

Working Together to Reduce Food Waste

Extension Fact Sheet

June 2020

Introduction

The United States Department of Agriculture (USDA) Economic Research Service estimates that 30 to 40% of edible food in the United States currently goes to waste. These 133 billion pounds of wasted food are worth an estimated \$161 billion, which is a significant loss to our economy. At the household level, the average US family of four loses an estimated \$1,500 per year on wasted food. Further, food waste accounts for 21% of the American waste stream.

When we throw food out, we are throwing away the money we spent on those items as well as wasting the water, energy, and labor used to produce that food. Also, food dumped in a landfill emits a large amount of methane gas, which is harmful to the environment. Organic waste, mostly food, is the second biggest component of landfills, and landfills are the third largest source of methane emissions (FDA, 2020). Because of the environmental impact of food waste, the US Environmental Protection Agency (EPA) has developed a Food Recovery Hierarchy (Image 1) to help people think about the best ways to reduce food waste.

Most food producers, processors, and food retailers are working on various initiatives to reduce their food waste. This lesson will focus on how consumers can reduce their own food waste. We will consider the different levels of the EPA Food Recovery Hierarchy (Image 1) and discuss how we can prioritize our efforts to reduce food waste and save our hard-earned money and global resources.

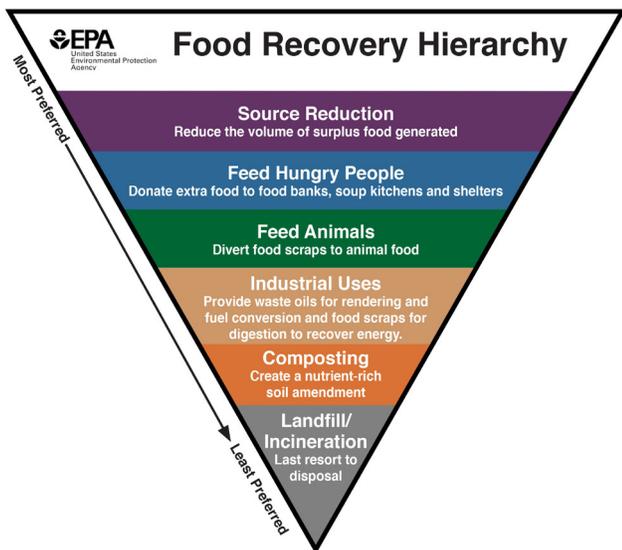


Image 1: Food Recovery Hierarchy

Consumer Source Reduction

The most preferred method of reducing food waste is to reduce the volume of surplus food generated in the first place. Consumers can do a number of things to reduce the amount of surplus food they generate. Implementing one or more of the strategies suggested below could be a good way for consumers to start.

- Meal planning
- Strategic grocery shopping
- Proper food storage
- Extending the life of food
- Checking food product dates

Meal Planning: Shop Your Refrigerator First

Busy families struggle to find time to plan meals or find ways to use food already purchased. Making a weekly meal plan for your family after checking what is in your refrigerator, and then shopping accordingly will prevent this from happening. This plan can help save meal preparation time each day.

Before buying more food, eat perishable food in your refrigerator first. Leftovers can be made into a soup or casserole or taken to work for lunch. Label and date leftovers to be eaten or frozen within 3 or 4 days. Some foods, such as cooked potatoes, may reduce in quality after freezing, but could be used in a soup or casserole without a notable difference in quality. Reheat leftovers to 165°F before eating for safety.

University of Missouri Extension has many resources available on Nutrition and Health Education, including meal planning available from: <https://extension2.missouri.edu/find-your-interest/youth-and-family/nutrition-and-health-education>

Also, check with your local extension office to see if they offer any meal planning classes.

Strategic Grocery Shopping

How often do you go into the grocery store to get a few items and buy groceries you didn't really need?

Meal planning can help curb impulse shopping. Once you have your meals planned, make a shopping list, and stick to that list. If you do buy extras, keep a list of them handy so you remember to use them.

Before shopping, review weekly grocery circulars and incorporate sale items into your weekly plan. Only buy in bulk for a specific purpose, for a big event, or to preserve for later use. Look for items reduced for quick sale to save money and reduce food waste. This prevents the grocery store from having to throw away the food. Online grocery shopping may also help families only buy items on their list, rather than also including impulse buys.

Proper Food Storage

Food will spoil more quickly and thus need to be discarded for safety or quality reasons if it is not stored properly. Using a thermometer in the refrigerator and freezer will help ensure that the appliance is in good working condition and maintains optimal temperatures. To keep food fresh and safe as long as possible, maintain your refrigerator at 40°F or less. Freezers should be kept at 0°F or less for best quality and safety. Store foods in packaging that is designed for the conditions that you will be storing it in — the freezer, refrigerator, or at room temperature — for best safety and quality. Clean your refrigerator regularly and remove spoiled foods and spills.

Use the first in, first out storage method. This means that food you bought first should be used first. This ensures that all food is used in a timely manner.

When storing fresh produce, keep fruits separate from vegetables. Some fruits and vegetables emit ethylene gas, which speeds ripening of produce. Examples of ethylene producers include apples and ripe bananas.

To optimize safety, quality, and shelf life of produce, some produce should be stored in the refrigerator and some at room temperature or in a cool storage room if possible. Once any produce is cut (beyond normal harvesting) or peeled, it must be refrigerated for safety. Store refrigerated fruits and vegetables in moisture-proof bags with a few holes in them to retain moisture but also to allow air circulation and prevent condensation.

Wash produce just before preparation to maximize storage time and safety. Produce with a short lifespan (such as strawberries) should be eaten as soon as it is ripe to reduce waste.

Refrigerators with humidity control settings on their crisper drawers can be adjusted higher, depending on the type of produce stored, to improve the quality and shelf life. Produce particularly suited for storage in a high-humidity drawer includes: broccoli, Brussels sprouts, carrots, cauliflower, green onions, strawberries, and leafy greens. A University of Missouri Extension/ Kansas State University publication available from http://missourifamilies.org/foodsafety/newsletters/Handout_storingproduce.pdf "Storing Fresh Produce For Safety and Quality" provides more details on this topic.

Store meat in a deep-sided container or plate on the lowest shelf of the refrigerator, which is usually the coldest part. When thawing meats, this prevents meat juices from dripping and contaminating other foods. Store highly preserved items like condiments and pickles in the door, which experiences a wider temperature change when it is opened and closed. Do not store perishable foods at room temperature for more than 2 hours to ensure safety and freshness.

Extending the Life of Food

Freeze food for later use. When frozen, bacteria stops growing until thawed. Frozen food can be safe for long periods of time. However, the quality of the food decreases with prolonged freezer storage. See the MU publication "Storing Food in the Freezer": <https://extension2.missouri.edu/mp556> for recommended storage times in the freezer. Use freezer-safe packaging and remove as much air as possible from the container to prevent freezer burn. Some vegetables should be blanched before freezing for best quality. More resources on freezing foods are available from the MU Extension Home Food Preservation website: <https://extension2.missouri.edu/programs/food-preservation>

Canning is another way to extend food life if you have large quantities of extra produce. Canning preserves food by heating the food to destroy microorganisms and enzymes and then removing the air to vacuum seal the jar. Home canned items stay at their best quality for about a year. When home canning, use fresh produce, and make sure to follow tested recipes and directions, such as the information available from the MU

Extension Home Food Preservation website: <https://extension2.missouri.edu/programs/food-preservation>. Improperly canned food can harbor dangerous food-borne bacteria.

Understanding and Checking Food Product Dates

Dates listed on food products can be very confusing for consumers and can lead to unnecessary food waste. The only food product federally required to have a date is infant formula. A "Sell by" date tells the store how long to display the product for sale. Consumers should buy the product before that date, but do not necessarily need to discard foods after that date. "Best by" or "use by" dates are the food manufacturer's recommendation for best flavor and quality. The food is NOT necessarily unsafe after that date.

To determine if a food is still safe to eat or not, look for signs of spoilage. If the food has an off odor, color, or texture, bacteria may be present and the food is unsafe to eat. If the "best by" date has passed and the food is in good, wholesome condition and has been handled safely, the item should be safe for consumption. If you are not quite sure if an item is spoiled or not, it is best to throw it out or compost it.

Go mobile and use the USDA's FoodKeeper app to maximize food freshness and quality. foodsafety.gov/keep-food-safe/foodkeeper-app

See the following publication for more information: Food Product Dating: What Do Those Dates mean? http://missourifamilies.org/foodsafety/newsletters/FSfactsheet_productdating_Aug2014.pdf

Feed Hungry People

After source reduction, the second most preferred method of reducing food waste is to donate extra food to food banks, soup kitchens, and shelters. Donating food helps redistribute unused food to those individuals who do not have enough to eat. Non-perishable foods are the best items for consumers to donate to food banks, as most will accept non-perishable foods, such as canned or boxed items. Be sure the food is unopened and unused before donating. Some food pantries have refrigerators and freezers to accept perishable items, such as fresh produce, meat, and dairy products. Learn more on *Donating Safe and Healthy Foods to Food Banks and Food Pantries* at <https://extension2.missouri.edu/n1311>.

Composting

Before throwing food into a landfill, a better use of unused food is composting. Compost can be used to fertilize your garden and to improve your soil's structure. Most food items can be safely composted at home, including ones that are already moldy. The University of Missouri Extension has a great deal of additional information available on composting foods and composting in general available from:

G6956 Making and Using Compost: extension.missouri.edu/p/G6956

G6957 How to Build a Compost Bin: extension2.missouri.edu/g6957

G6958 Grass Clippings, Compost and Mulch: FAQs: extension2.missouri.edu/g6958

Compost Analysis (MU Extension Soil Testing Lab) <https://extension2.missouri.edu/programs/soil-and-plant-testing-laboratory/spl-compost-analysis>

Sources

Buzby, Jean, Wells, Hodan and Jeffrey Hyman. "The Estimated Amount, Value, and Calories of Postharvest Food Losses at the Retail and Consumer Levels in the United States." USDA, Economic Research Service. Economic Information Bulletin Number 121. February 2014

US EPA. Advancing Sustainable Materials Management: 2013 Fact Sheet. Assessing Trends in Material Generation, Recycling and Disposal in the United States. June 2015

Venkat, Kumar. The Climate Change and Economic Impacts of Food Waste in the United States. *Int. J. Food System Dynamics* 2 (4), 2011, 431-446, April 2012.

Natural Resources Defense Council. <https://www.nrdc.org/issues/food-waste>. Accessed Jan 28, 2020.

KSRE Food Waste website: www.ksre.k-state.edu/foodsafety/topics/food-waste.html. Accessed Jan 28, 2020.

University of Missouri Healthy Shelves resources: foodsecurity.missouri.edu/healthy-shelves/. Accessed Jan 28, 2020.

USDA Food waste site: www.usda.gov/foodwaste/faqs. Accessed Jan 28, 2020.

US EPA food waste: www.epa.gov/sustainable-management-food. Accessed Jan 28, 2020.

US FDA website "How to Cut Food Waste and Maintain Food Safety" www.fda.gov/food/consumers/how-cut-food-waste-and-maintain-food-safety. Accessed Jan 28, 2020.

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