

# THE IMPACT OF CONSUMERISM AND FOOD WASTE OF MEAT PRODUCTS ON THE ENVIRONMENT IN EUROPE

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## Abstract

The impact of consumerism and food waste in Europe's meat sector has become a critical issue with significant environmental implications. The continuous increase in demand for meat is associated with excessive use of natural resources, deforestation, water consumption and increased greenhouse gas emissions. Also, food waste in the meat sector, which affects all stages of the supply chain, contributes to the loss of valuable resources and the pollution of soil and water. This paper examines the extent of these problems in the member states of the European Union, identifying the countries with the greatest environmental impact and analyzing the measures implemented to reduce food waste and promote sustainability. The study focuses on innovative solutions and legislative measures adopted at European and national level to optimize the food supply chain and reduce emissions from the meat industry. The results show that implementing more sustainable practices and engaging consumers are essential to reducing food waste and environmental impact.

**Key words:** consumerism, emissions, food waste, meat industry, sustainability

## INTRODUCTION

The meat industry is one of the largest agri-food sectors in Europe, significantly contributing to regional GDP and providing jobs for millions. However, this industry comes at a high environmental cost [1]. As demand for meat has increased, so has the pressure on natural resources and fragile ecosystems. Meat production requires vast amounts of water and agricultural land, and greenhouse gas emissions from the meat sector, particularly methane emitted by cattle, contribute to climate change. Europe, while being a relatively well-regulated region regarding environmental protection standards, faces a significant challenge in managing the environmental impact of the meat sector. In particular, food waste from

this sector remains one of the largest sources of indirect pollution, and European countries vary significantly in their approaches to tackling this issue [2].

In recent decades, the demand for meat has significantly increased in Europe. This trend has been driven by rising incomes, lifestyle changes, and rapid urbanization. Per capita meat consumption in Europe is among the highest in the world, with countries like Germany, France, and Spain being some of the largest consumers. Unfortunately, this appetite for meat comes with immense pressure on natural resources [3].

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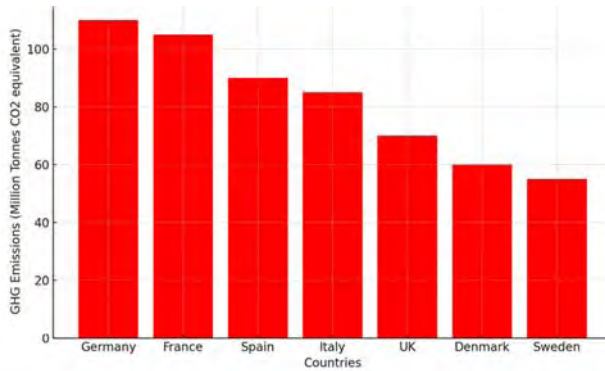


Fig. 1 GHG Emissions from the Meat Sector in Various European Countries (Million Tonnes CO<sub>2</sub>)

A relevant example is water usage. Meat production is particularly intensive in terms of water consumption. It is estimated that around 15,000 liters of water are needed to produce one kilogram of beef, considering the water required for growing animal feed, hydrating the animals, and slaughtering processes [4]. In addition, the agricultural

land needed to produce feed for farmed animals is one of the main factors leading to deforestation and loss of biodiversity. In many European countries, agricultural land is largely devoted to growing feed for animals, thus limiting the availability of land for other types of crops.

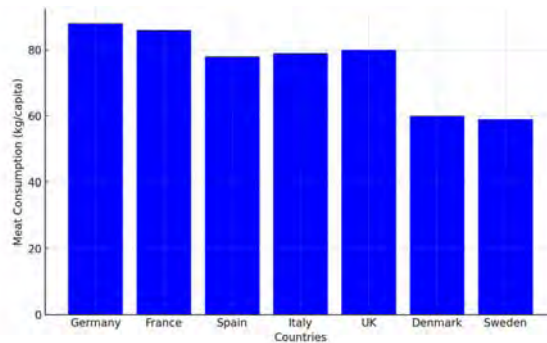


Fig. 2 Meat Consumption Per Capita in Various European Countries (kg/year)

Meat production is one of the main sources of greenhouse gas emissions globally, and Europe is no exception. Methane, emitted by cattle through digestive processes, is about 25 times more potent than carbon dioxide in terms of its contribution to global warming. Additionally, the energy used for processing and transporting meat, combined with emissions from the decomposition of wasted food, significantly

contributes to the total greenhouse gas emissions.

Food waste is a major issue that affects all stages of the meat supply chain, from production and processing to distribution and consumption. In Europe, between 20% and 30% of food products are wasted, and a significant portion of this waste is represented by meat products. This waste not only results in major economic losses but also has a serious environmental impact.

Every kilogram of wasted meat represents a huge loss of natural resources, such as water and animal feed, and contributes to

greenhouse gas emissions, especially when the meat ends up in landfills and decomposes, generating methane [5].

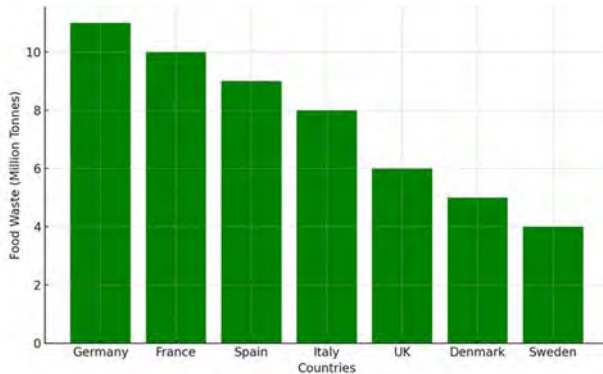


Fig. 3 Food Waste in Various European Countries (Million Tonnes)

Research indicates that some of the highest levels of food waste in the meat sector are recorded in countries like Germany, France, and the United Kingdom. These countries, which have large populations and high demand for meat, face challenges in managing stock and efficiently distributing meat products. In particular, Germany has reported high levels of food waste in supermarkets and restaurants due to excessive purchases and inefficient stock management [6].

#### *Solutions to Reduce Food Waste and Promote Sustainability*

The European Union and its member states have begun to adopt concrete measures to reduce food waste and lessen the environmental impact of the meat industry. Among these solutions are:

- **Optimizing Supply Chains:** The introduction of modern refrigeration and transportation technologies can reduce meat losses during distribution. In some member states, such as France and Sweden, AI-based monitoring systems have been implemented to optimize stock management and reduce waste risk.

- **Consumer Education:** Awareness campaigns for European consumers have

begun to show positive results. For example, in Denmark, national campaigns promoting more rational purchasing habits and responsible cooking have contributed to reducing food waste.

- **Food Donations:** Many European countries have introduced legislation encouraging the donation of unused food. In France, for example, supermarkets are legally required to donate unsold food to charities instead of throwing it away.

- **Promoting Sustainable Consumption:** Countries like Sweden and the Netherlands have begun promoting alternatives to traditional meat, including plant-based meat, which has a much lower environmental impact. These countries have also invested in research to develop technologies that allow for the production of artificial meat with a reduced impact on natural resources [7].

## **MATERIAL AND METHOD**

This study is based on the collection and analysis of data from multiple secondary sources, including reports published by institutions such as Eurostat, FAO, and European environmental organizations. We also used data from academic articles, case

studies, and government reports to assess food waste and the environmental impact of meat products in European countries.

To assess losses in the meat industry, data related to meat waste at different stages of the supply chain were analysed: production, processing, distribution, and final consumption. Data from national institutions and international organizations such as FAO and Eurostat were used to identify EU member states with the highest levels of food waste and the associated greenhouse gas emissions.

To assess the environmental impact of meat products, data on the consumption of natural resources such as water and agricultural land, as well as the greenhouse gas emissions generated in the production and distribution of meat, were analyzed. The study also evaluated the ecological footprint of the meat industry, focusing on deforestation related to the production of animal feed and biodiversity loss [8].

The data collected were analysed using descriptive and comparative methods to highlight trends and correlations between the increase in meat production, food waste, and environmental impact. Comparative analysis between European countries was used to identify differences in the policies and measures adopted by each country to reduce food waste. Predictive models were also used to estimate the future impact of the implemented measures on reducing greenhouse gas emissions and food waste [9].

## RESULTS

The analysis of the collected data showed that food waste in the meat industry in Europe is significant, particularly in countries with high meat demand, such as Germany, France, Italy, and the United Kingdom. The data indicate that a large portion of this waste comes from the distribution and retail stages, where products are either inefficiently managed or discarded before their expiration date.

Specifically, Germany reported a high level of food waste in supermarkets, where meat is often thrown away due to excessive stock. Additionally, in France and Spain, large amounts of meat are wasted in the HORECA sector (hotels, restaurants, and catering), where the prepared quantities frequently exceed actual demand [10].

In contrast, Nordic countries like Denmark and Sweden have managed to reduce food waste in the meat sector through the implementation of rigorous measures, including consumer education campaigns, food donation systems, and logistics optimization.

## DISCUSSIONS

The results confirm that food waste is closely linked to the level of consumerism and the lack of effective food resource management measures in some European countries. It also became clear that solutions to reduce this phenomenon need to be diversified and adapted to the specific context of each country.

In Germany, for example, solutions focused on improving the supply chain and optimizing stock management have shown relative efficiency in reducing losses. In France, the law requiring the mandatory donation of unsold food products from supermarkets to charitable organizations has significantly contributed to reducing food waste [11].

A crucial aspect that emerged from this analysis is the importance of educating consumers about the environmental impact of food waste. In countries like Denmark and Sweden, awareness campaigns have had a positive impact on consumer behaviour, reducing excessive purchases and promoting more responsible consumption. This approach has proven to be a key factor in reducing food waste and, consequently, in mitigating its environmental impact.

### *Policies and Legislative Measures to Combat Food Waste*

The European Union has recognized the importance of reducing food waste and has set ambitious targets to cut it by 50% by 2030, according to the "Farm to Fork" strategy under the European Green Deal. In this context, each member state is responsible for implementing national measures to contribute to achieving these objectives.

In France, the 2016 law requiring supermarkets to donate unsold food has been an important step towards combating food waste. This measure has also been extended to other sectors, including restaurants and catering services, thus contributing to the reduction of waste in the meat sector.

In Sweden and Denmark, government policies have supported innovation in the food industry, encouraging the development of technologies to optimize food stock management and improve logistics efficiency. Additionally, these countries have promoted the consumption of meat alternatives, including plant-based meat, as a sustainable solution to reduce emissions in the agricultural sector.

### CONCLUSIONS

This paper analysed the impact of consumerism and food waste in the European meat industry on the environment, highlighting the major challenges the continent faces in this sector. It has been demonstrated that food waste is not only an economic problem but also an environmental one, significantly contributing to greenhouse gas emissions and the inefficient use of natural resources.

Countries with the greatest environmental impact due to meat consumption and production, such as Germany and France, need to improve their policies and practices to reduce food waste and mitigate environmental damage. The proposed solutions, including logistics

optimization, food donation, and consumer education, can have a significant impact on reducing waste.

In conclusion, reducing food waste in the meat industry is essential for meeting the European Union's goals of cutting greenhouse gas emissions and promoting sustainable consumption. Adopting more responsible practices, both at the individual and industrial levels, can greatly contribute to protecting natural resources and reducing the negative environmental impact of the meat sector.

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