

**Reducing Food Waste:
Recommendations to the 2015 Dietary Guidelines Advisory Committee**

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The goal of the 2010 Dietary Guidelines for Americans (DGA) is to “improve the health of our Nation’s current and future generations.”¹ Framing the DGA in terms of the health of future generations sets the stage for pairing sustainability with nutritional guidelines. An imbalance between current production and future consumption needs, especially of nutrient dense foods recommended by the DGA,² argues for more intertwined agriculture and nutrition policies and recommendations. In doing so, sustainability, including resource conservation, should become progressively more important and hence should be addressed in the 2015 Dietary Guidelines. This approach will advance the ability of the United States to produce nutritious foods to maintain a continued standard of public health for future generations, in part by ensuring a resilient and nutritionally appropriate food supply

Food waste presents a major challenge to conserving resources and securing nutritional needs for future generations. It had been calculated that 19 percent of the available, edible food supply in the U.S. is wasted by consumers, costing the average American household \$936 a year.³ This uneaten food also wastes environmental resources. To help households “maximize the nutritional content of their meals within their resource constraints,”⁴ the 2015 Dietary Guidelines for Americans should take steps to educate Americans on this subject by including recommendations for reducing food waste.

With such a large amount of edible food discarded by consumers, increasing public awareness is an important first step. Negative impacts from food waste include food safety misconceptions, environmental degradation, and food security challenges. The DGA offers a forum in which to make food waste reduction recommendations to consumers. This will increase consumers’ understanding of the issues and help them realize that they *can* have an impact through their daily activities. Recommendations included in this document pertain to food labels, portion sizes, storage, preparation, and disposal practices, and how these can fit into the forthcoming priorities of the DGA.

Food Waste

Defining the Problem

Food waste occurs at many levels throughout the food supply chain. This document refers to food waste by consumers, mainly in the household. Food waste is defined as edible food material intended for human consumption that is discarded before it is consumed.⁵ Consumer food waste occurs at the point of food consumption⁶ and the household level is relevant to DGA recommendations. While the topic of food waste commonly brings up ideas of composting or other methods of recycling waste, *prevention* and *reduction* of food waste will bring the most benefits to conserve environmental and economic resources.

Consumer food waste can be divided into three categories: avoidable, possibly avoidable, and unavoidable⁷. ‘Avoidable food waste’ includes food and drink that was edible at some point prior to disposal. ‘Possibly avoidable food waste’ is defined as discarded food or food scraps of which a portion may be edible in some circumstances,

such as potato skins or other vegetable and fruit peels. ‘Unavoidable food waste’, on the other hand, is waste that arises from food preparation that was not generally considered edible⁸, such as a banana peel. Unavoidable food waste can only be mitigated through alternate disposal methods, such as composting. Recommendations to reduce food waste typically focus on avoidable food waste but may also include possibly avoidable food waste. Avoidable and possibly avoidable food waste at the consumer level include:

- Losses during cooking and preparation
- Discards due to preparation of too much food, expired use-by/open dates, or spoilage
- Plate waste or loss⁹

Food Waste in the U.S.

The amount and composition of food waste in the U.S. is substantial and has been quantified economically, environmentally, and nutritionally. The largest sources of food waste in the food supply chain are within the foodservice industry and at household level. Food waste at the consumer and retail level in the U.S. rose in the last decade from 26% of the total edible food available for human consumption, equivalent to 41.2 million metric tons in 1995, to 29% of the available edible food supply at 57.2 million metric tons in 2008.^{10, 11} Of consumer food waste, 11% was composed of fruits, 20% of vegetables and another 17% of dairy products.¹²

The DGA Key Recommendations suggest the American public should increase its intake of low-fat dairy, fruits, and vegetables; yet these food categories combined comprise 48% of food wasted in the U.S. Educating the public about the importance of food waste and methods to prevent and reduce it may lessen its volume. If consumers are taught to prevent wastage of nutritious food items such as low-fat dairy and fresh fruits and vegetables in their own kitchens, they may be more likely to consume these products.

Sources of Consumer Food Waste

In order to make recommendations to reduce food waste and improve the food consumption habits of the American population, it is critical to understand how and where waste occurs. Contributors to food waste at the consumer level include:^{13,14}

- Consumer awareness
 - Lack of awareness of the magnitude of food waste
 - Lack of information on strategies to reduce waste
- Purchasing
 - Poor planning (e.g., food spoiling before being used)
 - Misjudged quantity needs
 - Impulse and bulk purchases
 - Consumer preferences for high cosmetic standards for produce□
- Labeling
 - Consumer confusion over “use-by” and “best before” dates so that food is discarded in packaging prior to expiration
- Storage
 - Inefficient methods to ensure maximum shelf-life
- Preparation
 - Inappropriate portion sizes
 - Spills, abrasion, bruising

- Excessive trimming of edible portions of fresh foods
- Excessive or insufficient heat
- Inadequate storage procedures or equipment
- Other
 - Psychological and cultural tastes, attitudes, and preferences leading to plate waste/scrapings

Why is Food Waste Important?

Food waste negatively affects national and global well-being. Reliable, evidence-based information highlights these impacts to make the case for inclusion of recommendations to reduce consumer food waste in the 2015 DGA.

Food Safety

Misinterpretation of food labeling dates, such as “best by”, “use by”, or “pack by”, contributes to a large portion of avoidable food waste. It is estimated that an American household of four throws away between \$1,365 and \$2,275 of edible food per year because food labels are misunderstood.¹⁵ Although there are labeling regulations in the U.S., food labeling practices are not standardized among products nor are they intended to provide consumers with information about the food safety of the packaged items.¹⁶ This lack of uniform, reliable, and clear food-safety related labeling leads to a wide range of consumer interpretations and confusion. It is common for a product to be safe to eat, yet still thrown away because it is past its labeled date. The DGA should encourage consumers to be aware of how ambiguous current date labels are and educate them on the need to test for safety before throwing away foods, rather than relying on date labels such as “best if used by” a certain date.

Environmental

Food waste has significant environmental implications. In 2013, food waste accounted for 21% of landfill space in the United States.¹⁷ As this food decomposes, it becomes a major contributor to greenhouse gas emissions and accounts for 23% of all methane emissions in the U.S.¹⁸ Throwing away food wastes the critical resources used to produce that food. Agricultural inputs of wasted food accounts for 25% of all freshwater used in the U.S., 4% of national oil use,¹⁹ as well as the agricultural land used to produce the food. Reducing food waste will directly conserve scarce environmental resources. As a last resort alternative to discarding food, consumers should consider composting²⁰ at a household or community level. Only 3% of food lost at various stages of the production and consumption chain is composted.²¹ Composting reduces and recycles greenhouse gas emissions and also has the benefit of increasing awareness about food waste.²² Including this tactic in the DGA would increase awareness of the option and benefits of composting to dispose of food waste.

Food Security

It is conservatively estimated that the U.S. wastes 160 billion pounds of food annually, which far exceeds levels within most other countries.²³ This waste costs U.S. retailers and consumers a total of \$166 billion in 2008. Despite the high occurrence of edible food waste and monetary losses, the USDA estimates 14.5% of U.S. households are food insecure, roughly 24.6 million households in total.²⁴ Food insecurity creates

tremendous physical and physiological stress at the individual level, especially in children. Excessive stress is well recognized as a significant player in the development of many health complications that impact individual work capacity and the ability to contribute or participate in a community. Therefore a reduction in national food losses could help increase food available for human consumption, and perhaps lessen financial losses. The USDA estimates an edible food loss equivalent to 2,615 Calories per day per capital.²⁵ Even a 10-25% recovery rate of food lost through waste could provide enough edible food for the equivalent of approximately 8 million to 20 million people, respectively.^{26,27} It is important that the 2015 DGAC strongly emphasize recommendations to reduce food losses because substantial national economic and food security benefits could result. The following Case Study exemplifies possibilities for food waste reduction in institutional programs and subsequent financial savings.

Case Study: Institutional Waste in the National School Lunch Program (NSLP)

Consumer food waste occurs at the household level and in foodservice institutions such as restaurants, schools, and hospitals. In the most recent study on school plate waste, an estimated 26.1% of the Boston Public Schools' (BPS) food budget was spent on food items that were wasted. This wasted food cost BPS \$47.12 per student annually. If these rates are applied to the NSLP budget, the costs equate to almost \$1.24 billion.²⁸ Food waste in school lunch programs comes at a nutritional and economic cost. Students discarded 47% of fruit, 25% of milk, and 73% of vegetables served, yet ate most of the energy dense entrées.²⁹ Plate waste limits intended nutritional benefits for children in the NSLP program such as physical and cognitive development, maintenance of healthy weight, and reduced risk of chronic diseases.³⁰ In addition to changes in program operations such as portion sizes and serving methods, written messages and education can help reduce food waste and improve edible food waste behaviors in institutions. In an all-you-care-to-eat university dining hall, simple signage about food waste prompted a 15% reduction in food waste by students.³¹ Increasing awareness of food waste among foodservice staff in institutions could also reduce food waste.³²

Food Waste Reduction Recommendations for the Dietary Guidelines for Americans in 2015

Portion Sizes

Current recommendations to reduce portion sizes in the DGA target the importance of this behavior for healthy weight maintenance but neglect to mention the positive impact on waste. Recent research has pointed out the relationships between portion size and food consumption, and related studies have also linked portion size to food waste. Portion size reductions have been shown to reduce food intake along with plate waste.³³ In addition, a forthcoming study shows that children using larger dishware requested, ate, and wasted more food.³⁴ Including information about food waste in the DGA recommendations could further underscore the importance of reducing portion sizes for the American public by framing food consumption in terms of broader societal and environmental impacts.

Storage, Preparation, and Disposal

Many groups have recommended consumer strategies to reducing food waste. Waste and Resources Action Programme (WRAP), has had a major role in a 21% decline in avoidable household food waste in the UK since 2007³⁵. Their consumer-facing website www.LoveFoodHateWaste.com features ideas for leftovers, a section on portions and planning, a section on saving time and money that includes freezer tips, information on date labels and information about food storage. Similar types of guidance provided by in the DGA could help consumers understand steps they can take to reduce food waste. There are many other sources of recommendations that the DGA could incorporate as part of food purchasing, preparing or storage tips that include:

- Purchasing
 - Plan before shopping by checking what is already at home.³⁶
 - Use lists to help purchase only what is planned for use.^{37,38,39}
- Labeling
 - Understand expiration dates to help reduce unnecessary food waste.⁴⁰
- Storage
 - Store food properly,⁴¹ so that it stays fresh as long as possible.
 - Place foods that are about to expire at the front of the fridge for a visual cue⁴² to use as soon as possible.
- Preparation
 - When preparing food, serve smaller portions^{43,44} to avoid plate waste at the end of a meal.
 - Consider using separate, smaller dishware for children to reduce portions and prevent waste.⁴⁵
 - Save unused portions or leftovers for future consumption.^{46,47,48}
 - Freeze uneaten foods for later consumption.⁴⁹
- Disposal
 - As a last resort, compost applicable food waste.⁵⁰

We have attached a section of the 2010 DGA report and inserted examples where these food waste recommendations could be placed in the forthcoming 2015 report (see attached file “DGA Food Waste Recommendations.”)

Household level consumer food waste is excessive in the U.S. and comes at a high economic and environmental cost. Admittedly, there is a lack of public awareness about the magnitude of the issue and what can be done to reduce food waste. Repercussions of food waste affect food safety, the environment, and national and household economies. The UK designates resources to increasing consumer awareness and providing household level solutions via the aforementioned ‘LoveFoodHateWaste’ website and provides an inspiring example of what methods work effectively to reduce food waste at the consumer level.

By providing simple recommendations for proper storage, food preparation, portions and disposal in the 2015 DGA, we can raise awareness and reduce levels of household food waste. While the focus here is on waste at the household level, consumers also waste food when dining away from home, in eating environments such as institutions

and restaurants. In addition to consumer losses, a significant portion of food waste is generated throughout the supply chain via production, post-harvest handling and storage losses, processing and packaging losses, and distribution and retail losses.⁵¹ This information is important for future policy consideration although it is beyond the scope of the consumer recommendations discussed here. Recommendations for consumer food waste reduction suggested for inclusion in the DGA are small steps to set our nation on a path to more healthy and sustainable eating habits that will benefit current and future generations.

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