



“What a Waste!”

***“What a Waste!”: Japanese and American College
Students Perceptions on Food Waste and Its
Environmental Impacts***

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Outline of Study

- ❖ Significance of the Study
- ❖ Research Questions
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- ❖ Conclusion
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Significance of the Study



Alyssa Powell

As a college student, I tend to eat out a lot. I often neglect the leftovers in my fridge and end up throwing them out. This wastes the money I work so hard to earn and puts a strain on the environment. I would love to show how significant our own impact can be despite a system of food habits that often works against our daily lives.



Judy Kim

With the pressing matters of climate change, I always wondered if there was something I could do. Throughout my time at CSUMB, I found that food waste is a problem people globally contribute to. I want to research the environmental impacts as well as the efforts being made to help alleviate this problem.

Research Questions

Research Question 1

What are the perceptions of Japanese and American college students in regards to the reduction of food waste in their own households as well as within their community?

Research Question 2

To what extent do American and Japanese college students are aware of the environmental impacts?



Contents of Literature Review

Overview of Food Loss in Japan and the United States

Main Causes of Food Waste

Impact on the Environment

Greenhouse Gasses

Food Mileage



Overview of Food Waste in the United States

- ❖ As of 2014, it was estimated that the U.S. discarded 133 billion pounds of food yearly (Buzby, Jean C. et al. 2015)
- ❖ The largest perpetrator of food waste is misunderstanding of expiration stickers and lack of education on food and health topics
 - About $\frac{2}{3}$ of all food wasted was potentially edible (Natural Resources Defense Council, 2022)

The #1 food products disposed of are dairy and meat products



(Feeding America, 2020)

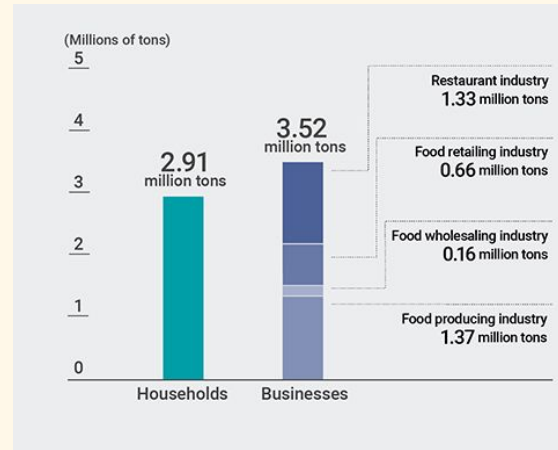
Overview of Food Waste in Japan

Nearly half of food that is wasted comes from Japanese households

- In 2010, it was estimated that Japan discarded 18 million tons of food yearly, of which about 5 million tons were still considered edible
- Since 2016, the amount has increased from 6 million tons to 8 million tons in 2021

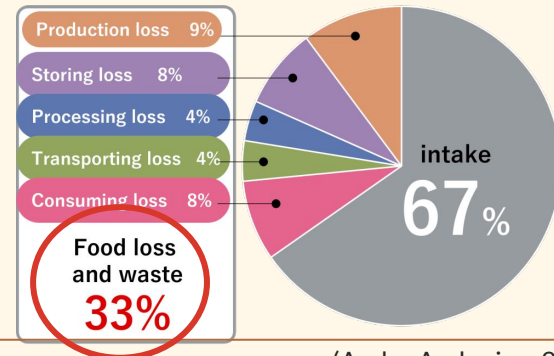
The #1 food products disposed are fruits and dairy products

(Marra, F. 2013)
(United Nations, 2021)



Breakdown of 6.43 million tons of edible food loss in Japan and where it comes from (Ministry of the Environment JP, 2016)

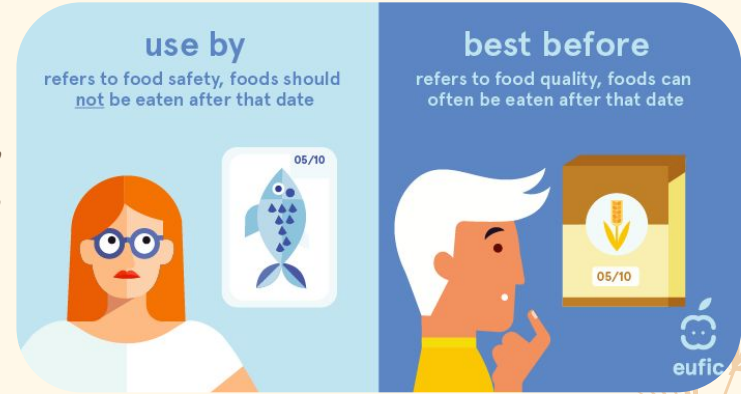
About $\frac{1}{3}$ of all food produced for consumption in Japan is wasted



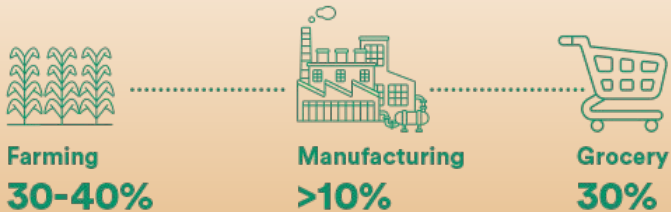
(Andre Andonian, 2020.)

Main Causes of Food Waste Within America

- ❖ Similar to Japan, nearly half of all food waste in the United States comes from households (Slide 6)
- ❖ More than 80% of Americans misunderstand food labels, as there are so many labels: “sell by”, “best before”, “use by”, “expires on”.
 - To combat foodborne illness, many Americans decide to discard food with labels they misunderstand (Feeding America, 2022)



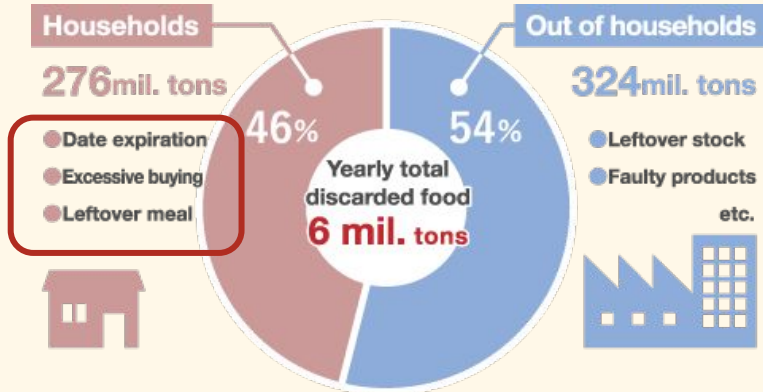
How much food is wasted along the entire supply chain



(Postharvest Education Foundation, 2020)

- ❖ When it comes to grocery stores and businesses, food is likewise wasted due to **extra stock product** and **faulty/broken product or packaging** and **food recalls**
- ❖ Much of food produced for consumption is also lost within the *farming* and *manufacturing* processes

Main Causes of Food Waste Within Japan



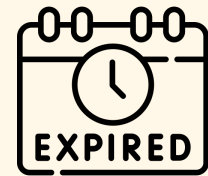
The estimated amount of Food Loss and Waste in Japan (2018)

(System Square, 2018)

- ❑ In Japan, a majority of food waste comes from out of the household, such as within businesses and food companies
- ❑ However, still nearly half of all food wasted in Japan is caused by households.
- ❑ *Primary reasons are among expiration dates, misunderstanding best-by dates, leftovers, and overbuying product*

In a survey on reasons for household food waste conducted primarily by Kimura Yuka (Keio University, 2021), it was found that among 76 people surveyed:

- 36.8% (28 people) listed their main reason for food waste as **leftovers**
- 31.6% (24 people) listed their main reason for food waste as **expiration dates** with 14.5% (11 people) stating **best-by dates** as their reason



(Kimura 2021)

Impact on the Environment

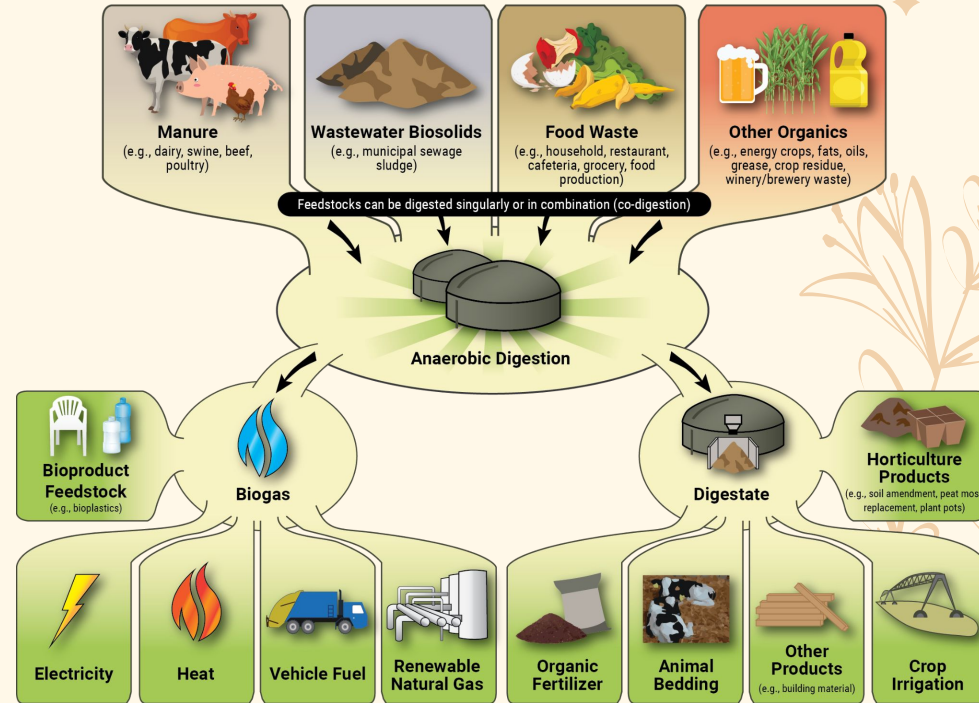
- ❖ Food waste contribution to climate change
 - Rotting food in landfill creates methane
 - Methane = 25x more warming power than CO₂
 - Overall degradation of climate system and biodiversity (e.g. Deforestation, overfishing)
- ❖ Composting:
 - Negate the effects of numerous greenhouse gasses (e.g. Methane & Carbon dioxide)
 - Food waste with other organic matter

(Awatashi, et. al 2020)

A decorative illustration of a plant with several leaves and small flowers, rendered in a light brown or tan color, positioned on the right side of the slide.

Greenhouse Gasses Globally

- ❖ Earth needs **natural** atmospheric greenhouse effect to keep the average temperature up.
- ❖ Humans are currently contributing excess: Water Vapor, Carbon Dioxide(CO₂), Methane(CH₄), Ozone(O₃)and Nitrous Oxides(N_xO).
 - Most concerning GHG: CO₂
- ❖ More than 95% of food waste end up in landfill where it converts to CH₄ & CO₂ through anaerobic digestion (bacteria breaking down organic matter with the absence of oxygen).



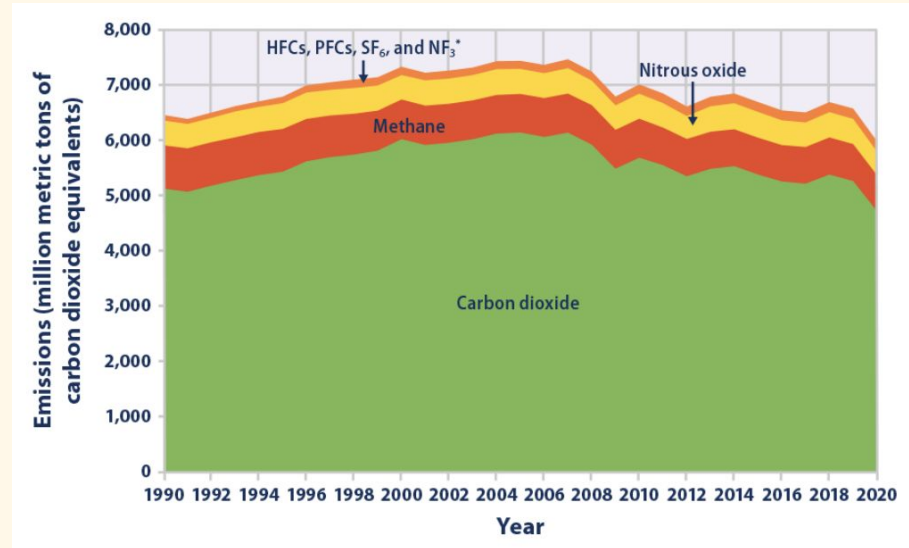
(Cassia, et. al 2018)

Greenhouse Gases

In America's Case...

- ❖ 2007 – 2009: Emissions declined due in part to a drop in U.S. economic production.
- ❖ 2010-2012: Decreased due to growing use of natural gas / renewables to generate electricity in place of more carbon fuels.
- ❖ 2020: U.S. greenhouse gas emissions totaled 13.2 trillion pounds of carbon dioxide equivalents.
 - This total represents a 7% decrease since 1990 + 20% decrease since 2005
- ❖ 2019-2020: 9% drop primarily due to COVID

Trends in America



(EPA 2022)

Greenhouse Gases

In Japan's case...

- ❖ 2011: Nuclear disaster in Fukushima caused fossil fuels to replace nuclear energy, resulting in increased emissions shortly after the disaster
- ❖ 2020: Total emissions of greenhouse gases in Japan amounted to 1.15 billion tons of CO₂ equivalent. Carbon dioxide emissions accounted for over 90 percent of the total greenhouse gas emissions.
- ❖ Currently focusing on using renewable and nuclear energy in place of fossil fuels.
- ❖ Unlikely to eliminate carbon emissions by 2050.

Japan's Trends



Fukushima

(Klein 2022)

Food Mileage

Food mileage: Distance of (typically) imported foods from farm to plate.

Expressed as t-km (ton-kilometer)

America

- ❖ 270 million t-km
- ❖ More self sufficient
 - Imports 20% food
- ❖ Exports surplus
 - E.g. Cereal to Japan
- ❖ Cause? World War II efforts to mass produce food for military.

Buying locally
reduce GHG
emissions

Relation to WWII

Japan

- ❖ 900 million 2-km in 2001
 - Grain exports from distant countries (U.S.)
- ❖ Urbanization decreased agricultural self sufficiency.
 - 1965: 73%
 - 2000: 40%
 - Cause? Post World War II food policies
 - Modernization
 - Industrialization
 - Globalization

(Mok, et. al 2014)

Research



Research Method

- Study Participants 60
 - 60 University Students
 - 30 of Japanese University Students
 - __ men and __ women
 - 30 of American University Students
 - __ men and __ women
- Research Instrument
 - Online Survey (Google Forms)
 - English Survey
 - Japanese Survey



Research Findings



Conclusion



Limitations of Study and Future Research



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