

COSTS/CHOICES/ECONOMICS

EXPANDING PARTICIPATION IN FOOD RESIDUALS RECYCLING PROGRAMS

In the California cities of Berkeley and San Francisco, commercial food scraps, food-soiled paper, waxed cardboard, and plant materials are turned into soil amendments for use by farmers, private landscapers, and community beautification projects. These programs rely increasingly on biodegradable bin liners to: (A) broaden participation, and (B) reduce contamination of organics by nonbiodegradable plastic bags. The bags have the potential to make food scraps collection more acceptable to more businesses, but price, availability, and performance are still major impediments to adoption. These challenges appear in varying degrees in Berkeley and San Francisco, because the two cities and the compost processors they use have different environmental standards for acceptability of biodegradable bags.

EXPERIENCES OF PROCESSORS

In its composting program, San Francisco officially accepts only compostable bags certified by the Biodegradable Products Institute (BPI), a decision made by the city of San Francisco's Department of the Environment and San Francisco's contracted hauler/compost processor, Norcal. According to Robert Reed, Norcal's director of corporate communications, Norcal initially tested various types of polyethylene-based biodegradable bags for biodegradability. Because numerous uncertainties remained after the tests, Norcal opted to use only BPI-certified bags, such as "NAT-UR®," "BioBag®," and "BIOSAK®," he said.

Berkeley accepts non-BPI certified polyethylene-based biodegradable bags, such as "Ecosafe." Adam Grover of Grover Composting in Modesto, California, where

Experiences in Berkeley and San Francisco provide data on materials handling methods, performance, prices and availability of compostable bags.

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Berkeley's commercial food scraps are composted, mentioned that the Ecosafe polyethylene-based biodegradable bags perform very well in the company's windrows and leave no visually detectable residue. The finished compost from both processors is listed by the Organics Materials Review Institute (OMRI) as an acceptable organic amendment, according to representatives from Berkeley's and San Francisco's compost processors.

One factor common to both municipal composting programs is the processors' need to eliminate nonbiodegradable plastics from the feedstock. Reed explained: "Noncompostable bags are problematic for both processing and for the final product." Adam Grover stated that "more than half of the liner bags from Berkeley's commercial food scraps program are biodegradable, but that still leaves a lot of plastic for us to deal with." Both facilities rely on hand labor to pick out many of the plastic bags and other plastics before composting. They also use mechanical screens at the end of the process, to upgrade end-product quality.

A business starting to receive organics collection service faces several challenges. After setting up bins and educating staff to keep organics and trash separate, the most noticeable operational shift relates to bagging practices. There are several ways to eliminate nonbiodegradable plastic bags from the compostable stream. The most common methods are: 1. Use no liner for interior or exterior organics bins, and rinse interior and exterior bins after emptying them ("going bagless"); 2. Continue to use traditional plastic liners for interior organics bins, emptying only the contents into the exterior organics bin for collection and disposing of the liner in the trash, or

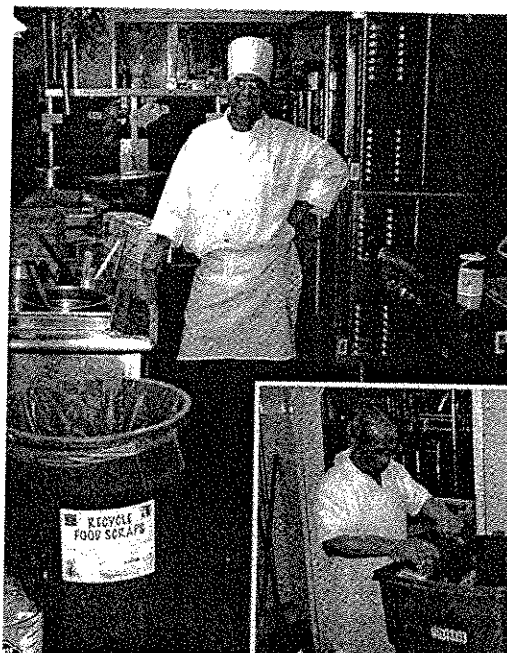
POSITIONS AVAILABLE

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After setting up bins and educating staff, to separate organics and trash, bagging practices are most noticeable operational shift.



leaving it in the organics bin for additional loads; and, 3.

Use biodegradable liners in all interior organics bins;

Many businesses with space and facilities to rinse bins go bagless (Method #1 above) for their organics bins.

This method is the biggest change from bag-based trash management. In addition to reduced usage of bags, this method offers staff a clear visual cue to place only food scraps in unlined containers.

Businesses that are concerned with the price of biodegradable bags, but which are unable to rinse interior bins after emptying them, often keep liners in the organics bins, as in Method #2 above. This method reduces the need for rinsing the interior bins, and may reduce liner usage if the bags are replaced only when necessary. It does not eliminate the need to rinse exterior bins after collection.

Method #3 allows employees to continue the practice of bagging materials as they have in the past. Odors, pest problems, and the need to rinse bins are reduced because the food scraps are contained in a biodegradable bag. This method has the potential to attract businesses that otherwise would hesitate to participate, due to lack of rinsing facilities and concern about potential odor and vectors. This method, however, means that businesses pay more for a product that does not contain food scraps as well as traditional plastic bags do.

PERFORMANCE

The polyethylene-based Ecosafe bags commonly used in Berkeley, although not as strong as most nonbiodegradable bags, have performed satisfactorily for most customers. "We're filling the Ecosafe bags 2 inches less than the regular bags so they don't break," reports Mark Chernis of Skates on the Bay, a large seafood restaurant in Berkeley. He mentioned that the restaurant still experiences occasional bag breakage but only needs to rinse the interior organics bins once per day.

The BPI-certified starch or starch-petroleum blend bags, such as NAT-UR®, BioBag®, and BIOSAK®, have received mixed reviews from San Francisco restaurants. Several restaurants have returned orders of NAT-UR® and BioBag® liners, either because of insufficient strength (BioBag®), or because of a defective or outdated batch (NAT-UR®). Subsequent batches of the NAT-UR® bags and samples of BIOSAK® bags

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Table 1. Economics of composting with acceptable liners in two cities

City	Bag source	Discount on food scraps collection	BPI certified bags required?	Typical price for acceptable biodegradable bag	Typical regular bag price	Additional cost of biodegradable bag	Biodegradable bags used per month	Increased bag cost per month	Trash bill savings per month composting	Net savings or (loss) per month
Berkeley	Direct	20%	No	\$0.17	\$0.11	\$0.06	600	\$36.00	\$155.00	\$119.00
San Francisco	Direct	25%	Yes	\$0.79	\$0.11	\$0.68	600	\$408.00	\$193.00	(\$215.00)
	Distributor	25%	Yes	\$1.00	\$0.11	\$0.89	600	\$534.00	\$193.00	(\$341.00)

have performed satisfactorily with heavy food scraps in large restaurant kitchens, according to various restaurateurs.

PRICE

BPI-certified starch or starch-petroleum blend bags currently cost 400 percent to 500 percent more than non-BPI-certified polyethylene-based bags. From the perspective of a restaurant owner or manager, the price difference can make or break the economics of participation in the food scraps collection program (see Table 1).

In Berkeley, where non-BPI-certified biodegradable polyethylene-based bags such as EcoSafe® are accepted, the economics are rather favorable for using biodegradable liner bags (Method #3 above). One medium-sized, busy restaurant in Berkeley uses 5 interior, 23-gallon organics bins to separate almost two-thirds of its total garbage volume for composting, which is collected at a 20 percent discount, for a gross savings of \$155 per month. Each interior organics bin is emptied about 4 times per day, resulting in a total biodegradable bag usage of 600 bags per month. Even though the restaurant pays 6 cents more per bag for the biodegradable bags, it still saves \$119 per month.

At an equivalent restaurant in San Francisco, compostables are collected at a 25 percent discount. If that restaurant were to use bags that comply with San Francisco's BPI certification requirement, it would have to pay at least 68 cents per bag above the non-biodegradable bag price, resulting in a net loss of \$215 per month. As shown in Table 1, the loss is even greater if the bags are purchased through a distributor rather than directly.

Many restaurant managers prefer to buy bags, along with their other purchases, through one distributor to simplify delivery and invoicing, but the added cost of the "newfangled" bags could deter them from this practice.

WHAT'S IN STORE

The equation of convenience, logistics, and economy will begin to shift in favor of compostable bags. Compostable bag prices will continue to drop, performance and availability will increase, and scientific standards for bag compostability will be-



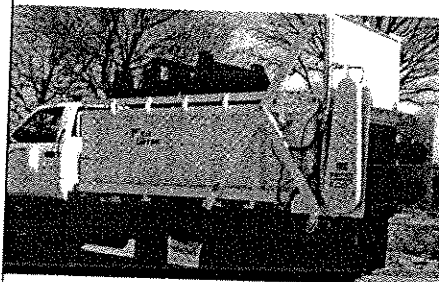
When no liners are used for organics bins, the practice is to rinse containers after emptying them into a dumpster.

come more aligned with the needs of processors, end product markets, and the environment. We are approaching the point where many more businesses that want to participate in organics collection programs will have opportunities to do so, aided by the advent of higher performing, reasonably priced, and readily available biodegradable plastic bags. ■

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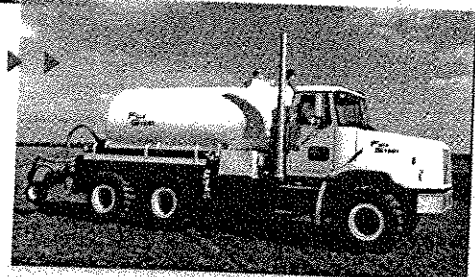
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