Food Wastage: The New Nutrition Frontier

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Nutrient loss due to food waste in preschools, schools, university, and community settings

- Household surveys
- Effects of compost on food taste and plant performance
- Creation of curriculum
Overview

- Defining food loss and food waste, food wastage
- Food wastage by the numbers
- Causes of food wastage
- Consequences of food wastage on food security and nutrition
- Food wastage in research, policy, and practice
What is food loss and food waste?

Food loss and food waste refer to the decrease of food in subsequent stages of the food supply chain intended for human consumption.

Food and Agriculture Organization
Where does food wastage occur?
Food loss and food waste occurs across the food system

Adapted by Christy Shi, Center for Environmental Farming Systems.
From: Wilcox, J. and Erness-Sherrill, M. Discovering the Food System: An experiential learning program for young and inquiring minds.
Cornell University, Departments of Nutritional Science and Horticulture. [http://www.discoverfood5000.cumulonimbus/](http://www.discoverfood5000.cumulonimbus/)
Food Loss

- Poor infrastructure and logistics
- Lack of technology
- Insufficient skills, knowledge, and management capacity
- Lack of access to markets
- Processing capability or failure
- Fluctuating immigration laws
- Policies

Adapted by Christy Shi, Center for Environmental Farming Systems.
From: Williams, J. and Eanes-Shorofy, M. Discovering the Food System: An experiential learning program for young and inquiring minds. Cornell University, Departments of Nutritional Science and Horticulture. [http://www.discoverfoodos.cornell.edu](http://www.discoverfoodos.cornell.edu)
Case Study: Markets for Orange Fleshed Sweet Potatoes in Mozambique


Case Study: Storage and Spoilage in Greenland


Fig. 1 Map of Greenland including each location where food store environment measures were conducted.
Food Waste

- Standards for shape and color
- Temperature and storage
- Overstocked shelves
- Overabundance of food
- Lack of markets for repurposing food
- Food labeling
- Food preference
- Portion size
- Household food management
- Policies

Adapted by Christy Shi, Center for Environmental Farming Systems. From: Wilkins, J. and Evans-Shemwell, M. Discovering the Food System: An experiential learning program for young and inspiring minds. Cornell University, Departments of Nutritional Science and Horticulture. [http://www.discoverfoods.cornell.edu](http://www.discoverfoods.cornell.edu)
Case Study: Smarter Lunchrooms

Byker C, Bark K, Stenberg M, Benke C.
Case Study: Transitioning Food Practices in Morocco

Food Waste By the Numbers

30% to 40% of all food is wasted in the United States

About 33% of all food is wasted worldwide

https://www.usda.gov/oce/foodwaste/faqs.htm
How much do you think you throw out compared to the average American?+

- More
- The same
- Less
- Unsure

Case Study: Household Surveys

How much do you think you throw out compared to the average American?

<table>
<thead>
<tr>
<th>Responses</th>
<th>% Montana (n = 329)</th>
<th>% National (n=1,010)*</th>
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<td>73</td>
</tr>
<tr>
<td>Unsure</td>
<td>3</td>
<td>--</td>
</tr>
</tbody>
</table>

Neff RA, et al 2015
Food Waste by Region

Per capita food losses and waste (kg/year)

- Europe
- North America & Oceania
- Industrialized Asia
- Subsahara Africa
- North Africa, West & Central Asia
- South & Southeast Asia
- Latin America

Wasted Food, Wasted Nutrients

“Food wasted at the retail and consumer levels of the US food supply in 2012 contained 1,217 kcal, 33 g protein, 5.9 g dietary fiber, 1.7 μg vitamin D, 286 mg calcium, and 880 mg potassium per capita per day.”

Spiker et al., 2017

http://jandonline.org/article/S2212-2672(17)30325-8/fulltext
Food Waste by Food Group

- **20%** Oilseeds & Pulses Food Losses
  - Every year, 22% of the global production of oilseeds and pulses is lost or wasted.

- **20%** Dairy Food Losses
  - In Europe alone, 29 million tonnes of dairy products are lost or wasted every year.

- **20%** Meat Food Losses
  - Of the 263 million tonnes of meat produced globally, over 20% is lost or wasted.

- **30%** Cereals Food Losses
  - In industrialized countries, consumers throw away 286 million tonnes of cereal products.

- **35%** Fish & Seafood Food Losses
  - 89% of fish caught globally is thrown back into the sea. In most cases, they are dead, dying or badly damaged.

- **45%** Fruit & Vegetables Food Losses
  - Along with roots and tubers, fruit and vegetables have the highest wastage rates of any food products; almost half of all the fruit and vegetables produced are wasted.

- **45%** Roots & Tubers Food Losses
  - In North America & Oceania alone, 814,000 tonnes of roots and tubers are wasted at the consumption stage alone.

Case Study: Food Distribution Program on Indian Reservations

Wasted Food, Wasted Nutrient, Reduced Food Security

FAO Hunger Map

Achievement of the Millennium Development Goal Hunger Target

From 1990-92 to 2014-16

Prevalence of Undernourishment in the Population

Achievement of the World Food Summit Target

2015

Millennium Development Goal 1 and World Food Summit Hunger Targets

About 793 million people in the world still lack sufficient food for an active and healthy life.

Wasted Food, Wasted Nutrient, Reduced Food Security

U.S. households by food security status, 2015

- Food-insecure households -- 12.7%
- Households with low food security -- 7.7%
- Households with very low food security -- 5.0%
- Food-secure households -- 87.3%

Case Study: Ample Harvest

Stop Wasting Food

Ending Hunger by Donating Excess Garden Produce

Summary Report

Report Authors: Selena Ahmed & Carmen Byker Shanks,
Montana State University Food and Health Lab

Data Analyst: Christopher Reberger,
Global Economics and Research Practice Cisco Consulting Services

AmpleHarvest.org Founder: Gary Oppenheimer, Survey Design
The generation of food waste is everyone’s problem and calls for every individual in the food system to contribute to a solution.
Food Wastage Policy

USDA and EPA:
Reduce food waste by 50% by 2030

http://www.choosemyplate.gov/lets-talk-trash

Food Wastage Policy

Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Goal 12: Ensure sustainable consumption and production patterns
Objective: Halve per capita global food waste at the retail and consumer level, and reduce food losses along production and supply chains by 2030

The New Nutrition Frontier: Food Wastage in Practice

- Reduce
- Recover
- Redistribute
- Recycle

The New Nutrition Frontier: Food Wastage Measurement in Nutrition Education and Behavior Research

- Nutrient intake + dietary adequacy
- Consumer preference
- Food + menu acceptability
- Economic impact
- Environmental impact
- Knowledge + skills to use foods
- Food types available
- Food choices
What is an acceptable amount of food wastage?
How can food wastage be minimized across each food system?
How do we educate actors across the supply chain what food wastage is?
How do we shift food practices that create food wastage?
How do we change retailer expectations about consumer expectations?
What is the best strategy to measure food wastage?
Let’s Collaborate

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