RESTAURANTS EVALUATE COMPOSTING OPTION

Pilot projects have shown feasibility of separation and composting of nonedible food and contaminated paper. The challenges are working out full-scale logistics and finding available sites.

Nora Goldstein

"Of ALL the measures that we can use to remove materials from the waste stream, composting has the biggest potential," says Bob Langert, Director of Environmental Affairs at McDonald's Corporation. "Conceptually, we know that cornposting works. Now we need to evaluate the true practicality."

Last year, McDonald's ran a trial to determine the compostability of the organic waste from 10 of its restaurants in New England. Separated material was taken to the Hawk Ridge Cornposting Facility, operated by Resource Conservation Services (RCS) in Unity, Maine. 'We found out that our material produces a really good compost, and decided that the next step would be to set up nine or 10 restaurants and do an ongoing cornposting program," explains Langert. "We need to find out what it takes to do it on a day-to-day basis."

Among the questions that need to be answered in the second phase of the composting evaluation process, he adds, are the operational procedures - both in back and in front of the counter; logistics, such as how to get the materials separated and out of the store to a composting facility; and the economics. Langert describes phase two as "perfecting the way composting can be done within the McDonald's system." The company expects to start this program by the end of 1992, once arrangements can be made with a composting site.

McDonald's, like several other large quick serve chains, conducted a waste audit during the pilot to determine what proportion of the materials generated at the store are compostable. The audit found that after removal of corrugated, which is recycled, about 90 percent of what remains can be composted. It is mostly packaging paper and food remnants, with the food portion coming primarily from behind the counter and including eggs, pancake mix and coffee grounds. The audit also determined that about three percent of the waste stream consists of polystyrene and plastic. "There was not a whole lot left once we stopped using polystyrene clam shells," notes Langert

The challenge is how to either keep that remaining noncompostable fraction separate from the organics, or to find substitutions, such as using wooden coffee stirrers instead of plastic, and a degradable sundae cup. Despite source separation efforts during the composting pilot, plastic did get mixed in with the compost and necessitated significant screening - and thus a great expense, says Langert. "We want to address those kinds of issues in the second phase, and develop educational programs to optimize separation both behind the counter and for the customers. Source separation is the way to go. We've had success having customers separating materials in the restaurant and from an economic standpoint, if we can get customers and our staff to separate, why not do it at the store instead of paying a bundle to do it at the facility?"

SEPARATION PILOT

Last spring, 25 Kentucky Fried Chicken restaurants and one Dunkin' Donuts shop began participating in a pilot project in the Boston area that involved the diversion of "behind the counter" (BTC) compostables. The project is managed by RCS based in Brunswick, Maine in conjunction with Browning Ferris Industries (RCS's parent company). To date, the effort has been focused on separation and collection, because a permitted cornposting site was not available.

Waste characterization studies conducted by RCS and its clients have shown that overall, more than three quarters of the waste generated at quick serve restaurants comes from behind the counter. Roughly 60 percent of the total stream is food and paper. (Corrugated represents another 20 percent.) Of that 60 percent, about 50 percent is generated behind the counter, in the food preparation area, and the ratio of food to paper in that portion is 70:30, says Tom Broussard, who was overseeing the quick serve pilot for RCS. "That data reinforced our decision to focus the separation program in the store behind the counter. Another reason is that there is more control - employees can learn the techniques and we get higher compliance."

Bins lined with plastic bags are placed in the kitchen area for the compostable materials. Some of the stores selected different

colored containers, while others used the same colored bins clearly marked "organic waste." Notes Broussard, "Restaurants either have purchased additional containers or have been able to reconfigure with existing equipment."

RCS/BFI set up an organic waste route for the stores participating in the pilot project. These stores still receive regular trash pickup as well. A sheet metal insert was placed inside the stores' eight-yard dumpsters, with half of the container designated for trash and the other half for the organic materials. "We currently send a truck at the same service level as trash pickup, which is about three times per week," says Broussard. "When we evaluate incorporating a service like this as part of our regular business, versus research and development, the economics will be factored in. I foresee a decrease in trash service and an increase in organic waste pickup."

To date, about five tons per week of compostable material are picked up (in total) at the stores participating in the pilot. For a full-scale project to be economical from a collection standpoint, says Jeffrey Edelstein, a project engineer with RCS, there would need to be a greater density of stores and/or other commercial generators, such as supermarkets, added to the route.

As of mid-September, RCS anticipated that a permit would be issued by the Massachusetts Department of Environmental Protection to start cornposting at the BFI landfill in Fall River, Massachusetts. The company applied for a pilot-scale operation permit, which would allow them to compost up to 50 tons/week of material. "Our plan is to locate the site on a working face of the landfill, in an area with a lined cell," explains Broussard. "We will make a sand pad. The quick serve compostables will be mixed with leaf and yard waste, and windrowed."

BFI operates a yard waste cornposting facility at the Fall River landfill, which uses a King of the Windrow compost turner. RCS will be shredding some of the incoming restaurant waste, depending on the availability of equipment. At full- scale, the project would utilize debagging, shredding, turning, and screening equipment. If the permit is obtained, composting is expected to get underway by year end.

CORPORATE FIT

The corporations participating in the Boston pilot see a definite fit for cornposting in their overall waste management strategies. "For Dunkin' Donuts, composting represents the most viable opportunity we have for recycling," says Michael Murphy, Director of Consumer Affairs at Dunkin' Donuts. "Over 90 percent of the waste at the shop level is organic. The breakdown, on a weight basis, is approximately 28 percent food, 48 percent coffee grounds, 10 percent soiled paper, and nine percent corrugated."

Training, separation, and participation were all "progressing well" in the kitchen area of the Dunkin' Donuts shop, adds Murphy, who was anxious to have the actual cornposting portion of the pilot get underway. The company plans to get the logistics worked out in one store and then, depending on operational and economic considerations, make it the focal point of a forum to present to franchise leadership. "Our next phase would be to get a block of 25 to 30 stores that could try out separation and cornposting, and then build up gradually over a two year period," he explains. "We have 1,800 stores nationwide, with over 500 in the Northeast."

To improve the compostability of its waste stream, Murphy is evaluating the conversion of some items currently used. These include polystyrene plates and cups, and plastic drink stirrers and juice containers. "I think we could convert them without disrupting our system," he says.

Like Dunkin' Donuts, a large majority of what Kentucky Fried Chicken throws away (behind the counter) is food or paper - about 80 percent, reports Glenn White, Senior Engineer in Research and Development at Kentucky Fried Chicken. "And based on data we are getting from the test in Boston, it may be even more than that."

Nationally, as waste hauling costs increased, the company began exploring alternatives, among them cornposting. "Given the cost of composting waste, a credible case can be made that cornposting could be economically viable for the quick serve industry," explains White. "But there are issues. First, there are not enough facilities out there which a company like KFC could rely on. Also, the performance of existing facilities needs to be proven. Second, quick serve restaurants are a specialty niche, and we need someone able to deal with us and our special considerations. We undertook the Boston test with the mindset, 'Can composting work? We believe that is an appropriate mindset. Overall, the technology exists to overcome the challenges associated with cornposting. The key is to get the technology together with the company where KFC has the majority of restaurants."

Kentucky Fried Chicken stores in the Boston area donate food that is still edible to local charities. About 50 percent of what remains is a food product, including flour that can't be used, food that is past its shelf life, and shortening that is contaminated in some way.

The company worked with RCS to establish a training program, which includes signage and educational materials. Response at all levels of the franchise system has been positive, reports White. "Our system is divided into market managers for the region, restaurant managers and employees. We have three market managers responsible for the 25 restaurants in Boston, and they have taken the program on as their own. When we first sat down with the restaurant managers, we said we needed three or four volunteers to help get the program started. We expected one or two to volunteer but instead, the vast majority volunteered."

He adds that with employees, the biggest

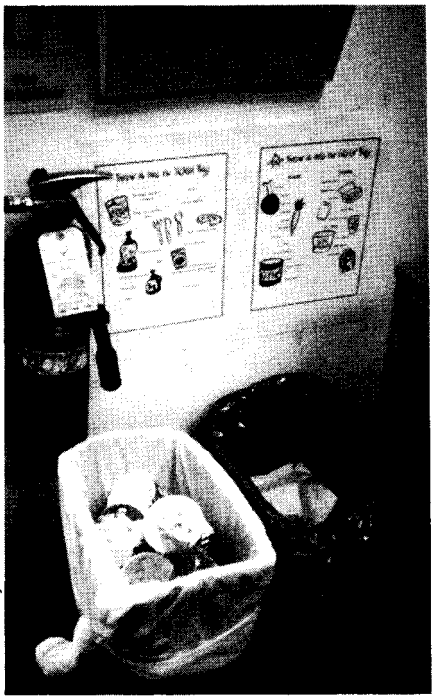

Photo courtesy of Resource Conservation Services

Signage above bins lined with plastic bags assists food workers' source separation efforts.

BURGER KING INITIATES COMPOSTING PILOT

STARTING last May, compacted waste from 34 Burger King restaurants in Minneapolis and St. Paul, Minnesota is collected once a week and taken to a mixed waste composting plant operated by Recomp of Minnesota in St. Cloud. No separation of the waste stream is done in the restaurants. Material arrives in bags at the plant in St. Cloud. Corrugated is removed for recycling and the remaining material passes through a seven inch trommel screen and is loaded into a digester. After three days in the digester, the material is screened to remove noncompostables. The plastic is taken to the Northern States Power resource recovery plant in Elk River, Minnesota.

The remaining material is loaded into the Royer agitated bed system, where it is composted further. Following composting and curing, the material is screened. "We have been able to utilize composted Burger King waste for landscaping at a new Burger King store in Brooklyn Center, Minnesota," notes Raymond Tucker, Director of Packaging for Grand Metropolitan, Burger King's parent company.

The pilot is giving the chain an opportunity to learn more about recycling and composting, he adds. "We decided to put the program together and learn by fire. At this time, we don't have plans to go beyond this pilot project."

Roughly 26 tons of Burger King waste arrives at the St. Cloud facility each week. (The plant typically composts about 100 tons/day of mixed municipal waste.) "There is about 25 percent corrugated in the load," says Bob Deem, manager of the plant. "Of the remaining material, about 80 percent is compostable, with about a 20 percent reject factor." —N.G.

"Even if the costs of landfilling and composting are equal now, it won't be long before composting becomes a better economic alternative."

issue was communication, because they have non-English speaking workers. Until the language barrier was addressed, says White, compliance was poor. "Once we developed a multilingual program, however, compliance became extremely high. We've found it doesn't take any more labor to put the right item in the right bin, but we do need to do the training."

OVER THE COUNTER

The sample waste stream characterization done by RCS for quick serve restaurants shows that 15 percent of the total waste stream is generated in front of the counter, i.e., thrown away by customers. Food and paper comprise 11 percent of that amount, and plastics account for four percent. The percentage of customers that eat at the restaurant varies. Kentucky Fried Chicken reports that 20 percent of the people who buy food eat at the restaurant. Dunkin' Donuts reports that over 60 percent of what is purchased in the store is taken out. When Dunkin' Donuts experimented with polystyrene recycling in the stores, not enough volume was generated to establish a program, reports Murphy. Still, he says, participation was high, which leaves the door open for a broad-based educational program that would encourage people to cooperate in some sort of source separation effort.

At this point, Kentucky Fried Chicken believes that the public relations benefit of a composting /recycling program in the front of the store does not outweigh the time and expense required for implementation, as well as the net amount of material that would be diverted. "Very little of our total stream that ends up in the dumpster is from the front of the restaurant," says White. "For us, it just doesn't make sense to bring in the customer. It really boils down to economics."

Because it doesn't plan to expand the program to the front of the store, the company also doesn't foresee making any changes in its packaging. "Switching from plastic to paper is more expensive, and also doesn't meet our requirements for food storage," he adds. "For example, we use a foam food container that is stored in a hot well. We couldn't put a paperboard container in a hot well and let it sit for an hour."

INFRASTRUCTURE REALITIES

It is premature for any of the companies involved in the pilot programs to have a complete economic picture of the composting option. McDonald's, in phase two of its program, hopes to generate data on the costs of separation, collection, and cornposting. Dunkin' Donuts expects that the costs of its current disposal practices will most likely equal what it will cost to participate in a composting program.

"Based on information from our shops as to what they are paying now for pickup and disposal, I feel confident that there would be equal displacement," says Murphy. "When we add in the good will and publicity, it makes cornposting an attractive package. So while there are no immediate savings, I believe it won't be more expensive."

For composting to make economic sense to Kentucky Fried Chicken, the costs have to be competitive with other disposal options. White adds, however, that while composting may be at an economic equal or disadvantage now, he expects that annual costs will not rise as quickly. "Landfilling costs are increasing about 14 percent a year. I don't see composting costs going higher than the normal rate of inflation, which is about three percent a year. So even if waste hauling to a landfill equals cornposting now, it won't be long before composting becomes a better economic alternative."

The reality for each of these chains, however, is not the economics but what they perceive to be a lack of composting infrastructure. "For composting, the technology needs to develop and be available and proven so that as landfill costs increase, the infrastructure will be in place to do it," concludes White.

Langert of McDonald's agrees. "Our position on cornposting is that it is a viable option for our type of industry. But it is tricky when it gets to the logistics and infrastructure. To make it economical, we need to do a good job with logistics, for example to reduce waste and work with the waste hauling system. "But like everything at McDonald's, whether it be introducing a new product or a change in the system, we plan to learn how to do it in the restaurant, and get it down so as the [composting] infrastructure grows, we can tit into it." 1