# Food Waste in the Household Segment

Bold chapter heading: NIS 7.9 billion worth of food was wasted by households in 2018. Each family discards food worth NIS 3,200/year on average.

In Israel, expenditures on home food consumption is a central component of each family’s monthly expenses, and averages approximately NIS 2,000/month per family (not including alcohol, soft drinks, and meals eaten away from home), which is about 17% of the total personal expenditures.

According to findings of the 2018 Food Waste Report, Israeli households wasted approximately 800,000 tons of food,[[1]](#footnote-1) worth approximately NIS 7.9 billion. The average family in Israel discards approximately 13% of the average household expenditure for food. This means that the average Israeli family discards food valued at NIS 3,200 each year (equivalent in value to the food an average family consumes in one-and-a-half months).‎

In monthly terms, a household’s financial loss from food waste is NIS 265, with fruits and vegetables accounting for NIS 120 of the loss; grains and legumes for NIS 84; and meat, eggs and fish for NIS 21.

Household Food Waste, in NIS/month

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| --- | --- | --- | --- |
|   | **Monthly expenditure for food (NIS)** | **Monthly food waste (NIS)** | **% Waste** |
| Fruit & vegetables | ‎520‎ | ‎120‎ | ‎23%‎ |
| Grains & legumes | ‎600‎‏‏ | ‎84‎ | ‎14%‎ |
| Meat, eggs, & fish | ‎530‎ | ‎40‎ | ‎8%‎ |
| Milk & dairy products | ‎330‎ | ‎21‎ | ‎7%‎ |
| Total | **‎1,980‏** | **‎265‎** | **‎13%‎** |

Household Food Waste/year

|  |  |  |  |
| --- | --- | --- | --- |
|   | **Waste (NIS million)** | **% Waste** | **Waste (1,000 tons)** |
| Fruit & vegetables | ‎3,600‎ | ‎23%‎ | ‎595‎ |
| Grains & legumes | ‎2,500‎ | ‎14%‎ | ‎140‎ |
| Meat, eggs, & fish | ‎1,200‎ | ‎8%‎ | ‎45‎ |
| Milk & dairy products | ‎600‎ | ‎7%‎ | ‎100‎ |
| Total | ‎7,900‎ | ‎13%‎ | ‎880‎ |

Rate of Household Food Waste for select products

**Column captions**: Vegetables, Fruit, Cooked food, Bread & baked goods, Packaged salads, Meat & poultry, Grains, Milk & dairy, Legumes, Fish & seafood, Eggs

Source: BDO estimates

Bold header: Primary cause of household food waste – Excessive purchasing and surplus cooking

Food waste during household consumption is caused by a combination of consumer habits and a culture of abundance. It is also influenced by how food is stored and kept fresh. The value of the food wasted by households is approximately NIS 7.9 billion/year.

According to the findings of the consumer survey,[[2]](#footnote-2) the three main factors causing food waste in household consumption are:

**Preparing surplus quantities** – Preparing more than is needed, usually extra food that is cooked or prepared unnecessarily.

**Expired food** – Food that reaches its expiry date before being fully consumed.

**Damaged or spilled food** – Food that has spoiled due to poor storage, poor cooking or human error.

Other causes of food waste in home consumption are poor preparation or cooking and excessive purchasing. Ranking the Causes of Household Food Waste

**Column captions**: Damaged or spilled food; Expired; Surplus preparation; Excess purchasing; Poor preparation/cooking

It should be noted that one-third of the participants reported that clearer presentation of the expiry date on food packages would be the principal factor causing them to reduce food waste. Similarly, 80% of the respondents said that they would prefer to buy from a store that encourages savings or protection of the environment.

Moreover, the findings suggest that there is potential for reducing food waste through increased awareness and planning at each stage of household food consumption; this would start with planning before shopping, and continue with informed purchasing appropriate to one’s needs, proper storage conditions and packaging at home, preparing and cooking suitable quantities, changing eating habits, and reusing surpluses.

Because there is no way of knowing about the food safety and hygiene in private homes, most of the food in households, except for that in its original packaging, cannot be rescued. Moreover, from an economic point of view, it is generally not worthwhile to rescue surplus food from domestic consumption in a centralized manner and transfer it to the needy, due to the nature of the food, the geographical dispersion, and the relatively small quantities in each household. Thus, for purposes of the estimates in this report, all household food waste is classified as food that cannot be rescued.

Therefore, reducing food loss during household‎ consumption requires decreasing the amount of waste at the source, by changing habits and awareness as well as improving food storage conditions throughout all stages of household food consumption.

Stages of Household Food Consumption

Planning

Purchasing

Cooking

Packaging & Storage

 Handling surpluses

Eating

Bold header: 23% of fruits and vegetables (by value) are discarded at home, and 13% of grain products and legumes

Food waste during household consumption is not unique to Israel, and the rates of loss in Israel are not exceptional compared to other developed countries. The highest percentage of waste in Israel, as in other Western countries, is for fruits and vegetables, with 23% of fruits and vegetables purchased in Israel being discarded, compared to 28% in the US and 19% in Europe. The relatively high waste of fruits and vegetables is due to their short shelf-life and inattention to optimal storage conditions.

International Comparison: Rate of Household Food Waste

Fruits and Vegetables

**Column captions**, from left to right: United States; Israel; Europe; Japan, China & South Korea; ‎North Africa & western Asia; South America; Southeast Asia; Africa

Grains and Legumes

**Column captions**, from left to right: United States; Europe; Japan, China & South Korea; ‎Israel; North Africa & western Asia; South America; Southeast Asia; Africa

Meat, Eggs and Fish:

**Column captions**, from left to right: United States; Europe; Israel; ‎Japan, China & South Korea; ‎North Africa & western Asia; South America; Southeast Asia; Africa

Milk and Dairy Products

**Column captions**, from left to right: United States; Israel; Europe; Japan, China & South Korea; ‎South America; North Africa & western Asia; Southeast Asia; Africa

Israel’s rate for waste of meat, fish and dairy products is lower and stands at approximately 8%, in part because these products are more expensive per unit of weight, which creates a higher economic incentive for reducing the loss, and also because of their inherent characteristics. The rates of waste for these products are similar to those in Europe, and lower than those in the US.

For grains and legumes, the rate of waste is approximately 14%, the combined result of the short shelf-life of products like bread and pastries, and the relatively long shelf-life of raw grains and legumes.

According to the international comparison, the amount of food wasted in Israel is no different from the amount in Europe. However, the survey found that the subjective feeling of respondents in Israel is that the amount of waste is higher than Europeans’ average subjective sense of food waste, according to a survey conducted in EU-27 countries. In our estimation, the discrepancy stems from the cost of living; for the Israeli consumer, the amount of food wasted has greater weight.

Rate of Food Waste as Estimated by Household Respondents

**Column captions**: Denmark, Israel, Sweden, Holland, Ireland, Greece, Finland, Latvia, Belgium, Great Britain, Luxemburg, Italy, Portugal, Germany, EU-27, France, Romania, Hungary, Austria, Slovenia, Bulgaria, Cyprus, Slovakia, Poland, Lithuania, Spain, Estonia, Czech Republic, Malta.

**Source**: BDO analysis of data from the 2019 Geocartography survey, and research published in Journal of Food Policy Economics, 2015.

Bold headline: Overall effect of food waste on the cost of living: NIS 6,300/family annually

In Israel, where expenditure on food is relatively high by international standards,[[3]](#footnote-3) food waste contributes to the problem of the high cost of living. Food waste impacts the cost of living by leading to excessive expenditures for food; it also has an effect on food prices. The overall impact on the cost of living was an additional NIS 6,300/year per family.

***Cost of Living – Surplus expenditure***: Food purchased and thrown into the garbage is a direct cost to a household. On average, the annual loss from discarded food is NIS 3,200 per family. The costs of garbage collection and landfill ultimately come from consumers’ pockets as well, in the form of municipal property taxes and fees, adding an additional NIS 200 expenditure per family for discarded food.

***Cost of Living – Higher food prices***: In addition to households’ direct surplus expenditure for food purchased but not consumed, food wasted during all stages of the value chain prior to household consumption influences the cost of living. In economic terms, the cost of food reflects total production and sales costs at all stages of the value chain: growing, production, packaging, transport and marketing. Therefore, the price of food in supermarkets incorporates the value of waste into the retail segment. Similarly, the price of wholesale food reflects the waste of the agricultural and production sectors. Ultimately, the cost of waste at all stages of the value chain is passed on to the consumer, causing an additional annual cost of NIS 2,900, in the form of an 11% increase in food prices.

Food Waste: Impact on the Cost of Living

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| --- | --- | --- |
|  | Annual cost/family | Impact on the cost of food |
| Cost of food discarded at home | ‏3,200‏ | ‏-‏ |
| Cost of garbage collection and landfill for discarded food | ‏200‏ | ‏-‏ |
| Increase in the retail price because of food loss in the marketing segment | ‏1,700‏ | ‏6%‏ |
| Increase in the retail price because of food loss in the production segment | ‏1,200‏ | ‏5%‏ |
| Total | ‏6,300‏ | ‏11%‏ |

The direct impacts on cost of living generated by discarded food and its collection as garbage and treatment as landfill is augmented by indirect costs incurred for the transportation of waste, fuel combustion, road congestion, environmental damage caused by emissions of greenhouse gases and soil pollution. When organic waste is buried in landfills, it decomposes and emits methane gas, a greenhouse gas whose impact on global warming is 25 times greater than that of carbon dioxide.

According to findings of the 2018 Food Waste Report, 880,000 tons of household food waste was sent to landfills in Israel, causing 280,000 additional trips by garbage trucks, thereby increasing air pollution, road congestion, noise and the risk of accidents. Therefore, beyond the NIS 7.9 billion value of household food waste itself and NIS 0.5 billion for its disposal, additional external costs are also incurred for the effects of traffic congestion and damage to the environment.

Bold headline: International Experience – Measures to Reduce Household Food Waste

Several countries have begun efforts to reduce household food waste. These efforts are being made on several levels: increasing consumer awareness of food wastage, education to prevent loss, the use of technology to reduce waste, and more.

In 2013, the British Food Rescue Organization WRAP began the “Love Food Hate Waste” project, a campaign to raise awareness about the importance of reducing food loss and helping people take action on the issue. The project included digital publications and community events, such as cooking classes. As part of the project, a dedicated website was created, containing information to facilitate reducing food waste. Sample subjects covered include calibrating the refrigerator to the optimal temperature, the importance of preparing a shopping list, etc.

WRAP examined the effects of this project in west London over a six-month period from October 2012 to March 2013. At the end of the campaign, the quantity of food waste dropped by 14%, from 2.6 kg/household in the week before the campaign, to 2.2 kg/household in the week after the campaign. A cost-benefit analysis of the project revealed that every ₤1.00 invested in the campaign saved ₤8.00 in reduced food waste.

In Israel, the Postharvest Science of Fresh Produce Department at the Volcani Institute has published guidelines for the preservation of fruits and vegetables by consumers.[[4]](#footnote-4)

Technological means provide another path towards reducing food waste. In the Netherlands, research was conducted on optimal temperatures for extending the shelf life of various products. By changing the storage temperatures, researchers were able to significantly extended the products’ shelf life.

A third way to reduce household waste is taxation. In many countries, the “Pay as you throw” method is used. Countries currently implementing “Pay as you throw” include the US, Canada, Austria, Germany, Spain, Japan and others. In this system, the fee each household pays to the municipality or garbage collection agency depends on the amount of waste it produces. This method encourages both recycling and reducing food waste, because food accounts for a significant portion household waste, by weight.

1. Based on food value chain model developed by BDO, using weighted data from the Central Bureau of Statistics for 2018, a national survey of the composition of household garbage conducted by the Ministry of Environmental Protection for 2012-13, and research on household garbage in Israel conducted by Dr. Ofira Ayalon and Efrat Elimelech that was published in 2018, and results of a survey conducted by Geocartography Research Institute in January 2019. [↑](#footnote-ref-1)
2. Household Food Waste survey of 500 households, representative of the Israeli population, conducted by Leket Israel and BDO, with the assistance of Geocartography Research Institute, in January 2019. [↑](#footnote-ref-2)
3. Economist Global Food Security Index, 2018 [↑](#footnote-ref-3)
4. <https://www.moag.gov.il/subject/the_food_we_eat/Storage_Guidelines_For_Fruits_Vegetables/Pages/Storage_Guidelines_consumer.aspx> [↑](#footnote-ref-4)