

How to Reduce Food Waste

A Guide for Businesses and Institutions in Massachusetts

You may be surprised at the large percentage of food waste that can be prevented altogether by simply streamlining food purchasing and production operations. The U.S. Environmental Protection Agency (EPA) reports that up to **10 percent of food purchased** by commercial entities is thrown out before even reaching a plate, after which the average diner leaves about 1/5 of food uneaten. In addition, total food waste losses in America's commercial and industrial sectors add up to approximately **30 to 40 billion dollars annually**. This data suggests there is a large, untapped potential for cost savings and other operational benefits through food waste source reduction, such as:

- **Cost savings** from reduced food purchasing costs and disposal fees
- Improved operational and labor **efficiency**
- **Creative opportunities** in menu planning and food preparation

This guidance introduces several actions you can take to reduce food waste at your facility and highlights successful examples in place at several businesses and institutions.

Source Reduction Methods

The following actions can be implemented at your facility to reduce both pre-consumer and post-consumer food waste. Tips and case studies are provided to illustrate a number of source reduction methods, and external resources and tools are provided at the bottom of the page for more in depth information.

Pre-Consumer Waste – In the Kitchen

- Tailor food purchasing** quantities and shipment timing with fluctuations in your operation's weekly and seasonal needs
- Store and handle** food using proper techniques and conditions to lengthen product life

TIP

Use these basic FDA guidelines for food storage and handling:

- Purchase food products prior to the "sell-by" or expiration dates
- Follow the First In, First Out rule by storing new product behind existing product
- Refrigerators should be kept at 40° F (4° C) and freezers at 0° F (-18° C)
- Keep meat and poultry in its package until just before using
- If freezing meat and poultry in its original package longer than 2 months, overwrap these packages with airtight heavy-duty foil, plastic wrap, or freezer paper, or place the package inside a plastic bag

The FDA lists recommended storage time limits for a variety of food products [here](#).

- Use just-in-time cooking methods** by preparing food in smaller batches to reduce the amount of leftovers at the end of the day

CASE STUDY: BRIDGEWATER STATE UNIVERSITY

Bridgewater State University (BSU) began measuring all pre-consumer food waste in October 2013 from one of four dining halls serving about 2,700 students daily. After analyzing the baseline waste data, chefs focused on reducing and repurposing surplus food in the kitchen. Using **just-in-time cooking** methods, food waste was reduced considerably by cooking food in smaller batches during periods of slower demand. For example, the amount of food prepped for serving trays in cafeterias was halved nearing the end of meal times.

As of March 2014, **food waste costs were reduced by 80 percent from \$1,700 per week to \$349 per week** due to a combination of reduction strategies.

- Repurpose ingredients** and leftovers into new dishes
- Cook using stem-to-root and nose-to-tail** techniques

TIP

Before discarding nutritious and flavorful meat or vegetable trimmings, consider alternative uses, such as soups, stocks, and salads. And don't be afraid to get creative!

- Invite a creative and participatory culture shift** around food waste reduction

TIP

All staff handling food and food waste play an important role in the continued success of any source reduction strategy. It is important to create a program with a regular training component as well as a way for employees to provide feedback and actively participate in the program's continual improvement.

Post-Consumer Waste – On the Plate

- Offer flexible portion options**
- Switch to trayless service** in cafeteria-style dining facilities to encourage smaller portioning

TIP

A switch to trayless dining in college cafeterias has been shown to reduce consumer food waste by 25 to 30 percent, according to aggregated national data. By encouraging guests to pick up less food at one time and providing educational messaging on the impacts of food waste, trayless dining policies have led to significant decreases in college and university food waste.

- ❑ **Adjust menu offerings** to reduce frequently uneaten or wasted foods
- ❑ **Provide interactive guest education** on food waste

CASE STUDY: BON APPÉTIT MANAGEMENT COMPANY

Bon Appétit Management Company, a food-service management company, hosts a number of **educational programs** focused on waste, such as the Clean Your Plate campaign and Low Carbon Diet Day, which remind guests on the negative impacts food waste has on the environment and local communities. Beginning in 2008, Bon Appétit cafés celebrated the first Low Carbon Diet Day by hosting educational programs on the impacts of climate change and launching an interactive educational website called [Eat Low Carbon](#).

On Low Carbon Diet Day in 2013, the chefs at MIT performed a culinary demonstration of a **stem-to-root** recipe for edamame burgers, which you can learn how to make [here](#). The goal of these educational programs is to increase guest awareness of the environmental and social impacts of food waste.

Tracking

Tracking food waste is an important tool in understanding the timing and reasons for wasted food at your facility. By tracking your food waste, you can gain a better understanding of how waste currently impacts your bottom line and pinpoint the source reduction methods that will generate the largest positive results in your kitchen. The goal of waste tracking is to reduce the economic, environmental, and operational costs of food waste by addressing excess food purchases and overproduction in the kitchen.

CASE STUDY: UNIVERSITY OF MASSACHUSETTS AMHERST

The University of Massachusetts (UMass) Amherst serves about 45,000 meals per day from 4 dining halls and 15 retail operations on campus, making it one of the largest collegiate dining operations in the country. A [LeanPath](#) tracking system was installed in Spring 2012 and has been embraced by unit managers. Food waste tracking is utilized to pinpoint opportunities for food waste reduction by using **just-in-time cooking** preparation, **forecasting customer demand**, creating a **participatory food reduction culture** for staff, and **providing diner education** on plate waste.

UMass Amherst estimates a **cost savings of approximately \$300,000 annually** due to source reduction methods alone. UMass Amherst currently has LeanPath systems installed in two dining halls, and is considering adding additional units on campus.

For a simplified version of food waste tracking, EPA provides a free [Waste Logbook](#) and [Waste Audit Tool](#) that you can print out and use to start tracking and measuring your food waste today. You can record information such as time, food type, reason for disposal, and amount of food wasted. The logbook can be placed near disposal areas and should be filled out by employees any time they are disposing of food waste. If you decide to upgrade from pen and paper to a more high-tech tracking technology, there are several

Automated options available, including Trim Trax and LeanPath. These technologies are being used by a variety of businesses to track food waste and allow chefs to consistently measure how much waste is produced in their kitchens and to take steps to lower that amount.

CASE STUDY: INTEL CORPORATION

Two dining facilities at Intel Corporation offices tracked all pre-consumer food waste for one year using a LeanPath waste tracking system. Employees weighed food waste at scales positioned near disposal points in the kitchens, with total weighing time taking up less than 4 minutes per employee per week. After analyzing the baseline waste data, chefs focused on reducing and repurposing surplus food in the kitchen.

Over the course of one year, **pre-consumer food waste was reduced by 47 percent and food costs per meal decreased by 13 percent.**

Additional Resources

- EPA's [Toolkit for Reducing Wasted Food & Packaging: A Guide for Food Services and Restaurants](#)
- EPA's [Food Waste Audit Tool](#) (Excel)
- EPA's [Waste Logbook](#)
- FDA's [Food Storage guidance](#)
- Foodsafety.gov's [Food Storage and prep guidance](#)