

Getting an “A” at

LUNCH



Smart Strategies
to Reduce Waste
in Campus Dining

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1 INTRODUCTION

While many in the world go hungry, Americans continue to throw out enormous quantities of food. According to a recent report from the US Department of Agriculture (USDA), more than 91 billion pounds of edible food were discarded by consumers and food service operations in 1995. This waste, including 18 billion pounds of fresh fruits and vegetables, 14 billion pounds of grain products, and 16 billion pounds of milk—equivalent to one-third of an 8-ounce glass per person per day—accounted for more than one quarter of the 356 billion pounds of food produced for human consumption in the United States.¹ USDA estimates that decreasing by 25 percent the edible food lost annually by consumers, food service operations, and retailers combined would make available enough food to feed 20 million people per year.²

One source of this food waste is colleges and universities. Over 14 million students are enrolled in more than 3000 institutions of higher learning in the United States, where they generate on the order of 3.6 million tons of waste, or about 2 percent of the country's solid waste stream.³ Food and food-related items may constitute 10 to 20 percent of this waste by weight at some schools, the largest component of the waste stream after paper. Assuming an average of 5 ounces of food waste per meal, almost 4.5 million pounds of food waste are generated per meal on campuses around the country.⁴

Fostering Environmental Stewardship on Campus

In many ways, our institutions of higher learning reflect the values and norms of the society they serve. At the same time, colleges and universities have historically been in the vanguard on important social, cultural, and political issues of the day. Today, one of society's most pressing concerns is the need to lighten the toll we take on the environment by using resources more responsibly. On more and more campuses around the country, students, faculty, and staff are searching for practical ways to increase efficiency, prevent the creation of waste, and promote the recycling of waste that is created.

In 1995, INFORM published *Making Less Garbage On Campus*, which documented dozens of waste prevention strategies that have helped schools reduce their procurement, operational, and waste management costs, as well as their own impact on the environment, by increasing the efficiency with which materials are used. Increasingly, top administrators in academia are making this link between environmental responsibility and sound business practices.

From the classroom to dining facilities to buildings and grounds, colleges and universities have an opportunity to serve as models of environmental stewardship. By decreasing the environmental impacts of their own activities, they can help reduce a significant portion of the nation's waste stream while contributing

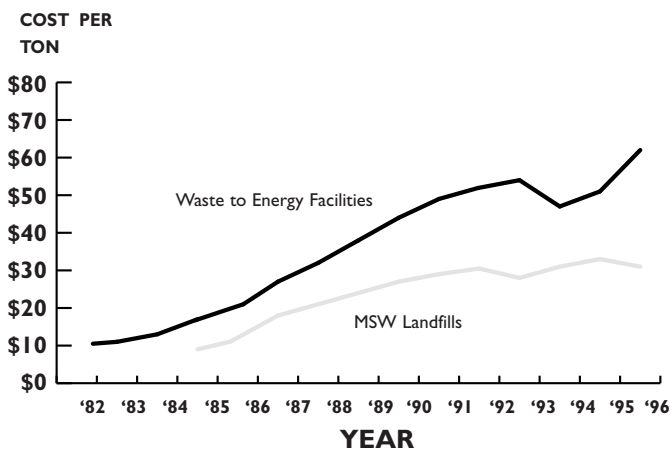
to global sustainability in the long term. By teaching and demonstrating ways of living and doing business that conserve resources and prevent waste, colleges and universities have a chance to nurture the environmental stewards of the future—a generation of politicians, business people, and professionals committed to doing the work of society while using less.

This report looks at the food services sector of the campus community and its specific contributions to the campus waste stream. It provides an overview of the campus food service provider industry and the opportunities for waste prevention in different food service settings. It examines the strategies that some food service operations have used to prevent food and food-related waste, the benefits these strategies have generated, and the obstacles encountered along the way.

WASTE ON CAMPUS: A Drain on Dollars

Colleges and universities pay in a number of ways for the waste they generate. The most obvious costs are those of disposal, which have risen substantially over the past decade (see graph below). Less apparent are the purchasing and labor costs associated with the use of materials that quickly become waste, and the environmental impacts associated with their manufacture, use, and disposal. Extracting and processing the many materials used to create finished products result in deforestation, polluted lakes and rivers, and other types of environmental damage. After disposal, the presence of products in landfills allows pollutants to escape into air and groundwater, and incineration generates ash that is often toxic.

National Average Tipping Fees in the US



Source: US Environmental Protection Agency, *Municipal Solid Waste Factbook*, Version 4.0, August 1, 1997.

Why Focus on Food Service?

Depending on whether they offer sit-down dining, take-out, or a combination of the two, food service operations generate varying proportions of food and food-related waste—pre- and postproduction food waste and nonfood items like napkins, condiment packets, and disposable cups, plates, and utensils. Much of this waste is not recyclable and must be discarded, which means schools are paying waste management costs related to their food service operations in addition to the costs incurred by purchasing and preparing food in the first place.

On a growing number of campuses around the country, food service providers are integrating measures that prevent or reduce food and food-related waste into their daily operations. In many cases, their efforts are paying off by reducing the costs associated with purchasing, using, and discarding food and food-related materials, and allowing the dollars saved to be passed along to students who eat at campus dining facilities.

WASTE PREVENTION BASICS

An alternative to managing waste—and to bearing the costs that management entails—is preventing its generation in the first place, a strategy known as waste prevention or source reduction. Waste prevention means reducing the amount and/or toxicity of materials entering the waste stream prior to recycling, treatment, or disposal.

Waste prevention is not the same as recycling, which diverts materials that have already been discarded and uses them in place of virgin feedstock. Like recycling, waste prevention reduces the waste that must be managed, but it decreases the need for raw materials to a greater degree than recycling. This, in turn, reduces energy consumption and eliminates the environmental damage caused by extracting and harvesting minerals and timber. Unlike recycling, waste prevention also reduces the need to manufacture and distribute finished materials—both highly energy- and materials-intensive activities.

In practice, waste prevention means paying attention to what we make into products, what products we buy, how we use them, and what we do with them when we no longer need them. Its ultimate goal is to achieve a more efficient, more cost-effective use of natural resources. In addition to its environmental benefits, waste prevention almost always leads to reduced procurement and operational costs as well as to savings on waste management and disposal.

The potential for campus food service providers to prevent waste and influence campus practices is enormous, especially in light of the following factors:

- **Food service operations are highly visible on college campuses.** By successfully incorporating waste prevention into their operations, food service programs can serve as models of less wasteful institutional practices; these, in turn, can be replicated elsewhere on campus and in local businesses and the surrounding community.
- **Trends in food service operations are changing.** The shift from sit-down, “all-you-can-eat” settings to take-out operations presents new challenges and opportunities for preventing waste.
- **Campus awareness of environmental issues is growing.** The millions of college and university students on campuses across the United States have grown up in a world of rising consciousness of the risks posed by pollution, resource depletion, and overconsumption.

How Campus Food Services Operate

Providing food at a college or university is usually the responsibility of campus auxiliary services, the department that also runs bookstores and copy centers. Auxiliary services may choose to hire cooks and other workers and run the food service itself—an arrangement that was more common 20 to 25 years ago—or it can contract this function out to a professional provider. In the United States, the largest food service contractors are Aramark, DAKA (recently acquired by Compass), and Sodexo Marriott (formed in a merger in March 1998).

Large campuses may offer a combination of self-run and contracted food service operations. At Harvard University, for example, undergraduate dining halls are operated and maintained by the university, but food service at some of the graduate schools is

provided by contractors. A number of different contractors may also be hired for a single campus. The contractor may be paid a flat fee to run the food service, or, in the case of take-out operations, the contractor may pay a portion of its revenues to the institution. On many campuses, a food service committee (comprising students and representatives of the faculty, the administration, and the physical education department) serves as an advisory board and a forum for discussions on such issues as pricing, operating hours, the environment, and the presence of franchises.

Franchise operations such as Burger King and Taco Bell are more and more common on college campuses. Here the contractor (the holder of the franchise) runs the operation in accordance with company specifications—for instance, food is served with the franchise's signature packaging in the same way as at off-campus operations.

Whether food services is managed by auxiliary services or contracted out to a provider, a director of food services is typically responsible for the facility's day-to-day operations. This individual may be hired directly by the school (in the case of self-operated services) or be an employee of the contractor/provider.

Methodology

In preparing this report, INFORM reviewed the relevant literature, such as trade magazines and journals, and conducted interviews with representatives of over 20 campuses around the country. These included students, directors of campus food service operations, directors of campus auxiliary services, and campus recycling and waste prevention coordinators. Interviews were also conducted with managers of the major US food service providers, with members of the College and University Recycling Caucus of the National

Recycling Coalition, and with contacts at the National Association of College and University Food Services (NACUFS) and the National Association of College Auxiliary Services (NACAS).

This report provides an overview of the campus food service provider industry and the opportunities for waste prevention in different food service settings. It is concerned with waste specific to food services, with a special focus on food and food-related waste.⁵ Although not intended to be representative of all college and university food operations, it identifies many of the strategies being implemented on dozens (if not hundreds) of campuses around the country and the players essential to any successful waste prevention program.

In conducting our research, INFORM asked five key questions:

- How do different types of food service operations affect waste generation?
- What kinds of waste prevention practices are in place or are being adopted?
- Who tends to be responsible for the implementation of these programs?
- What have been the successes?
- What are the obstacles to greater success?

Findings

- Campus food services are characterized by a large variety of operations ranging from the traditional sit-down, all-you-can-eat settings to food court and take-out services (including fast-food outlets). Whereas ten years ago, sit-down operations dominated food service operations on college campuses, today some combination of sit-down and take-out is becoming the norm.

- Depending on the type of arrangement, a food service operation generates waste of varying quantity and composition and presents different opportunities for prevention. In general, food waste makes up 60 to 75 percent of the waste produced by traditional all-you-can-eat operations, whereas packaging and food-related waste may constitute more than half the waste generated by take-out services.
- Many waste prevention strategies in place on campuses involve relatively simple changes, such as:
 - ☞ Buying condiments in bulk to reduce packaging waste.
 - ☞ Instituting kitchen practices that discourage unnecessary discards of edible food.
 - ☞ Putting out less food out at a time on salad bars, steam tables, and buffets to prevent overpreparation and spoilage.
- On the other hand, seemingly simple practices such as re-serving leftovers or donating uneaten food can involve complex logistics. To be successful, these must be carefully planned and incorporated into existing systems.
- Waste prevention can help reduce waste management costs for food service operators. The potential for savings will vary from campus to campus and is influenced by the type of waste-hauling contract in place and by local waste management costs. (The latter, in turn, are affected by such factors as landfill “tipping” fees and the market for recyclable materials.)
- Waste prevention can bring savings in the costs of procurement and operations. For example:
 - ☞ At Florida Atlantic University in Boca Raton, placing napkin dispensers on tables rather than at the end of the cafeteria line reduced napkin consumption by 400 cases per year and saved about \$6000 in purchasing costs.⁶
- Menu planning based on careful tracking of food consumption patterns can reduce purchasing costs while keeping waste from overproduction to a minimum.
 - ☞ At St. Mary’s College in Notre Dame, Indiana, involving students in menu planning helped cut food waste by 10 to 15 percent.⁷
- Reusable plates, flatware, glasses, and mugs can be more cost effective than disposables. They work best in sit-down dining settings, where dishwasher and storage space is available. For example:
 - ☞ Within one year of switching from single-use to washable glasses, the cafeteria at Bowling Green State University in Bowling Green, Ohio, saved almost \$35,000, used 1.15 million fewer disposable cups, and reduced waste by 26,450 pounds.⁸
- On the other hand, replacing disposable with durable serviceware can be a complicated process and its costs must be evaluated on a case-by-case basis. In take-out settings, programs that allow students to bring their own reusable mugs have been highly successful in preventing waste and reducing costs. For example:
 - ☞ At the University of Wyoming in Laramie, a program encouraging the use of reusable mugs saved \$950 in purchasing costs and decreased waste by 185 pounds within 6 months.⁹
- Decisions regarding purchasing and operations and therefore about products and practices that prevent waste are usually made by food service directors, typically with input from auxiliary services, food service committees, campus recycling or waste management coordinators, and students.
- Educating food service staff and students in the principles of waste prevention, and providing a means for effective communication between them, is crucial to the success of waste prevention efforts.

2 Managing Food Service Waste

Major changes in college food services over the past decade have greatly affected how food is bought, prepared, and served. This, in turn, has influenced the types of waste generated. While student board plans of the past tended to provide sit-down, all-you-can-eat cafeteria-style meals, today's campuses offer a wide variety of take-out options, mealtimes, and food selections. These changes in food service are occurring for a number of reasons:

- Campus food service operations are increasingly viewed as potential profit centers. Where successful, the new operations can be very lucrative. For example, North Carolina State University operates five convenience stores (selling an assortment of ready-to-eat foods) that generate \$4 million annually for the food service department.¹⁰
- Students are expressing a preference for greater variety in menu items, more flexibility in mealtimes, and the freedom to eat outside the confines of a cafeteria (i.e., on the run or in their residence halls). A survey by Duke University in Durham, North Carolina, concluded that if no restrictions were placed on students, only 13 percent would purchase their food from cafeterias, whereas 66 percent preferred grocery stores, food courts, and delis.¹¹

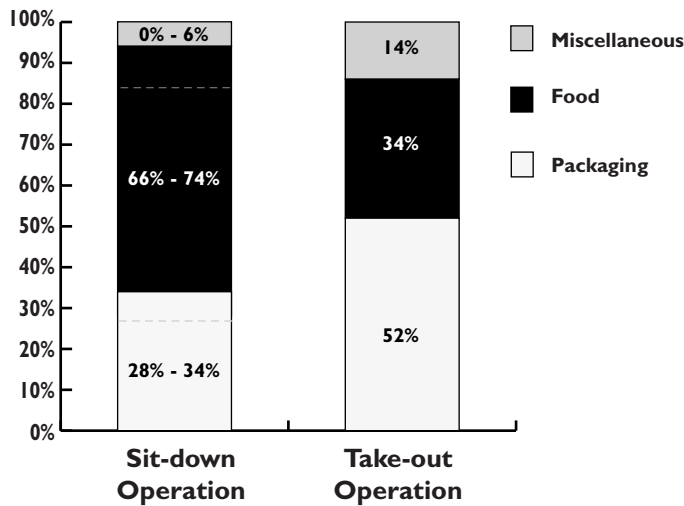
Varieties of Food Service Waste

Each type of food service operates differently, involves different types of food preparation, and ultimately generates different types of waste. Understanding the specific operation is therefore crucial to identifying opportunities for waste prevention.

In general, traditional sit-down, all-you-can-eat operations provide reusable trays and utensils and reusable serveware (plates, bowls, cups, glasses). These operations tend to generate large amounts of food waste: production waste, food that is prepared but not served, and plate waste.

Figure 1 shows that in a given sit-down operation, food waste may account for 66 to 74 percent of all waste generated. Figure 2 provides a detailed breakdown of the waste stream at Gibbons Dining Hall, a sit-down, all-you-can-eat buffet-style operation at James Madison University in Harrisonburg, Virginia.

Figure 1
On-Site Food and Packaging Waste in Two
University Food Service Settings
 (percentage by weight)



Source: T. Kim, C.W. Shanklin, A.Y. Su, B. Hackes, and D. Ferris, "Comparison of waste composition in a continuing-care retirement community," *Journal of the American Dietetic Association*, Vol. 97, No. 4 (1997), pp. 396-400.

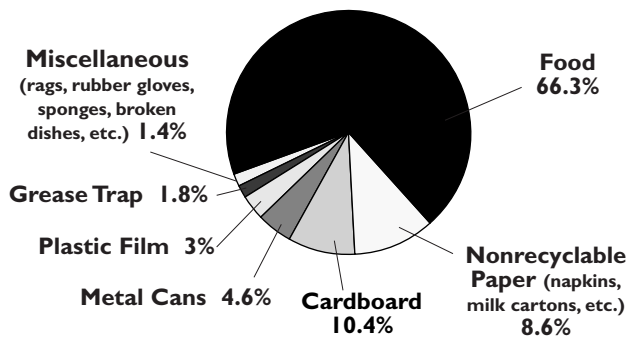
In contrast, take-out operations rely on speed and convenience and favor the use of numerous single-use items—disposable trays, plates, utensils, and carry-out containers—along with a variety of packaging and wrappings. These items may make up more than half the waste generated by such operations. Food waste, however, is not as prominent a component, because students pay for each item and therefore tend to take only what they can eat.

Waste Management Costs

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Whether a food service operation can save on disposal costs through waste prevention usually depends on who pays for waste collection and how fees are set. For example, when the college or university administration pays a nonitemized bill for collection, the food service operation will realize no avoided disposal or avoided recycling costs through waste prevention. Likewise, even if the food service operation itself pays for disposal, it may not save from reduced waste generation if it pays a flat fee to a private hauler.

Figure 2
Waste Stream Analysis
Gibbons Hall, James Madison University



Source: James Madison University.

On the other hand, disposal rates based on the amount of waste collected offer an opportunity for food service operations to cut costs by putting out less waste—if it is measured by weight or volume. However, if rates are based on the number of cans, bags, or Dumpster pulls, instead of on the actual volume of trash, reductions that fall short of an entire can, bag, or Dumpster will not affect fees.

Whether the collection agreement measures waste by weight or by volume will also have an impact on management costs. Food waste, for example, typically weighs a lot but takes up relatively little space. (Operations that send food waste down the sink disposal can save on water costs and sewage charges through waste prevention.) Plastic packaging, on the other hand, is lightweight but high in volume. A food operation that pays for collection based on volume may choose to focus on packaging waste as a way to reduce costs. Similarly, if cheaper waste management alternatives are available (such as composting or recycling), food service directors may look to them first as a way to reduce disposal costs rather than preventing waste in the first place.

Food service companies that pay for waste disposal have a clear interest in reducing waste generation if it means paying less for disposal. What they may not realize is that adopting waste prevention strategies often brings much larger savings in procurement and operations than in avoided disposal costs. Thus, focusing solely on disposal costs can minimize the true cost-saving impact of waste prevention. For example, at Bowling Green State University in Ohio, switching from paper cups to washable glasses saved food services over \$33,278 in purchasing costs (with the costs of buying new glasses and washing them factored in), but only \$251 in avoided landfill costs.¹²

Who Has a Role in Preventing Dining Waste?

INFORM's interviews indicate that decisions regarding materials use and waste prevention are by and large left to individual food service directors. On some campuses, food service directors have implemented waste prevention programs by

working in close partnership with recycling or solid waste coordinators. There is also a role for auxiliary services, which can write specifications promoting waste prevention into provider contracts. Environmental task forces, food service committees, and student groups have also played a role on some campuses.

Even on campuses where the food service is run by an outside contractor, operating decisions tend to be made by the campus's food service director:

- Marshall Sherman, director of risk management for Aramark's Campus Services, says that the company's campus operations are decentralized and that decisions concerning management and materials use are left to the individual facility. He likens each food service director to an entrepreneur, running the operation as if it were his or her own business and making choices about operations with an eye to both the campus's needs and the bottom line. To keep the entrepreneurial spirit alive, corporate headquarters does not like to dictate policies or practices, but Sherman says the company tends to favor practices that promote efficiency, such as reducing napkin usage.¹³
- Frank Kora, food service director at Florida Atlantic University, concurs that the management of dining services is left to the individual directors. Although manuals and extensive training are available relating to standards, operations, and cost controls, corporate headquarters does not micromanage.¹⁴
- Rick Larson, food service director at James Madison University and an employee of Marriott Corporation (now Sodexo Marriott), explains that Marriott provides support options if needed, but he is free to

initiate any new ideas (such as offering reusable take-out containers).¹⁵

Because auxiliary services typically handles the contractual relationship with food service providers, it is well positioned to incorporate terms into contracts that dictate environmentally sound operating and management practices. Joanna Truitt, director of contract administration at Cleveland State University, says that contracts have been used to promote recycling in CSU's food service operations, and that most contracts now include standard recycling specifications. And while the school's contracts do not include language promoting waste prevention per se, Truitt feels that specifications calling for reusable china and flatware in sit-down settings are appropriate (see pp. 16-22 for a discussion of reusables).¹⁶

Many campuses also employ recycling or solid waste coordinators, who work closely with food service directors to implement recycling or waste prevention programs. Food service task forces comprising students, administrators, and food service personnel are also common, and these frequently deal with environmental issues. At James Madison University, an environmental subcommittee of the food service committee has been instrumental in designing a reusable take-out container project (see pp. 18-19).

The Role of Students

Student involvement in food service waste prevention varies from school to school, with some having a tradition of activism centered around environmental issues. At the same time, activism on a given campus can come and go with each graduating class.¹⁷ According to some food service directors, involvement in environmental

issues is usually limited to a small group of active students. Such groups have been successful in a number of areas, such as generating awareness of food waste and initiating food composting and reusable mug programs.

At Oberlin College in Oberlin, Ohio, for example, students involved in an internship program with INFORM and the Ohio Citizens Policy Center are working with administrators and other staff to develop an awareness program aimed at reducing "plate waste"—food that students take, do not eat, and discard. One strategy, which has reduced the quantity of excess food taken by students at other campuses, is to weigh the amount of plate waste generated each week and publicize the results. Students have also worked with the city of Oberlin to determine the feasibility of a site for composting organic materials from the college and surrounding community. One student is seeking funding to develop educational materials that would help other schools initiate such a program.¹⁸

3 Preventing Food Waste

Three types of food waste are generated at three different points in a campus food service operation:

- Food preparation (prep) waste, including excess ingredients, rinds and peels from fruits and vegetables, and spoiled or inedible food
- Waste resulting from food that is prepared but not served, caused by fluctuations in demand
- Plate waste, or waste resulting from food that is taken but not eaten.

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Food service directors can reduce food waste by changing preparation procedures and educating staff and students. Sometimes improvements result from new purchasing practices. In many cases, changes in operations are involved. Table 1 summarizes the various strategies that can be implemented.

TABLE 1

Strategies for Preventing Food Waste in Campus Food Service Operations

Prep waste

- Shift from dishes prepared from scratch to already prepared items where appropriate.
- Explore the possibility of using pre-cut foods.
- Improve kitchen procedures to discourage unnecessary discards.
- Generate recipes on computer to allow for fluctuations in demand and ingredient availability.
- Compare inventories with the amounts of food prepared to track and reduce losses.
- Make use of unused ingredients in other recipes.
- Reduce the size of containers on buffets and salad bars and replenish them more often.
- Freeze leftovers and keep them in reserve.
- Donate unserved but still edible food to food banks, charities, etc.

Plate waste

Waste resulting from food prepared but not served

- Keep track of seasonal trends and fluctuating demand for certain items.
- Prepare smaller quantities of food throughout the course of a meal.
- Educate students about the amount of food waste they generate and solicit ideas for change.
- Explore the possibility of incentive programs that reward less wasteful behavior.
- Serve one entree at a time.
- Offer smaller portions.
- Switch to smaller plates.
- Offer a la carte service in traditional sit-down settings.

Preventing Prep Waste

Food waste can result from spoilage, inaccurate estimates of the ingredient amounts required for a particular dish, and wasteful kitchen practices. The food service directors interviewed by INFORM stressed the need to continually educate staff about waste prevention strategies, including the following:

Relying more on already prepared foods than on dishes prepared from scratch.

This may mean buying pre-cut vegetables or pre-cooked/already prepared dishes (e.g., fish fillets) that only need to be heated up. Because portion size is predetermined, these foods reduce the chance that ingredients will be wasted.

It should be noted that although the use of pre-cut fruits and vegetables can reduce the amount of waste generated at campus food facilities, this waste will still be generated at the food processing plant. On the other hand, centralized preparation, by providing more opportunities for using excess food, can potentially result in less waste. For example, potato left over from french fry production can be recovered by food processors and used in other products, such as dehydrated potato flakes and potato starch.¹⁹

Automated processes, too, can sometimes reduce production waste. Eggs taken out of their shells by processing machines can lower the rate of processing loss, since up to 30 percent of egg whites will stick to the shell when eggs are shelled manually.²⁰

Improving kitchen procedures. When Frank Kora first came to Florida Atlantic University as food service director, each production worker had an individual garbage can at his or her workstation. Kora found that the receptacles were often full and decided there was ample

opportunity to reduce the vegetable waste they contained. Slightly blemished whole onions and tomatoes, for example, were routinely being discarded. In response, Kora removed the cans and replaced them with tabletop containers, which made all discards visible. According to Kora, this measure led to dramatic reductions in production waste because workers felt more accountable for their discards.²¹

Dating and rotating stock are two other common ways to ensure that perishable food does not spoil or sit on the shelf past its expiration date. Food service directors interviewed by INFORM also noted the importance of teaching food service staff to distinguish between food that can still be served and food that is no longer servable.

Generating recipes on computer. A computer program that adjusts the quantity of ingredients to the number of portions being served can help food service operations to properly allocate ingredients per meal. This is a strategy employed at Western Michigan University, where a computer generates all recipes and provides the appropriate measurements for the anticipated number of servings. For example, if 523 portions of meat loaf are needed, the recipe adjusts for that number and minimizes ingredient waste.²²

Computers are being employed in a similar manner by retail food service establishments. The Boston Market restaurant chain, for example, uses a computer program that monitors food inventories. Every day, leftover food is weighed and the amount fed into the computer. The program then calculates the difference between used and remaining food inventories, providing a daily estimate of preparation and storage losses. The chain reports that food loss has declined from 5 percent to 1 percent since use of the inventory tracking program began.²³ This is a

strategy that campus food service operations might want to explore.

Incorporating unwanted ingredients into other recipes. Sometimes food that is unrepresentable on its own can still be used as a raw ingredient. At Florida International University, tomato ends considered unacceptable in salads are used in tomato sauce made from scratch.²⁴

Preventing Waste from Food Prepared but Not Served

Waste from food that is prepared but not served can be caused by fluctuations in the number of students dining at specific times and/or in the demand for particular items “The worst thing that can happen from a food server’s point of view is to run out of food,” says Rick Larson, food service director at James Madison University in Harrisonburg, Virginia.²⁵ To avoid this, the rule of thumb is to err on the side of overproduction. The challenge food service operations face is to keep overproduction to a minimum and, when it does occur, to make good use of the excess food.

Keeping track of food consumption patterns. The number of students taking meals is never completely random; over time, food service staff can see patterns in attendance and consumption. For example, students participating in a prepaid 21-meal-per-week plan do not usually show up for every meal. This missed-meal factor is routinely incorporated into food preparation planning and helps keep overproduction down. Manny Cunard, executive director of the National Association of College Auxiliary Services (NACAS), says the industry norm is to factor in a missed-meal percentage of about 35 percent for each meal prepared.²⁶

Records can also be kept of what foods are popular in particular seasons (for example, soups sell better in winter than in spring) and over time. At New York University, the food service facility uses such records in menu planning.

Forecasting consumption gets more difficult when trends not related to food per se take hold. For instance, flexible food service hours can lead to increased food waste when demand at particular times of day is not accurately assessed. Stan Hynoski, food service director at NYU, points out that if a dining room stays open late for lunch but only 15 students show up, a lot of unserved food may have to be discarded. Until attendance patterns are established, it is difficult to know how much to prepare.²⁷

Preparing smaller amounts (or batches) of food throughout the course of a meal.

Instead of estimating how many students at a given meal will want a particular entree and preparing it ahead of time, food service staff can prepare certain items over a shorter period as demand warrants. Although a good operation can come very close to predicting the number of servings needed of a given dish, batch cooking allows for even greater precision.²⁸ James Madison University’s Rick Larson says certain dishes are especially suited to batch cooking, such as fried fish fillets and other pre-prepared foods.

Contractors running franchise operations have a built-in incentive to avoid overproduction of food. The reason for this, according to Scott Parry, food service director at Florida International University, is that franchises like Burger King allow operators a 5 percent waste threshold, beyond which they must pay a royalty for every hamburger they purchase, whether or not it is sold.²⁹

Making smaller amounts of self-serve items available at one time. Food that is set out but not taken at buffets and salad bars may not be suitable to serve again. To avoid this, some operations place less food out at once and replenish it more often. A common example is the use of smaller containers in salad bars to prevent fresh produce from sitting out too long.

Serving leftovers at future meals. This obvious way of utilizing prepared but unserved food is, in practice, more complicated than it appears. In order for this food to be used in other meals, it must be maintained at the proper temperature and not have been left at room temperature for too long. Using leftovers also requires sufficient refrigerator and freezer space for storage.

Determining how unserved foods can be reused and whether there is enough of it can be a challenge. For this reason, menu planning is crucial to ensuring that a potential leftover can be incorporated into a future meal. Some items (such as vegetables) can be used in new dishes (such as soup) fairly readily. Others can simply be served as an additional entree on the following day. Food service directors say students tend to accept this as long as the dish is not presented as the main entree (some foods, such as lasagna, even have the reputation of tasting better on the second day).³⁰

Apart from food safety concerns, reuse of some foods may be precluded for reasons of taste or aesthetics. According to Rick Larson, many pre-prepared foods and foods used in batch cooking do not make good leftovers. Dishes that require longer preparation time, on the other hand, tend to hold up better when frozen and held in reserve.³¹

Donating edible food to charitable organizations such as homeless shelters and food banks. Besides helping to reduce the costs associated with disposal, donating uneaten food can foster good relations with the surrounding community and provide a tax savings for the food service operation. Carnegie Mellon University, the University of North Carolina at Charlotte, Harvard University, and Birmingham-Southern College in Birmingham, Alabama, are among the many diverse campuses with long-running programs that provide campus leftovers to charitable organizations.³²

Donating Leftover Food

Donating prepared and perishable food to hunger projects, senior citizen homes, and other charitable organizations has become an increasingly popular strategy for putting unserved food to good use. More than 100 programs throughout the United States accept prepared and perishable food from restaurants, hotels, cafeterias, bakeries, supermarkets, and wholesalers. Donees receive fresh produce, baked goods, daily restaurant specials, leftovers from catered events, and dairy products and other foods that the donor business or institution can no longer use. Campus kitchens are especially likely to have surplus perishables over holiday weekends or at the end of the semester.

Food Chain, a Kansas City-based national coalition of prepared and perishable food programs, will advise those interested in starting a food recovery program (1-800-845-3008). Guidance on setting up a program, as well as many examples, can also be found in *A Citizen's Guide to Food Recovery* (April 1997), published by the US Dept. of Agriculture Food Recovery and Gleaning Initiative (available at <http://www.usda.gov/news/pubs/gleaning/content.htm>). Information is also available at www.usda.gov/fcs/glean.htm.

While donation programs are relatively straightforward, food service directors suggest that the following considerations be kept in mind before committing to a specific arrangement:

- The principal responsibility of food service operations is serving students, not making donations. At the University of North Carolina at Charlotte, a student-operated food collection program ran into conflict with the dining facility's practice of incorporating leftovers into future meals.³³
- Adequate freezer space is needed to store food until it is picked up.
- Staff must be trained and available to prepare food for donation; this includes wrapping it properly, moving it from freezers to the loading dock, and ensuring that any reusable trays involved are returned to the facility.
- Recipient organizations should be reliable and easy to work with. According to Rick Larson of James Madison University, organizations have been known to turn down unneeded items or food not provided in sufficient quantities.³⁴

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Good Samaritan Food Donation Act

Recent legislation provides uniform national protection to citizens, businesses, and nonprofit organizations that in good faith donate, recover, and distribute excess food.

The Bill Emerson Good Samaritan Food Donation Act became law in October 1996. The act encourages the donation of food and grocery products to nonprofit organizations such as homeless shelters, soup kitchens, and churches for distribution to needy individuals.

The act states that, absent gross negligence or intentional misconduct, donors shall not be subject to civil or criminal liability arising from the nature, age, packaging, or condition of apparently wholesome food. It also establishes uniform definitions pertaining to the donation and distribution of nutritious foods and helps ensure that donated foods meet all quality and labeling standards of federal, state, and local laws and regulations.

Although the Bill Emerson Good Samaritan Food Donation Act takes precedence over the various state "Good Samaritan" statutes, it may not entirely replace them. The act creates a uniform minimum level of liability for donors nationwide. But state statutes may still provide protection beyond that guaranteed in the federal statute.³⁵

Preventing Plate Waste

All-you-can-eat programs offer students a reliable supply of prepaid food. They can also be extremely wasteful. Some campuses generate up to one pound of plate waste per person per meal in all-you-can-eat operations.³⁶ The reasons for plate waste are varied. They may include poor food quality, insufficient time for meals, bad judgment in selecting food, and wasteful habits fostered by the lack of an economic incentive to take less food. One thing students and food operators seem to agree on is that education and good communication can reduce the amount of food that is taken but not eaten, at least in the short term.

INFORM's interviews with food service personnel identified a number of strategies worth pursuing. They include education programs that make students more aware of the amount of food they are discarding, incentive programs that reward less wasteful behavior, and alterations in the way food is served.

Increasing awareness. At New York University, food service employees are trained to dispense smaller portions, and they are also encouraged to offer samples. This reduces the chance that students will take food they may not

like. Sam Hynoski, food service director at NYU, believes that better communication between students and staff can lead to less waste: “Students need to know that they can ask about anything at any time.”³⁷

Education and awareness programs on other campuses include the following:

- At the University of Oregon in Eugene, a student-run food waste awareness day featured students in Tyvek suits examining waste and asking their fellow students to explain their discards.³⁸
- As part of a program to reduce plate waste during all-you-can-eat dinners, food services at Columbia University created a poster showing plates of uneaten food with the message, “It’s all you can eat, not all you can throw away.”³⁹
- James Madison University periodically conducts waste stream analyses documenting the food thrown out by students, by weight, each day. Food service director Rick Larson says these campaigns are successful temporarily, but that students tend to resume their old bad habits if the message is not reinforced again and again.⁴⁰

Providing incentives. Some schools conduct surveys of student food preferences in the hope that giving students a chance to contribute to menu planning will reduce the amount of food they discard. At St. Mary’s College in Notre Dame, Indiana, students can even submit their own recipes. According to Kevin Kirwan, director of food services at St. Mary’s, this strategy has cut waste by 10 to 15 percent.⁴¹

When Doug Brown was food service director at Drew University, in Madison, New Jersey, he met with students periodically to discuss reasons for food waste and incentives to reduce it. One strategy was to serve steak dinners when students could demonstrate quantifiable reductions in

plate waste over a given period. He also tried to communicate the connection between food waste and higher operating costs and, ultimately, higher food plan prices.⁴²

Instituting different serving methods. One strategy for reducing plate waste, employed at the University of Connecticut at Storrs, is to serve one entree at a time.⁴³ Another is to use smaller plates. At Miami University in Oxford, Ohio, plates at the salad bar were reduced from 9 to 8 inches in diameter. Students can still go back for more food as many times as they want.⁴⁴

A third strategy, allowing students to serve themselves, is based on the idea that students not given a predefined serving will take only the amount they want and throw less away.⁴⁵ The jury seems to be out on this one: some schools have seen dramatic reductions in waste, while others actually report an increase.

At Rutgers University in New Brunswick, New Jersey, waste audits of the dining room revealed a 50 percent reduction in entree waste when students were given the opportunity to serve themselves. On the other hand, self-serve can increase waste if the tendency is to take more.⁴⁶ At the University of Connecticut, assistant food service director C. Dennis Pierce reports that while self-serve has led to a reduction in plate waste, it has also increased food consumption.⁴⁷ Therefore, although self-serve can reduce labor costs, it can be more expensive in terms of food costs.⁴⁸ (A related option, known as “self-prepare,” allows students to make some of their own foods, such as toast and waffles; this strategy has also been known to reduce plate waste.)⁴⁹

4 Preventing Food-Related Waste

Much of the food served on campus in take-out settings comes with single-use serviceware: disposable trays, plates, forks, knives, spoons, mugs, and cups. Plates, utensils, and cups—to say nothing of bottles, cans, napkins, foil, and food packaging—all figure prominently in food service waste audits. According to one estimate, the average American college student goes through about 500 disposable cups per year.⁵⁰

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The obvious solution is to replace disposable serviceware with reusables. But this requires a system to service the serviceware: to collect, wash, dry, and store it. And such a system is often more labor intensive than one that relies on single-use items.

Reusable serviceware is most suited to sit-down-only food operations—that is, those that provide no take-out option at all. In a few cases, sit-down operations that used disposables and then went back to reusables have realized significant savings. For example, the food service operation at Bowling Green State University, in Ohio, which serves about 14,000 people daily, made the switch from single-use to washable glasses. In one year, the cafeteria saved \$33,278, used 1.15 million fewer disposable cups, and avoided the generation of 26,450 pounds of waste. In this case and others like it, the avoided purchasing costs associated with eliminating disposable serviceware outweighed the added costs of water and electricity (to run one or more dishwashers) and labor (to wash and handle the dishes).⁵¹ However, cost savings from replacing single-use with reusable serviceware in a sit-down dining facility are in no way inevitable, and must be demonstrated on a case-by-case basis.

Incorporating reusables into a take-out cash operation, or even into one that combines sit-down and take-out options, presents particular challenges, including the following:

- Single-use serviceware is consistent with the delivery of fast take-out food and is considered to be more convenient. As Manny Cunard of the National Association of College Auxiliary Services notes, the problem with eliminating disposables is the risk that an efficient system already in place will be compromised.⁵² Rick Larson of James Madison University cautions that durable serviceware in a fast-paced, take-out operation will only succeed if it is part of a system at least as convenient for customers and staff as the one it replaces.

- Reusable serviceware is often precluded by the design of take-out cash operations, which usually cannot accommodate the necessary dish-washing and storage facilities. Stan Hynoski of NYU explains, “If you have 2000 people passing through in a two-hour period (from 12:00 to 2:00 PM), you need to have the washing capacity, space, and labor to handle washable plates, cups, and silverware. Most cash operations are not designed for this.”⁵³ At Harvard University, a program to reuse pizza boxes was considered but never implemented, because dining services lacked the necessary washing facilities to keep the boxes clean.⁵⁴
- The use of durable serviceware in a take-out operation can raise health issues. After some cafeterias at Harvard University instituted a reusable mug program, concern about contact between dispensing equipment and unwashed cups led to the replacement of paddle soda dispensers with a push-button system.⁵⁵ At James Madison University, a successful reusable take-out container pilot program (see case study on pp. 18 to 19) was discontinued because of local health department concerns that contact between serving utensils and unwashed containers presented health risks. The school is now exploring the possibility of having dining services wash the containers instead of depending on students to do this themselves.
- Theft is a big problem associated with the use of reusable cups and utensils, even in sit-down operations. Frank Kora at Florida Atlantic University says that a certain amount of loss due to theft is factored into operating costs.⁵⁶ Schools have dealt with this problem in various ways, including buy-backs, “amnesty” days, and dormitory collection bins.

- Food service operators are sometimes limited by the constraints of franchise operations. The shift to branded concepts (such as Taco Bell and Pizza Hut) common on many campuses limits the possibilities for reducing packaging waste. These operations all have a signature look and type of service that must be maintained. In most cases, this involves using packaging (e.g., boxes and paperboard french fry holders) instead of reusable plates. As Rick Larson points out, when a campus chooses a franchise brand such as Taco Bell, it buys into a system, and material meant to be thrown away is part of what makes that system work.⁵⁷

In contrast, Aramark runs a food court at Cleveland State University that, while offering various types of fast food, does not involve franchises. Because the operation is controlled by the contractor, there are more opportunities to reduce disposable packaging. For example, burgers and french fries ordered together are served unwrapped on a plate (albeit a disposable one), not in a wrapper and paperboard holder. For Aramark, this is a way to contain paper costs that would not be available with a franchise operation.⁵⁸

Despite these obstacles, some food service operations have found ways to incorporate reusables into cash operations with seating areas, such as food courts. At Florida International University, sandwiches are served in reusable wicker baskets that students leave on the table at the end of the meal. Food services director Scott Parry estimates that the baskets are reused an average of 13 times each and save about \$4000 per semester.⁵⁹

Reusable Cups and Mugs

One way to incorporate reusable items into take-out operations is for students to bring their own reusable containers to meals. The most common programs, found on hundreds of campuses around the country, concentrate on reusable cups and mugs. These are either issued to incoming students or sold at a nominal fee. As an incentive, beverage discounts are often offered when the reusable mug or cup is used. Among the benefits documented on a number of campuses are reduced waste disposal and cup purchasing costs.

As part of the CUPS (Cannot Use Paper or Styrofoam) program at the University of Colorado in Boulder, incoming students receive reusable cups bearing the school logo in their welcome kits. When they use the cups to buy beverages at university food services or at participating off-campus establishments, they get a discount. Cups can be rinsed out at washing stations in the student union building. According to campus recycling coordinator Jack DeBell, the CUPS program is one of the most visible waste reduction initiatives on campus. He estimates that cup waste has dropped by about 30 percent since the program began.⁶⁰

At the University of Wyoming in Laramie, campus food services, the university recycling office, and the student government came up with a similar plan. In January 1992, food services began selling 22-ounce mugs for \$2.09 each and offering refills of coffee or soda at 25 to 30 cents off to students who used them. Within six months, they had sold 2400 mugs and 16,456 refills. Food services estimated that the program saved \$950 in paper purchasing costs and enabled the university to send 185 fewer pounds of waste to the landfill. A portion of revenues from sales of the mug was set aside for future campus recycling efforts.⁶¹

Once a reusable cup program is in place it is important to continue promoting it and educating students about it. At Florida International University, the current mug program offers a 20-cent discount (79 cents vs. 99 cents a cup) on refills of soda purchased in a reusable mug. At the beginning of the 1995/96 semester, the program was promoted extensively. During the first week of school, sales were nearly twice as high (8 cases vs. 4 to 5 cases) as during all of the previous year, when the mugs were not promoted. During finals week the program offered a 25-cent discount on all refills purchased in a reusable mug.⁶²

Frank Kora of Florida Atlantic University stresses that reusable cup programs will only work with sustained educational support from many sectors of the campus. He recommends publicizing environmental issues, such as waste prevention, in student newspapers and on posters displayed around campus. Messages on video monitors located in cafeterias and other common areas can be used to reinforce specific programs such as reusable mugs. But Kora stresses that primary support for any environmental initiative must come from students and other committed participants.⁶³

CASE STUDY: Reusable Take-out Container Pilot Program, James Madison University⁶⁴

Reusable cup programs have generally been successful at colleges and universities across the country. Very few campuses, however, have attempted to use other types of reusable containers in their take-out operations.

An exception is James Madison University, in Harrisonburg, Virginia,

where an environmental task force (comprising students and representatives from dining services, the recycling department, the administration, and the athletic department) has been experimenting with a reusable container to replace the single-use polystyrene containers known as “clamshells” for take-out. While the program has encountered a number of obstacles, including objections from the local health department and problems with the container itself, staff and students are enthusiastic about the program, which they hope will become a model for campus take-out operations around the country.

During the program’s first test period, the task force experimented with a washable, resealable, three-compartment plastic container which students used to carry out a variety of foods. As in many reusable cup programs, each student was responsible for washing his or her own container and using it again when purchasing take-out food. Although surveys showed that the program was popular with students and the container convenient to use, the pilot was cut short by local health department concerns that contact between serving utensils and unwashed containers could present a health risk.

The pilot program is now entering a second testing phase. Students still purchase take-out food in a reusable container, but instead of washing it themselves they bring it back the next time and receive a washed container in exchange. Students on meal plans receive a container free of charge but are responsible for buying a new one if they lose it. Dining services collects, washes, stores, and redistributes the containers.

Food services director Rick Larson is optimistic about the new pilot but describes a number of obstacles that must be overcome if the program is to succeed:

- **Finding the right container.** The original container worked well for take-out but was not compatible with the existing dishwashing system—it took too long to dry. The current pilot is experimenting with three alternative container types. The optimal design will have to seal properly, accommodate a wide variety of foods, and fit into student knapsacks. For the convenience of dining service staff, it must also be stackable and dry quickly.
- **Determining the right container replacement cost.** The reusable container will not be mandatory. To encourage participation in the program, the replacement cost must be affordable without being so low that students have little incentive to hold onto and return their containers.
- **Designing a system that fits into current operations.** To ensure that the container project runs smoothly alongside the existing take-out operation, the following questions must be addressed: Where will the dirty containers be stored? Who will have the responsibility of moving, storing, and redistributing the empty containers? How can overuse of the dishwasher used for sit-down meals be avoided? Larson observes that the answers will probably mean an increase in somebody’s workload. For the new system to work, he says, “It has to be as painless as possible. If it’s hard for workers to do, they’ll resist it.”

For Larson, the reusable take-out container program is one step toward his long-term goal of eliminating all single-use items from food service operations on the James Madison campus. While he is primarily motivated by environmental concerns, he believes that a 100 percent reusable system can also be economical if the right systems are developed and put in place. “It takes money to develop new systems,” he says. “It involves new technologies (simple or complex), new equipment, new types of containers. But if we can run fast-food kiosks out of spaces less than 50-foot-square, we can do this.”

Reducing Napkin Use

In both sit-down and take-out settings where piles of napkins are set out for the taking, these often become a large component of the food service waste stream—as much as 10 percent in some operations. And napkins are not cheap. At about \$15 a case, campus food operators often find they are spending thousands of dollars per semester on napkin purchases alone. The ideal solution is washable cloth napkins. If this is not practical, however, or if theft is a problem, there is one simple strategy in particular that can be very effective in reducing overuse of napkins: moving them to dispensers at individual dining tables.

At the University of Michigan, a study of two campus dining rooms showed that when students took napkins from dispensers at the beginning of the cafeteria line, each used an average of 3.3 napkins at every meal. In the dining room where napkin dispensers were placed on tables, each person used an average of 1.4 napkins per meal.⁶⁵ Similarly, at Florida Atlantic University, placing napkins in dispensers on dining tables reduced napkin consumption by 400 cases per year, saving about \$6000 in purchasing costs. Food services director Frank Kora says that most paper companies will provide dispensers free of charge with napkin orders.⁶⁶

This strategy has brought positive results at many other campuses, but its benefits are not always so clear-cut. For instance, if the napkins are packed too tightly in the dispensers, customers can get frustrated and pull out more than they need. There may also be labor costs to consider: How much time does it take for staff to refill the dispensers? Are the dispensers designed for easy filling and removal? Another issue is aesthetics. Stan Hynoski, at New York University, says that table dispensers are inappropriate in restaurant-style dining rooms; instead, he would place them in

common areas, such as on tables or counters located off to the side. Finally, there's the issue of napkin quality. The cheaper (i.e., the thinner) the napkin, the greater the customers' tendency to take more than they need (the phenomenon known as "pizza parlor syndrome").⁶⁷

C. Dennis Pierce, assistant food service director at the University of Connecticut at Storrs, believes that decisions regarding napkins should be based on the functional and aesthetic conditions of individual dining halls. In general, he says, operations that have switched from laying out loose napkins to placing them on tables in baskets have realized a 30 to 40 percent reduction in napkin use.⁶⁸

In some cases, educating staff has had similar results. At Florida International University, standard practice at the on-campus grill was to place a handful of napkins on each student's tray. After serving staff were instructed to give only two napkins per tray, napkin use fell by 70 percent.⁶⁹

Reducing Transport Packaging

Other opportunities to cut costs and reduce waste exist both behind the scenes and in eating areas themselves. Often these involve reductions in packaging, which in food service operations is typically the largest category of waste after food.

Half of all packaging waste in the United States is made up of the pails, drums, pallets, loose fill, and corrugated cardboard boxes involved in the transport of products. On campuses, the most common transport container is the corrugated box. At James Madison University's largest dining hall, corrugated packaging accounts for approximately 10.4 percent of the facility's waste stream.

Many campuses have implemented successful recycling programs for corrugated cardboard as a

way to reduce both waste and disposal costs. But it is also possible to reduce the amount of transport packaging received by food service operations in the first place, and to cut the associated costs of labor, handling, storage, and replacing damaged products. This can be a good option because not all corrugated packaging can be easily recycled—for example, very few programs recycle the waxed corrugated cardboard typically used to ship produce.

One means of reducing transport packaging is reusable shipping containers. At Miami University in Ohio, meals are prepared from bulk ingredients in a central food preparation unit. Individual servings are then shipped to the campus's eight dining halls and other food service operations in reusable plastic totes. This system was developed primarily to ensure freshness, but it has also reduced the use of individual cardboard boxes and wax-paper separators.

For products shipped from off campus, reusable shipping containers work best when vendors make frequent deliveries and are located close to the campus. This keeps down trucking costs and encourages the rapid return of containers back to the vendor. Reusable containers are already employed by many local dairies and bakeries, which deliver milk in reusable plastic or wooden crates and bread on reusable plastic trays. For food service operations that order produce from local farmers, there may be similar opportunities to use these containers or to send still usable disposable containers back for reuse.

Delivering goods in bulk is another way to eliminate single-use packaging. On campuses with central processing facilities, flour can be pumped directly from delivery trucks into silos instead of being delivered in the usual 100-pound bags. Besides reducing packaging waste, this can cut the storage costs involved in maintaining inventories of bagged flour.

A more common example of bulk dispensing in campus food operations—especially in sit-down settings—is milk delivered in 5-gallon bags in reusable plastic crates rather than in single one-gallon disposable containers.

Reducing Other Types of Packaging

On a smaller scale, buying sugar, sweeteners, salt and pepper, and other condiments in bulk likewise reduces packaging waste by increasing the ratio of food to packaging material.

Bulk buying can also cut procurement costs. At Cleveland State University, replacing single-serve packages of milk and condiments with dispensers located in common areas of the food court has helped Aramark save on purchasing costs. At Florida Atlantic University, Frank Kora calculates that over \$100 worth of packaged condiments (mostly ketchup) are used each day on campus, adding up to about \$19,000 a year. He estimates that switching to bulk dispensers would cut costs by about one-fifth.⁷⁰

Another way that food service operators have reduced costs associated with throwaway packaging and other food-related waste is to ask customers whether they need single-use packaging or are eating on premises. Charging for packaging can also provide an incentive to choose reusables. At the College of Staten Island, in New York City, a fee on polystyrene clamshells discourages their use by customers eating on premises. Over the course of a year, this measure reduced the purchasing costs associated with buying clamshells by \$2400.⁷¹

TABLE 2
**Strategies for Preventing Food-Related Waste in
Campus Food Service Operations**

Single-use Serveware

- Replace disposable trays, plates, cups, and utensils with reusables.
- Replace some disposable items with reusables, such as wicker baskets instead of disposable plates.
- Issue/sell reusable mugs to students and provide incentives to use them.
- Investigate other types of reusable take-out containers.

Paper Napkins

- Replace with cloth napkins.
- Provide dispensers instead of piles of loose napkins.
- Move dispensers from common areas to individual dining tables.

Packaging

- Investigate reusable shipping containers, especially for frequent deliveries from nearby vendors.
- Have goods such as milk and flour delivered in bulk.
- Buy sugar, sweeteners, salt, pepper, and other condiments in bulk instead of in single-serve packages.
- Replace single-serve packages of milk and condiments with dispensers located in common areas.
- Instead of providing single-use packaging automatically, ask customers whether they need it or are eating on premises.
- Consider charging for packaging such as clamshells to discourage their use by customers eating on premises.

5 CONCLUSION: Advancing Waste Prevention in Campus Food Service Operations

A comprehensive waste prevention program does not implement itself. Putting together an effective program requires the involvement of many people in many parts of the campus.

What Food Service Directors Can Do

Food service directors are in a position to make purchasing and operational changes that encourage more efficient materials use. They can work with vendors and food service staff to reduce packaging and food waste, and with representatives of the campus community to implement and promote waste prevention measures. Specifically, food service directors can:

- Establish a baseline of purchasing practices, materials use patterns, and waste generation trends and use it to identify waste prevention opportunities, implement programs, and measure progress.
- Work with vendors to explore opportunities for waste prevention.
- Continually educate food service staff to reduce overproduction and distinguish between food that is servable, food that is reusable, and food that should be discarded.
- Form an environmental committee comprising food service staff, campus waste management staff, school administrators, and students to recommend and implement waste prevention initiatives.
- Work closely with the campus waste prevention/recycling coordinator to implement and publicize food waste prevention programs.
- Meet with students and solicit their ideas on the reasons for food waste and ways to prevent it.
- Provide educational materials on waste prevention (e.g., posters and pamphlets) in dining halls.

What Auxiliary Services Can Do

Auxiliary services has the power to promote waste prevention because it usually controls the contractual relationship with food service providers. It can:

- Incorporate recycling specifications into contracts and write in language that stipulates waste prevention measures such as the use of durable serviceware.
- Require that new or renovated food service facilities include storage space for reusables and space for dishwashing equipment.

- Work with campus food service and environmental committees to support and publicize waste prevention efforts.
- Pass waste removal costs at dining facilities back to the food service contractor.

What Trade Associations and Food Service Contractors Can Do

Trade associations such as the National Association of College and University Food Services (NACUFS) and the National Association of College Auxiliary Services (NACAS) can play an important role in supporting campus waste prevention and educating their constituents through newsletters, journal articles, conferences, handbooks, and web sites. Similarly, large contractors can disseminate waste prevention strategies and examples of their successful implementation and educate food service directors through manuals and training videos. Possible steps are to:

- Publish a best practices guide for materials use and waste prevention.
- Help individual food service operations to calculate savings from waste prevention and publicize their experiences.
- Form waste prevention committees to share ideas and experiences.
- Publish articles and case studies on waste prevention in trade magazines or over the Internet.

What Students Can Do

Ultimately, food service directors respond to the needs and demands of students. Students are therefore well poised to work with food service personnel to incorporate environmental goals into day-to-day operations. They can also organize and educate their peers to use materials more efficiently and solicit support from faculty and the school's administration. Students can:

- Raise the awareness of peers through the campus newspaper, radio station, posters, or other exhibits about ways to prevent waste.
- Explore opportunities for implementing reusable mug, food donation, and other programs.
- Voice their opinions and concerns to dining service staff and management.
- Form environmental committees that work with food service and other staff to prevent waste campuswide.

NOTES

- 1 Linda Scott Kantor, Kathryn Lipton, Alden Manchester, and Victor Oliveira, "Estimating and Addressing America's Food Losses," *Food Review*, Vol. 20, No. 1 (Washington, DC: Economic Research Service/USDA, January 1997), 7.
- 2 *Ibid.*, 4.
- 3 David Saphire, *Making Less Garbage on Campus: A Hands-On Guide* (New York: INFORM, Inc., 1995), 7; *Barron's Profile of American Colleges 1998*, 22d ed. (Hauppauge, NY: Barron's Educational Series, Inc., 1997).
- 4 Sarah Hammond Creighton, *Greening the Ivory Tower: Improving the Environmental Track Record of Universities, Colleges, and Other Institutions* (Cambridge, MA: MIT Press, 1998), 180.
- 5 For information on energy and water conservation in dining services, as well as on waste prevention in other areas of the campus, see Sarah Hammond Creighton, *Greening the Ivory Tower: Improving the Environmental Track Record of Universities, Colleges, and Other Institutions* (Cambridge, MA: MIT Press, 1998).
- 6 Telephone interview, Frank Kora, DAKA Food Service, Director of Food Services, Florida Atlantic University, Boca Raton, June 1997.
- 7 "Mom's recipes, 'display cooking' and such aim to enliven campus food," *Wall Street Journal*, August 21, 1997, 1.
- 8 Julian Keniry, *ECODEMIA: Campus Environmental Stewardship at the Turn of the 21st Century* (Washington, DC: National Wildlife Federation, 1995), 103.
- 9 Saphire, *Making Less Garbage on Campus*, 31.
- 10 Jack W. Cushman and Carol W. Shanklin, "Trends in the Convenience Store Industry: Implications for Non-commercial Food Service Operations," *Journal of College and University Food Service*, Vol. 2, No. 4 (1996), 12-13.
- 11 *Ibid.*, 12.
- 12 Keniry, *ECODEMIA*, 103.
- 13 Telephone interview, Marshall Sherman, Director of Risk Management, Campus Services, Aramark Inc., November 14, 1997.
- 14 Telephone interview, Frank Kora, Florida Atlantic University, October 31, 1997.
- 15 Telephone interview, Rick Larson, Marriott Inc., Director of Food Services, James Madison University, Harrisonburg, VA, November 6, 1997.
- 16 Telephone interview, Joanna Truitt, Director of Contract Administration, Cleveland State University, Cleveland, OH, February 25, 1998.
- 17 Telephone interview, C. Dennis Pierce, Assistant Food Service Director, University of Connecticut, Storrs, November 14, 1997.
- 18 Composting is the biological process by which organic matter breaks down into a rich material that greatly enriches soil. Composting programs are increasingly being implemented on college campuses as a way to avoid the costs of disposing of food waste.
- 19 Kantor, *et al.*, "Estimating and Addressing America's Food Losses," 9. There may be other tradeoffs associated with centralized production of food, such as food quality and labor issues. However, discussion of these is beyond the scope of this article.
- 20 *Ibid.*
- 21 Telephone interview, Frank Kora, Florida Atlantic University, October 31, 1997.
- 22 Personal communication, Carolyn Noack, Recycling Coordinator, Western Michigan University, Kalamazoo, June 12, 1997.
- 23 Kantor, *et al.*, "Estimating and Addressing America's Food Losses," 9.
- 24 Interview, Scott Parry, Aramark, Inc., Director of Food Services, Florida International University, North Miami, October 1996.
- 25 Telephone interview, Rick Larson, James Madison University, November 25, 1997.
- 26 Telephone interview, Manny Cunard, Executive Director, National Association of College Auxiliary Services (NACAS), Staunton, VA, November 13, 1997.
- 27 Interview, Stan Hynoski, Aramark Inc., Director of Food Services, New York University, New York, April 29, 1997.
- 28 Telephone interview, Rick Larson, James Madison University, November 13, 1997.
- 29 Interview, Scott Parry, Florida International University.
- 30 Interview, Stan Hynoski, New York University.

- 31 Telephone interview, Rick Larson, James Madison University, November 13, 1997.
- 32 Keniry, *ECODEMIA*, 99.
- 33 *Ibid.*, 100.
- 34 Telephone interview, Rick Larson, James Madison University, November 13, 1997.
- 35 US Dept. of Agriculture, "Food Recovery and Gleaning Initiative," fact sheet (available on the Internet at <http://www.usda.gov/fcs/ogapi/foodre-1.htm>), pp. 2-3.
- 36 Sapphire, *Making Less Garbage on Campus*, 27.
- 37 Interview, Stan Hynoski, New York University.
- 38 Personal correspondence, Karyn Kaplan, Recycling Program Manager, University of Oregon, Eugene, October 31, 1994.
- 39 Sapphire, *Making Less Garbage on Campus*, 27.
- 40 Telephone interview, Rick Larson, James Madison University, November 13, 1997.
- 41 "Mom's recipes, 'display cooking' and such," *Wall Street Journal*, 1.
- 42 Interview, Doug Brown, DAKA Food Service, former Director of Food Services, Drew University, Madison, NJ, February 1997. A frequently cited reason for food waste, in addition to poor quality, poor judgment, time constraints, and overly large portions, was the feeling on the part of students that, since the food is already paid for, they should be able to take as much as they want.
- 43 Telephone interview, C. Dennis Pierce, University of Connecticut.
- 44 Sapphire, *Making Less Garbage on Campus*, 27.
- 45 Personal communication, Carolyn Noack, Western Michigan University.
- 46 Interview, Stan Hynoski, New York University.
- 47 Telephone interview, C. Dennis Pierce, University of Connecticut.
- 48 Telephone interview, Rick Larson, James Madison University, November 13, 1997.
- 49 Telephone interview, Manny Cunard, NACAS.
- 50 Heinz Family Foundation, *Blueprint for a Green Campus: The Campus Earth Summit Initiatives for Higher Education* (Washington, DC: Heinz Family Foundation, January 1995), 26.
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- 52 Telephone interview, Manny Cunard, NACAS.
- 53 Interview, Stan Hynoski, New York University.
- 54 Telephone interview, Rob Gogan, Waste Manager, Harvard University Facilities, Cambridge, MA, September 24, 1997.
- 55 *Ibid.*
- 56 Telephone interview, Frank Kora, Florida Atlantic University, October 31, 1997.
- 57 Telephone interview, Rick Larson, James Madison University, November 25, 1997.
- 58 Interview, Klaus Meyer, Aramark, Inc., Assistant Food Director, Cleveland State University, Cleveland, OH, February 12, 1998.
- 59 Interview, Scott Parry, Florida International University.
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- 63 Telephone interview, Frank Kora, Florida Atlantic University, October 31, 1997.
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