards (cy)/year of feedstocks. In the late 1980s, with New Jersey banning the landfilling of leaves, Woodhue was authorized to accept leaves and brush.

In 1992, another composting permit was sought to open a second facility at the Woodhue site (permitted under the name Bryony, Ltd. Corp.); permission was given to accept 87,000 cy/year of food processing residuals, grass and other yard trimmings. In 1995, recognizing an opportunity to divert material from commercial organics generators, the Bryony facility was permitted to accept source separated supermarket feedstocks consisting primarily of produce and soiled paper. “It took us over a year to get the first supermarket on line, and from 1996 through June 2000, we only reached a total of about 20 supermarkets – mostly taking compactors from stores,” says Mike Manna, CEO of Woodhue.

In the past year, however, the flow of organics from supermarkets has increased dramatically, and is expected to be well over 16,000 tons by the end of 2001. There are about 150 supermarkets receiving collection service, and that number is expected to grow steadily. For example, chains representing 80 to 100 additional stores have recently agreed to start source separation programs.

A STRATEGIC PARTNERSHIP

The key to this expansion – and what has eluded other composters trying to tap into this organics stream – is a partnership between Woodhue and MacNeil Trucking, Inc. of Westville, New Jersey. MacNeil had been working with EnviroFeed, an animal feed manufacturer in northern New Jersey that was using supermarket, food processing and other organic residuals as feedstocks. MacNeil had set up a cart-based collection program and was servicing 100 accounts. “What made the grocery stores attractive was if we landed one chain, bang, it was 50 accounts,” says Mike McIntyre of MacNeil.

He and his brother represent the fourth generation of a family-owned operation that started in the 1920s collecting food residuals from the city of Philadelphia to feed to pigs on its farm. “We started out with one truck a day, then over the years, farming became tougher and tougher and we needed other options if we wanted to expand the collection side of our business,” he adds.

The full range of food residuals was being collected for the EnviroFeed process, from meats and dairy products to vegetative residuals and postconsumer scraps. “Part of the problem is that the preconsumer vegetative waste from grocery stores wasn’t the ideal feedstock,” says McIntyre. It was too wet for animal feed, and had minimal protein content. As a result, EnviroFeed stopped taking supermarket residuals, and eventually discontinued any food residuals collection and processing. (See “Assessing Food Residuals Recycling Potential In New Jersey,” August 2001.) “We ended up getting connected with Woodhue, and signed a con-
Feedstocks include produce, baked goods, floral trimmings, soiled paper, register receipts, and waxed corrugated.

The average size store, generating about 18 tons/month of organic residuals and paper products, needs 25 to 30 carts.

ttract with them to collect food residuals primarily from supermarkets,” adds McIntyre. The company discontinued accounts where the feedstocks included meat or postconsumer materials, as those aren’t allowed under the Bryony facility’s permit.

Woodhue markets the service to grocery stores and MacNeil sets up the collection routes. Manna oversees training employees at the stores to source separate. “We track the volume by store so we can see how well they are doing,” he explains. “If a store dips below a certain amount, we will go back and retrain the employees.”

Allowable feedstocks come from the produce (including the salad and fruit bars) and floral departments and the in-store bakery. Soiled paper from the dairy, deli and seafood departments, frozen non-meat foods, postdated and spilled dry goods, waxed cardboard and all kinds of other paper materials (including register receipts, cardboard tubing, egg cartons, coupons) are accepted as well. Food residuals and waxed cardboard alone account for over 70 percent of a typical grocery store’s waste stream, notes Manna, which is about what is being diverted on average in their program.

CART-BASED COLLECTION

When MacNeil Trucking established the collection program with EnviroFeed, the company decided to use 32-gallon wheeled carts. “We always have used carts, which is why EnviroFeed liked our service, because we screened out contaminants before loads got to their facility,” says McIntyre. “That works well for Woodhue, too. It’s labor intensive, but a clean stream with a cart system is what we are selling. We haven’t figured out another way to screen out contaminants. Sometimes, we will start emptying carts, see the food waste is contaminated and reject it. We couldn’t do that if our system were automated. And the bottom line is that I need to be better than the compactor in terms of providing clean feedstocks because a much larger hauler could do what we are doing for less money in a heartbeat by using a compactor. The deal is, if we can collect the separated organics for the same cost or a little less than the current hauler is charging than that is a service and the materials we collect are an attraction to Woodhue.”

The carts manufactured by Toter are leased to the stores by Woodhue under an agreement to purchase them. The average size store (generating about 18 tons/month of organic residuals and paper products) needs 25 to 30 carts. “We really don’t want to be in the cart business, but to expedite the program and unify the carts used, we decided to purchase the carts and then lease them to the stores,” says Manna. “But we ultimately want the stores to take responsibility for the carts, so we designed the lease program so that the fee goes down each year—from $3/cart/month to $1/cart/month to $.50/cart/month and in year four, the stores own the carts. This way, the stores are ultimately responsible for the condition of the carts. They also have the option of buying the carts outright for $35 each.”

MacNeil Trucking has six 35 cy compactor trucks that service stores throughout New Jersey. The average frequency of collection is three times a week, but was more frequent in the summer as volumes went up 30 to 40 percent because of increasing amounts of perishable produce such as melons. In the winter, average collection may go down to two times/week. As more stores are added, the density of the collection routes has been improving, says McIntyre. “We have pretty good density among our routes, but we could use more grocery chains to improve it. It may take us two hours to get to a collection route, but the economics are working out because once we start collecting, it only takes four hours to fill the truck. Density does help that, especially because there is so much food waste out there.” To make collection efficient, MacNeil asks stores to put the carts out where they can be accessed quickly (versus storing them in refrigerated areas).

Accounts are charged $60 to $70/ton for the collection service. There aren’t any scales on the trucks, but Woodhue and MacNeil weighed filled carts over the course of three months and found the average weight was between 90 to 110 lbs so the fee is based on each cart weighing 100 lbs. Many accounts line the carts with plastic bags, which are removed as the carts are emptied. The average tipping fee at landfills in New Jersey is $59/ton, plus grocery stores pay an average of $15 for carting. “So the price per ton for traditional collection is about $75/ton with the average store generating 25 tons of solid waste a month,” says Manna. “So they pay over $1,860/ton/month for solid waste services. Woodhue/MacNeil charges about $60/ton and food
residuals, waxed cardboard and paper amount to 18 tons/month, or a total fee of under $1,100/month. Even with paying to have the remaining solid waste carted away, some grocery stores are saving $380/month/store, which adds up to significant savings for chains with a number of stores receiving our service.

Separating out food residuals also improves stores’ overall efficiency, adds Joseph Hayes, founder and president of Woodhue. Stores get a much better sense of how much is being wasted when they see what is going into the carts,” he says. “For example, is the bakery making too many loaves of bread or is too much food being put out in the salad bar? The profit margins are so tight at grocery stores that they can cut back on excess.”

One supermarket that joined the program had been receiving fines from the health department because of odors and leachate coming out of a compactor in the back of the store. “They were getting fined $200 a day and when they stopped putting food waste into the compactor, the odors and leachate were eliminated, and the fines stopped,” says Manna. He adds that overall, keeping food residuals and soiled paper out of the compactors reduces the frequency of having to service them. “In the case of one store, prior to joining our program the compactor had to be pulled four times/month. Now they are down to one pull every five weeks.”

Woodhue accepts food residuals and soiled paper in compactors at its composting site for $29 to $39/ton. A compactor generally holds ten to 12 tons of compostable feedstocks. About 25 of the roughly 150 stores send material in compactors. Loads with more than 20 percent contamination are rejected. Those materials are reloaded into an open topped container that, when full, is taken to the landfill, with the associated expenses charged back to the customer. Contaminants in accepted loads are removed by hand (or screened out of the finished product). Woodhue is working to convert generators using compactors to the cart-based system, because that yields a cleaner feedstock stream.

**PROCESSING LOGISTICS**

Woodhue, Ltd. is the only composting facility in New Jersey taking source separated commercial food residuals, waxed corrugated and soiled paper. All food residuals composting is done on the Bryony site, which is permitted to take up to 75,000 cy of its 87,000 cy limit on an annual basis of supermarket feedstocks.

This year, Woodhue expects to receive about 16,000 to 18,000 tons of supermarket residuals, which is well under the 75,000 cy limit, says John Purves, Woodhue’s attorney. Recently, the state authorized another field for composting at the Bryony site. This additional area has a compacted concrete pad under 18 acres and is being utilized to process food residuals from supermarkets.

The original Woodhue site is permitted to take an additional 50,000 cy of yard trimmings, food processing residuals and several other feedstocks on an annual basis. While the Woodhue and Bryony sites operate under separate permits, the state of New Jersey amended its solid waste and recycling regulations in 1996 to change the status of composting facilities to Class C recycling centers. The purpose of the change was to reduce the regulatory requirements on composting sites. Woodhue began seeking Class C approval in 1997, which includes merging the Woodhue and Bryony sites into one Class C recycling center. “Our final approval is still under technical review,” says Purves, “mostly because we are continually making changes and asking for approval of new materials beyond just vegetative waste.” The company has received approval to process loads of baled waxed corrugated (but hasn’t started taking separate loads yet) and is applying for a Class B license to process wood residuals. Purves adds that as part of the Class C permit, it would like to change its site limits from the amount processed on an annual basis to the amount allowed on the sites at any one time.

Both the waxed corrugated and the wood processing will give Woodhue much needed bulking agent for composting increasing volumes of food residuals. “We want to switch more to waxed cardboard as a bulking agent,” says Hayes. “It’s a good carbon source, aerates well, breaks down slowly and we can get paid more for it than for the leaves, which get tipped here for $3/cy.”

Incoming food residuals, soiled paper and waxed corrugated are unloaded onto a compacted gravel pad. Bucket loads are combined with ground yard trimmings from an adjacent stockpile, put in a windrow on a nearby composting pad and mixed with a

**Leaves, one of the primary bulking agents, can be kept in large, minimally managed windrows so they are available year-round.**

Accounts are charged $60 to $70/ton for the food residuals collection service.
After four years of testing, monitoring residuals at Woodhue was separating its food residuals for composting at Woodhue. “We’ve been doing this for four years and we’re so trained at what we do,” says Dennis Myers, director of facilities for the supermarket chain. Food Circus employs 3,000 people at its 12 New Jersey facilities. At the 11 stores in the state, 1,500 tons of food residuals are bagged weekly. The supermarket chain also recycles metals, aluminum, plastics, and some by-products from food processors, including cranberry growers.

With the interest of developing the supermarket residuals, Woodhue has been looking into the possibility of bagging the food residuals compost, which in turn could be sold in the supermarkets, becoming part of a closed loop recycling system, says Manna. As part of its expansion plans, Woodhue has been in negotiations with an animal feed manufacturer to build a plant at the same site as the composting operation. “We have been talking with the New Jersey DEP about how to permit a full-scale animal feed facility,” says Purves. This would enable Woodhue to process meats and postconsumer food residuals from restaurants and other generators, thus expanding what feedstocks can be taken from current accounts and giving it and MacNeil a broader universe of customers to service. The company has been working with the local county as well to move the project forward. Overall, he adds, the state and local agencies they work with have been cooperative in almost every new activity they try. “They too deserve credit for the success of these initiatives,” adds Purves.

Woodhue now has the infrastructure, size, and certainly the desire to promote new ideas and carry them to fruition. The cart system employed by its hauler provides the delivery of clean materials in a manner that is cost-effective to generators. With the anticipation that solid waste tipping fees will not come down, the alternative Woodhue and MacNeil provide may prove a very viable solution for many generators. With the interest of developing the animal feed facility, future customers may include prisons, restaurants, colleges and other institutions. “As a site that has always looked to demonstrate new programs and new technology, we will continue to look for new opportunities and better ways to produce products from organic wastes,” says Hayes.

GROcery Chain Plugs INTO Composting

OOD Circus Supermarkets Inc., based in Middletown, New Jersey, has been supplying organic feedstocks for composting at Woodhue, Ltd. since last spring. Previously, the chain with 11 stores was separating its food residuals for diversion to the EnviroFeed animal feed manufacturing plant, which has stopped production. Last year, MacNeil Trucking Inc., which provides the collection service, picked up over 1,500 tons of food residuals and paper from the Food Circus supermarkets.

Each store has thirty to fifty 32-gallon carts. Employees place produce, floral trimmings, bakery items, frozen foods, register receipts, coin wrappers, paper towels, postdated grocery items, dry goods and sales ads in the containers. Metals, aluminum, plastics, meat, fish, styrofoam glass and soap detergents cannot be placed in the carts. Separation is not a big problem for Food Circus employees. “We’ve been doing this for four years and we’re so trained at what we do,” says Dennis Myers, director of facilities for the supermarket chain. Employees are very supportive of the program, making separation easier, he adds. New employees are trained to separate on their first day and managers of the store monitor the separation by new and old employees alike.

MacNeil services the containers two or three times a week, depending on volume — which varies from week to week and season to season. The supermarket chain also diverts meat and fish residuals to a local pig farmer and is looking for a company that recycles shrink wrap.