

Food Waste

(adapted from <http://www.sustainabletable.org/5664/food-waste>)

America wastes roughly 40 percent of its food - the equivalent of about \$165 billion per year. Food is wasted at every point along the food chain: on farms and fishing boats; during processing and distribution; in retail stores and restaurants; at home; and after it enters our trashcans. Of the estimated 133 billion pounds of food that goes to waste every year, much of it is perfectly edible and nutritious. At a time when one in six Americans are food insecure, reducing food loss by just 25 percent would be enough to feed more than 25 million people every year.

What is Food Waste? USDA's Economic Research Service (ERS) defines food waste as "the component of food loss that occurs when an edible item goes unconsumed, as in food discarded by retailers due to color or appearance and plate waste by consumers." Food waste includes the half-eaten meal left on the plate at a restaurant, food scraps from preparing a meal at home and the rotten milk a family pours down the drain.

Where is Food Wasted?

Farms

Food production in the US uses 10 percent of the total energy budget, 50 percent of all land and 80 percent of all freshwater consumed. Yet six billion pounds of fresh produce is left to rot in the fields every year. Food waste occurs on farms for a variety of reasons. First, to hedge against pests and weather, farmers often plant more than consumers demand. Second, food may not be harvested because of damage by weather, pests and disease. Third, if the price of produce on the market is lower than the cost of transportation and labor, sometimes farmers will leave their crops unharvested. Finally, in recent years, farmers have been forced to leave food in the fields due to labor shortages caused by changing immigration laws.

Fishing Boats

A recent study by the Food and Agriculture Organization of the United Nations (FAO) estimates that 8 percent of the fish caught in the world's marine fisheries is discarded - about 7.3 million tons per year. Discards are the portion of the catch of fish that are not retained and are often returned dead or dying back into the water. Other studies estimate that 40-60 percent of the fish caught by European trawlers in the North Sea are discarded at sea. A recent US study found that 16-32 percent of bycatch are thrown away by American commercial fishing boats. Tropical shrimp trawling has the highest discard rate and accounts for over 27 percent of total estimated discards. Discarding throws the ocean's ecosystem off balance by increasing food for scavengers and killing large numbers of target and non-target fish species.

Packing Houses

Farmers throw away a third of their harvests due to strict retailer and consumer cosmetic standards that include specific criteria for color, size, weight, blemish level and sugar content. Some off-grade products go to suppliers for processing, but even if they are willing to accept the produce, the supplier must be close enough to justify transportation costs and able to accept large volumes of produce. These cost barriers make it particularly challenging for small and midsize farmers to get these secondary items to processors.

Manufacturing Facilities

A study by the Grocery Manufacturers Association estimated that in 2011 the US food manufacturing sector generated 44.3 billion pounds of food waste, 73 percent of which ended up as animal feed. Most waste at manufacturing and processing facilities is generated while trimming off edible portions such as skin, fat, crusts and peels from food. Overproduction, product damage and technical problems at manufacturing facilities can cause large quantities of food waste as well.

Transportation and Distribution Networks

During food transportation and distribution, perishable foods are especially vulnerable to loss, especially in developing nations where access to adequate and reliable refrigeration, infrastructure and transportation can be a challenge. Food waste can occur when produce spoils from inconsistent refrigeration or when it is forced to sit too long at loading docks. A larger problem that occurs during this stage is the rejection of perishable

food shipments, which are thrown out if another buyer cannot be found quickly. Even if these goods make it to market, they are often wasted anyway because they have shorter shelf lives. Sometimes these rejected shipments are donated to food rescue organizations but often the quantities are so large it is difficult for them to accept the food.

Retail Businesses

An estimated 43 billion pounds of food were wasted in US retail stores in 2008. This is particularly disconcerting given that in 2013, 14.3 percent of American households were food insecure. Most of the loss in retail operations is in perishables including baked goods, produce, meat, seafood and prepared meals. The USDA estimates that supermarkets lose \$15 billion annually in unsold fruit and vegetables alone.

Unfortunately, wasteful practices in the retail industry are often viewed as good business strategies. Some of the main drivers for food loss at retail stores include: overstocked product displays, expectation of cosmetic perfection, oversized packages, the availability of prepared food until closing, expired "sell by" dates, damaged goods, outdated seasonal items, over purchasing of unpopular foods and low staffing. Currently, only 10 percent of edible wasted food is recovered each year in the US. Barriers to recovering food are liability concerns, distribution and storage logistics, and funds needed for gleaning, collecting, packaging and distribution. The Good Samaritan Food Donation Act, signed into law in 1996, provides legal liability protection for food donors and recipients and tax benefits for participating businesses. However, awareness about this law and trust in the protections it offers remains low.

Restaurants

Approximately four to ten percent of food purchased by restaurants is wasted before reaching the consumer. Factors that contribute to food waste at restaurants include oversized portions, inflexibility of chain store management and extensive menu choices. According to the Cornell University Food and Brand Lab, on average, diners leave 17 percent of their meals uneaten and 55 percent of edible leftovers are left at the restaurant. This is partly due to the fact that portion sizes have increased significantly over the past 30 years, often being two to eight times larger than USDA or FDA standard servings. Kitchen culture and staff behavior such as over-preparation of food, improper ingredient storage and failure to use food scraps and trimmings can also contribute to food loss. All-you-can-eat buffets are particularly wasteful since extra food cannot legally be re-used or donated due to health code restrictions. The common practice of keeping buffets fully stocked during business hours (rather than allowing items to run out near closing) creates even more waste.

Households

Approximately 40-50 percent of food waste and 51-63 percent of seafood waste in the US happens at the consumer level. In the US, an average family of four wastes 1,160 pounds of food annually, (about 25 percent of the food they buy), costing them \$1,365 to \$2,275 per year. In terms of total mass, fresh fruits and vegetables account for the largest losses at the consumer level (28 percent), followed by dairy (17 percent), meat (12 percent) and seafood (33 percent). Major contributors to household food waste include:

1. Food Spoilage - About two-thirds of food waste at home is due to food not being used before it goes bad. Food spoilage at home occurs due to improper storage, lack of visibility in refrigerators, partially used ingredients and misjudged food needs.
2. Over-Preparing - The remaining third of household food waste is the result of people cooking or serving too much food. Cooking portions have increased over time and large meals often include more food than we can finish. The Cornell Food and Brand lab found that since 2006, serving sizes in the classic cookbook *The Joy of Cooking* have increased 36 percent. In addition, people often forget to eat leftovers and end up throwing them away.
3. Date Label Confusion - According to a [2013 study](#) by Harvard Law School and the Natural Resources Defense Council (NRDC), an estimated 90 percent of Americans prematurely discard food due to confusion over the meaning of date labels (e.g., "sell by," "best if used by," "expires," etc.). In reality, "sell by" and "use by" dates are not federally regulated and only serve as manufacturer suggestions for peak quality. Research on date labeling from the UK suggests that standardizing food date labeling and clarifying its meaning to the public could reduce household food waste by as much as 20 percent.
4. Overbuying - Sales on unusual products and promotions that encourage impulse and bulk food purchases at retail stores often lead consumers to purchase items that do not fit into their regular meal plans and spoil before they can be used.

5. Poor Planning - Without meal plans and shopping lists, consumers often make inaccurate estimates of what and how many ingredients they will use during the week. Unplanned restaurant meals or food delivery can also lead to food at home going bad before it can be used.

Macro Drivers of Food Waste

Lack of public awareness

Public awareness about food waste in the US is limited and is a huge contributor to the problem. Love Food Hate Waste, a major public awareness campaign launched in the United Kingdom has been extremely successful; avoidable household waste has dropped 18 percent in the five years the campaign has run. A large national public campaign featuring widespread communications and high-profile spokespeople could help to increase food waste awareness in the US. The EPA's Food: Too Good To Waste pilot campaign has also proven to be an effective education and waste reduction tool in California, Hawaii and the Pacific Northwest and can serve as a model for other states looking to decrease their food waste.

Food waste not being measured

One of the reasons food waste has become such a large problem is that it has not been effectively measured or studied. A comprehensive report on food losses in the US is needed to characterize and quantify the problem, identify opportunities and establish benchmarks against which progress can be measured. A study of this type by the European Commission in 2010 proved to be an important tool for establishing reduction goals in Europe and can serve as a model for US policymakers.

Environmental Impacts

Only three percent of food is composted in the US and as a result, uneaten food is the single biggest component of municipal solid waste. In landfills, food gradually breaks down to form methane, a greenhouse gas that is at least 25 times more powerful than carbon dioxide. A recent report estimates that if food were removed from UK landfills, the greenhouse gas reduction would be equivalent to removing one-fifth of all the cars in the UK from the road.

Consumer food waste also has serious implications for energy usage. A study by the consulting group McKinsey found that, on average, household food losses are responsible for eight times the energy waste of farm-level food losses due to the energy used along the food supply chain and in preparation. Given all the resources demanded for food production, it is worth our while to make sure the food we produce is not wasted.