

There are millions of tons of food loss and waste in the United States.

There is no single comprehensive estimate of FLW in the United States. A number of diverse estimates describe the extent of the problem. These estimates vary depending on a number of factors, including whether inedible parts, such as bones, rinds and pits, are included; which destinations, such as animal feed and composting, are included; and which primary data sets and methods are used.



Center for Food Loss and Waste Solutions

Organization	Estimate	Time-frame	Includes Inedible Parts?	Boundary <i>Food products and food-system stages included in FLW estimate</i>	Destinations <i>Estimate explicitly or implicitly includes FLW that goes to</i>	Method
U.S. Department of Agriculture (USDA)	66.5 million tons (133 billion lbs.)	12 months (2010)	No <i>(Except for some commodities at retail level, such as the inedible parts of discarded whole fresh apples)</i>	<p><i>Food categories:</i> Approximately 215 basic commodities (no highly processed products)</p> <p><i>Food-system stages:</i></p> <ul style="list-style-type: none"> • Retail • Restaurant (consumer waste only) • Foodservice/ Institution (consumer waste only) • Household 	<ul style="list-style-type: none"> • Animal feed • Biomaterial/processing • Co/anaerobic digestion • Compost/aerobic • Controlled combustion • Land application • Landfill • Sewer/wastewater treatment <p>Some donations are also included (<i>USDA recognizes that donations should <u>not</u> be included as FLW, however some may be embedded in the data and cannot be isolated</i>)</p>	<p>Estimate based on nationally representative surveys of retail inventories or shipments and household purchases and stated consumption.</p> <p><i>For details see:</i></p> <ul style="list-style-type: none"> • Loss-Adjusted Food Availability Data Series • Buzby et al. (2014)

Organization	Estimate	Time-frame	Includes Inedible Parts?	Boundary <i>Food products and food-system stages included in FLW estimate</i>	Destinations <i>Estimate explicitly or implicitly includes FLW that goes to</i>	Method
U.S. Environmental Protection Agency (EPA)	<p><i>Generated:</i> 40.7 million tons (81.4 billion lbs.)</p> <p><i>Disposed:</i> 38.1 million tons (76.2 billion lbs.)</p>	12 months (2017)	Yes	<p><i>Food categories:</i> All food and beverage</p> <p><i>Food-system stages:</i> Municipal solid waste which includes:</p> <ul style="list-style-type: none"> • Retail • Restaurant • Foodservice/ Institution • Household 	<p>FLW <u>generated</u> includes:</p> <ul style="list-style-type: none"> • Compost/aerobic • Controlled combustion • Landfill <p>FLW <u>disposed</u> only includes:</p> <ul style="list-style-type: none"> • Controlled combustion • Landfill 	<p>Estimate of “FLW <u>generated</u>” equals municipal solid FLW generation, which is estimated based on existing studies of the rate of generation applied to updated Census estimates of number of businesses and households.</p> <p>Estimate of “FLW <u>disposed</u>” is determined by subtracting the amount of FLW going to composting (2.6m tons) from total FLW generated (40.7m tons). Composting estimates are based on publicly available state data.</p> <p><i>For details see: EPA’s Advancing Sustainable Materials Management: Facts and Figures Report</i></p>
Natural Resources Defense Council (NRDC)	<p>40 percent</p> <p><i>(Approx. 86 million tons or 172 billion lbs. in 2010 using USDA’s food supply and consumption pattern assumptions)</i></p>	12 months (2003)	No	<p><i>Food categories:</i> All food and beverage</p> <p><i>Food-system stages:</i></p> <ul style="list-style-type: none"> • Distribution/Handling • Manufacturing • Retail • Restaurant • Foodservice/ Institution • Household 	<ul style="list-style-type: none"> • Animal feed • Biomaterial/ processing • Co/anaerobic digestion • Compost/aerobic • Controlled Combustion • Land application • Landfill • Sewer/wastewater treatment 	<p>Estimate derived by taking the percentage difference between the amount of calories in the U.S. food supply (derived from FAO Food Balance Sheets) and the amount of calories consumed by end consumers (estimated from the weight of the U.S. population).</p> <p><i>For details see: Hall et al. (2009)</i></p>

Organization	Estimate	Time-frame	Includes Inedible Parts?	Boundary <i>Food products and food-system stages included in FLW estimate</i>	Destinations <i>Estimate explicitly or implicitly includes FLW that goes to</i>	Method
ReFED	62.5 million tons (125 billion lbs.)	12 months (2015)	Yes	<p><i>Food categories:</i> All food and beverage</p> <p><i>Food-system stages:</i></p> <ul style="list-style-type: none"> • Farm • Distribution/Handling • Manufacturing • Retail • Restaurant • Foodservice/Institution • Household 	<ul style="list-style-type: none"> • Animal feed • Co/anaerobic digestion • Compost/aerobic • Controlled combustion • Land application • Landfill • Sewer (non-residential)/wastewater treatment 	<p>Methodology applies estimates of commercial and residential FLW (from the best publicly available studies as of 2015) to 2015 U.S. Census data on manufacturing, retail, food service and households to produce national estimates.</p> <p>On-farm estimates are based on extrapolation from numerous agricultural case studies.</p> <p><i>For details see: ReFED Technical Appendix</i></p>

Definitions

(See the [*Food Loss and Waste Accounting and Reporting Standard*](#) for additional detail)

Food and Inedible Parts

- **Food:** Any substance that is intended for human consumption. It does not include crops intentionally grown for bioenergy, animal feed, seed, or industrial use.
- **Inedible parts:** Components associated with a food that, in a particular food supply chain, are not intended to be consumed by humans (e.g., bones, rinds, pits/stones). What is considered inedible varies among users. “Inedible parts” do not include packaging.

Destinations

- **Animal feed:** Diverting material from the food supply chain (directly or after processing) to animals.
- **Bio-based materials/biochemical processing:** Converting material into industrial products. Examples include creating fibers for packaging material; creating bioplastics (e.g., polylactic acid); making “traditional” materials such as leather or feathers (e.g., for pillows); and rendering fat, oil, or grease into a raw material to make products such as soaps, biodiesel, or cosmetics. “Biochemical processing” does not refer to anaerobic digestion or production of bioethanol through fermentation.
- **Codigestion/anaerobic digestion:** Breaking down material via bacteria in the absence of oxygen. This process generates biogas and nutrient-rich matter. Codigestion refers to the simultaneous anaerobic digestion of FLW and other organic material in one digester. This destination includes fermentation (converting carbohydrates—such as glucose, fructose, and sucrose—via microbes into alcohols in the absence of oxygen to create products such as biofuels).
- **Composting/aerobic processes:** Breaking down material via bacteria in oxygen-rich environments. Composting refers to the production of organic material (via aerobic processes) that can be used as a soil amendment.
- **Controlled combustion:** Sending material to a facility that is specifically designed for combustion in a controlled manner, which may include some form of energy recovery (this may also be referred to as incineration).
- **Land application:** Spreading, spraying, injecting, or incorporating organic material onto or below the surface of the land to enhance soil quality.
- **Landfill:** Sending material to an area of land or an excavated site that is specifically designed and built to receive wastes.
- **Not harvested/plowed-in:** Leaving crops that were ready for harvest in the field or tilling them into the soil.
- **Refuse/discards/litter:** Abandoning material on land or disposing of it in the sea. This includes open dumps (i.e., uncovered, unlined), open burn (i.e., not in a controlled facility), the portion of harvested crops eaten by pests, and fish discards (the portion of total catch that is thrown away or slipped).
- **Sewer/wastewater treatment:** Sending material down the sewer (with or without prior treatment), including that which may go to a facility designed to treat wastewater.
- **Other:** Sending material to a destination that is different from the 10 listed above. This destination should be described.