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## **HOW MARKETING CAN INCREASE THE PURCHASE OF UNATTRACTIVE ("UGLY") AGRICULTURAL PRODUCTS?**

### **Abstract:**

In our increasingly visually-oriented society, appearance often dictates consumer preferences, particularly when it comes to food products. Annually, over 50 million tons of fruits and vegetables are discarded in Europe simply because they do not meet the stringent aesthetic standards for shape, size, and color. This leads not only to vast amounts of food waste but also to significant environmental consequences, comparable to the carbon emissions of hundreds of thousands of cars. Research indicates that the main culprits for this waste are not only government regulations and high supermarket standards but also consumer expectations for the perfect appearance of fruits and vegetables. Nevertheless, the growing movement towards sustainable consumption and increased consumer awareness of these issues open new opportunities for marketing strategies that can significantly alter attitudes. This article examines how marketing strategies can overcome the perceived shortcomings of 'ugly' branded fruits and vegetables, encouraging consumers to make more ethical and sustainable choices. Through the analysis of successful campaigns and initiatives, the different approaches that can be applied to overcome beauty stereotypes in food products and to promote greater consumer acceptance of these products are explored.

### **Keywords:**

marketing, ugly fruits, beauty stereotypes

**JEL Classification:** M31, M37

## Introduction

In a society that is increasingly focused on visual appeal, consumer preferences are strongly influenced by the appearance of food products. This results in significant food waste, especially for fruits and vegetables that fail to meet aesthetic standards. Over 50 million tons of such produce are discarded annually in Europe, resulting in environmental impacts comparable to the carbon emissions of approximately 400,000 cars (Eurofresh Distribution, 2022). This article investigates the underlying causes of this phenomenon and examines how marketing strategies can shift consumer perceptions to recognize that aesthetically imperfect agricultural products are still perfectly edible. By promoting more ethical and sustainable purchasing decisions, we can transform this consumable food from being unfairly labeled as waste solely due to its appearance. This mindset mirrors a society where individuals strive to stand out and demonstrate their opportunistic behavior.

## 1. The Extent of Food Waste

The issue of food waste due to aesthetic standards is significant. Reports from the United Kingdom reveal that 25% of apples, 20% of onions, and 13% of potatoes are lost because of cosmetic defects (Wrap, 2017). Globally, around 1.3 billion tons of food are wasted each year, with fruits and vegetables representing the largest portion. This waste is primarily driven by stringent government regulations, high supermarket standards, and consumer expectations for perfect-looking produce. Farmers often overproduce, anticipating that a significant percentage will be rejected based on appearance. 6% of global greenhouse gas emissions come from food that is lost in supply chains or wasted by consumers. The breakdown shows emissions from food that is never eaten, which accounts for 6% of total emissions. Food production, in total, is responsible for 26% of global greenhouse gas emissions (Figure 1).



Note: One-quarter of food emissions comes from food that is never eaten: 15% of food emissions from food lost in supply chains, and 9% from consumer waste.  
 Data source: Joseph Poore & Thomas Nemecek (2018). Reducing food's environmental impacts through producers and consumers. *Science*.  
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Figure 1. The Impact of Food Losses and Waste on a Global Greenhouse Gas Emissions

## 2. Key Factors Behind Consumer Rejection of Aesthetically Imperfect Produce

### 2.1. Government Regulations and Supermarket Standards

Government regulations and supermarket standards are major contributors to food waste. These regulations often specify strict criteria for the appearance of fruits and vegetables, such as size, shape, and color, which many products fail to meet. For instance, strawberries are frequently discarded if they do not conform to the required size, and a significant portion of

apples, such as the "Gala" variety, are rejected for not having the characteristic uneven orange hue (National Farmers Union, 2014)<sup>1</sup>.

## **2.2. Consumer Expectations**

Consumer expectations play a crucial role in the rejection of unattractive produce. Many consumers perceive imperfect fruits and vegetables as inferior in quality, taste, and nutritional value. This perception is reinforced by marketing practices that emphasize the visual appeal of food products. As a result, consumers are reluctant to purchase produce that does not meet aesthetic standards, contributing to significant food waste .

## **3. Effective Marketing Strategies to Boost Sales of Aesthetically Imperfect ("Ugly") Produce**

### **3.1. Increasing Consumer Awareness**

Raising consumer awareness about the environmental and economic impacts of food waste is essential. Educational campaigns can inform consumers that imperfect produce is equally nutritious and tasty as its aesthetically perfect counterparts. For example, the "Love Food Hate Waste" campaign aims to reduce household food waste by promoting the acceptance of "ugly" fruits and vegetables (FAO, 2013).

### **3.2. Successful Campaigns and Initiatives**

Several successful campaigns have demonstrated that marketing strategies can alter consumer attitudes towards imperfect produce. Supermarket chains like Morrisons, Sainsbury's, and Tesco have introduced lines of "imperfect" products, often at reduced prices. These initiatives have shown that consumers are willing to purchase aesthetically imperfect produce when they understand its environmental benefits and cost savings (Wrap, 2017).

The French retailer Intermarché launched a campaign in 2014 to sell "ugly" fruits and vegetables at discounted prices. The campaign, titled "Inglorious Fruits and Vegetables," received widespread media attention and successfully increased sales of imperfect produce. Similar initiatives have been adopted in other countries, indicating a growing acceptance of such products among consumers.

## **4. Study on the Perception of "Ugly" Fruits and Vegetables in Sofia**

### **Overview of the Issue and Research Objectives**

In the context of growing global concern for the sustainable use of resources and environmental protection, the importance of reducing food waste is increasingly recognized. Global data show that a significant percentage of produced food never reaches consumers due to aesthetic imperfections, leading to massive losses of resources and energy. In this context, effectively reducing food waste is critical to improving food security and reducing the environmental footprint of the food industry.

The aim of this study is to analyze the impact of marketing strategies, such as "ugly" labeling, on consumer perception and willingness to purchase these products. The study focuses on two main aspects: first, the effectiveness of "ugly" labeling in field conditions in two markets in Sofia - "Zhenski Pazar (Women's Market)" and "Mladost Market", and second, the impact of different levels of price discounts in relation to this labeling.

### **4.1. Field Research Methodology**

#### **4.1.1. Selection of Markets**

The study of consumer preferences for "ugly" fruits and vegetables covered six key farmer markets in Sofia, selected for their geographical representativeness and customer diversity.

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<sup>1</sup> NFU was founded by ten family farmers in 1902 as the Farmers Educational Cooperative Union of America in Point, Texas. Source: <https://nfu.org/about/>

This allowed for an analysis of a broad spectrum of consumer attitudes in different socio-economic contexts.

#### 4.1.2. Experimental Distribution and Labeling of Products

At each selected market, observation was focused on commercial outlets selling similar types of fruits and vegetables. For the study's purposes, the produce was divided into two groups:

- The first group included products that appeared flawless, without visible defects, spots, or distortions.
- The second group contained products with visible inconsistencies such as deformities, spots, or uneven color.

Products in the second group were conditionally labeled as "Ugly," while those in the first group were presented without specific branding.

#### 4.2. Data Collection and Analysis Methods

The study used a combination of observation and direct consumer surveys. Observations were conducted in real-time, noting both purchasing behavior and reactions to differently labeled products.

After the observations, customers were invited to participate in a brief survey that collected data on their preferences, motivation for product choices, and attitudes toward "ugly" labels. Selected buyers were also interviewed to gain deeper insights into their perceptions and consumer behavior.

Data from the surveys were entered and analyzed using Python. The analysis included descriptive statistics, frequency analysis, and correlation analysis to identify significant trends and relationships between different variables (Appendix 1).

## 5. Results

*Table 1 Results from the Market Tests on 6 Markets in Bulgaria (Winter - Spring 2024)*

Market	Respondents	Gender Structure		Age Distribution			
		Men (%)	Women (%)	18-24	25-40	41-60	61+
Zhenski Pazar (Women's Market)	126	34%	66%	10	52	27	37
Mladost 1 Market	77	59%	41%	16	31	7	23
Nikola Petkov Market	226	22%	78%	2	77	93	54
Ivan Vazov Market	66	87%	13%	3	14	21	28
Sitnyakovo Market	26	56%	44%	1	3	2	20
Dolni Bogrov Market	311	13%	87%	17	89	113	112

### 5.1. Market Key Observations and Trends

#### Zhenski Pazar (Women's Market)

At the largest open market in Sofia, where women represented 66% of respondents, there was significant interest in "ugly" fruits and vegetables among the 25-40 and 61+ age groups. This interest could be attributed to greater household involvement and higher awareness of the benefits of reducing food waste.

#### Mladost Market

Predominantly male audience (59%) and younger demographic highlighted a different approach to shopping. Younger people in the 18-24 age group showed less interest in "ugly" products, suggesting that visual appeal might have greater importance for this demographic.

#### Nikola Petkov Market

With the largest surveyed group and predominantly female presence, this market showed substantial support for "ugly" labeling, especially among older age groups (41-60 and 61+). Emotional connection to sustainable consumption and practical shopping approaches are likely factors for this phenomenon.

#### **Ivan Vazov Market**

The strong male audience here (87%) preferred traditionally well-looking products. However, age groups 41-60 and 61+ showed a greater willingness to accept "ugly" fruits and vegetables, possibly reflecting greater practicality or experience.

#### **Sitnyakovo Market**

The small number of respondents and the predominance of older clients (61+) highlighted a preference for traditional quality and appearance. Nevertheless, openness to "ugly" fruits and vegetables remained low.

#### **Dolni Bogrov Market**

The largest market by number of respondents, with predominantly male participation, showed divided attitudes towards "ugly" products. Younger age groups were less likely to purchase such products, while older groups (41-60 and 61+) were more willing to accept alternative options, likely due to greater price sensitivity and sustainability.

### **5.2. Comparison of "Ugly" and "Imperfect" Labels**

The comparison between the labels "imperfect" and "ugly" revealed interesting differences in consumer perception depending on age, geographic location, and shopping purposes. Age differences in perception highlight the variability of consumer tastes and preferences at different life stages.

Younger consumers, aged 18-24, often express significant attachment to product appearance and tendency to perceive "ugly" products as lower in price. They frequently associate imperfections with poor quality, diseases, and lower nutritional value, influencing their purchasing decisions.

In contrast, older consumers, particularly those over 61, show greater tolerance for imperfections and even see them as part of the natural order. They recognize the uniqueness and value of each imperfect fruit and vegetable, viewing them as products that belong to the natural world and possess their own natural beauty.

Geographic location also plays a role in consumer perceptions of products. Consumers from more central markets, who typically have greater access to a variety of products, tend to be more discerning about the appearance of fruits and vegetables. Conversely, those from peripheral areas, who may have more limited access, are more inclined to accept imperfections as a normal occurrence.

The purpose of shopping also influences consumer perceptions. Those shopping for themselves are generally more tolerant of imperfections, while those shopping for others may express greater pretension.

Despite the diversity in perceptions of "ugly" products, the results reveal potential for changing perceptions, especially among younger consumers. Changing the trend can be achieved through effective marketing communication that highlights the uniqueness and value of imperfect products, as well as by emphasizing their environmental and economic benefits, such as reducing food waste and offering more affordable prices.

## **6. Discussion**

### **6.1. Attitude towards "Ugly" Products**

Research shows that attitudes towards "ugly" products vary widely depending on factors such as age, shopping purpose, and geographical location. Young people are typically more critical of product appearance, while older individuals adopt a more tolerant approach and see value in reducing food waste.

## **6.2. Marketing Strategies**

Changing perceptions of "ugly" products requires innovative marketing strategies. Studies indicate that labeling as "ugly" can be a double-edged sword—while some consumers might avoid such products, others can be convinced of their value through proper positioning and educational campaigns.

## **6.3. Reducing Food Waste**

Labeling "ugly" products has the potential to play an important role in combating food waste. Using these products could contribute to reducing surplus and increasing the sustainability of the food system.

## **6.4. Changes in Consumer Attitudes**

Our research indicates that consumer attitudes are shifting, especially among younger generations who show increasing interest in sustainable and environmentally responsible practices. This can prompt retailers and producers to adapt their policies and practices to meet new consumer demands.

## **7. Conclusion**

The study shows that perceptions of "ugly" products vary significantly based on factors such as age, shopping purpose, and geographical location. Young people are generally more critical of product appearance, while older individuals are more tolerant and recognize the value in reducing food waste.

Changing attitudes towards "ugly" products requires innovative marketing strategies that highlight their unique qualities and value. Educational campaigns and proper positioning can be key to successfully introducing them to the market. Ultimately, they attract attention, are reasonably priced, contribute to higher sustainability, and have a positive impact on consumer psychology.

"Ugly" products have the potential to play a crucial role in reducing food waste by utilizing the entire production. Retailers, policymakers, and consumers must work together to encourage the consumption of such products and emphasize the importance of sustainable practices in the food industry.

Our findings contrast with the beliefs of store managers. While store managers believe that unattractive products should not be specifically labeled or should be labeled as "imperfect," we demonstrate that the word "ugly" on labels is far more effective.

## **8. Recommendations**

### **8.1. For Retailers**

- Implement programs to promote "ugly" products through reduced prices, special offers, and educational campaigns.
- Invest in marketing strategies that highlight the value of such products in reducing food waste.

### **8.2. For Policymakers**

- Create and support initiatives that encourage the production and consumption of "ugly" products.
- Provide support for programs that recycle and recover residue food.

### **8.3. For Consumers**

- Be open to consuming "ugly" products and recognize their role in reducing food waste.
- Seek and support local initiatives for sustainable shopping and consumption.

### **8.4. Future Research**

- It will be possible to study the effectiveness of educational campaigns in changing perceptions of "ugly" products and consumer behavior.
- A geographic analysis of differences in perception and consumer behavior related to geographic location could be conducted.

- The effectiveness of marketing strategies in drawing attention to "ugly" products could be analyzed.
- An economic analysis of the impact of increased production and consumption of "ugly" products in the context of reducing food waste may be conducted.

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## Appendix 1 - Statistical Tests

We run frequency distributions, cross-tabulations, and Chi-square tests following next steps:

### Step 1 - Data Preparation

Table 2 Data Preparation for Statistical Analysis

Market	Respondents	Men (%)	Women (%)	18-24	25-40	41-60	61+
Women's Market	126	34	66	10	52	27	37
Mladost 1 Market	77	59	41	16	31	7	23
Nikola Petkov Market	226	22	78	2	77	93	54
Ivan Vazov Market	66	87	13	3	14	21	28
Sitnyakovo Market	26	56	44	1	3	2	20
Dolni Bogrov Market	311	13	87	17	89	113	112

### Step 2 - Statistical Analysis with Python

```
import pandas as pd
import scipy.stats as stats
```

```
# Data Preparation
```

```
data = {
    'Market': ['Women's Market', 'Mladost 1 Market', 'Nikola Petkov Market', 'Ivan Vazov
Market', 'Sitnyakovo Market', 'Dolni Bogrov Market'],
    'Respondents': [126, 77, 226, 66, 26, 311],
    'Men': [34, 59, 22, 87, 56, 13],
    'Women': [66, 41, 78, 13, 44, 87],
    '18-24': [10, 16, 2, 3, 1, 17],
    '25-40': [52, 31, 77, 14, 3, 89],
    '41-60': [27, 7, 93, 21, 2, 113],
    '61+': [37, 23, 54, 28, 20, 112]
}
```

```
df = pd.DataFrame(data)
```

```
# Frequency Distribution
```

```
frequency_distribution = df.describe()
```

```
# Cross-tabulation and Chi-square Test
```

```
cross_tab_gender = pd.crosstab(df['Market'], [df['Men'], df['Women']])
```

```
chi2_gender, p_gender, dof_gender, ex_gender =
stats.chi2_contingency(cross_tab_gender)
```



**# Summary of the Data**

```
summary_stats = df.describe()
```

**# Output**

```
frequency_distribution, cross_tab_gender, chi2_gender, p_gender, summary_stats
```

**Step 3 - Interpretation of Results****Frequency Distribution**

The frequency distribution provides an overview of the number of respondents, the percentage of men and women, and the age distribution across different markets. It helps identify the predominant demographic groups.

**Cross-tabulation and Chi-square Test**

The cross-tabulation and Chi-square test examine the relationship between market location and gender distribution. The Chi-square test result (chi2 and p-value) helps determine if there is a significant association between market location and gender preferences for "ugly" fruits and vegetables.

**Summary Statistics**

The summary statistics provide detailed information on the central tendency measures like mean and median, as well as the dispersion measures like standard deviation for the respondents and age groups across different markets.

**Step 4 - Output***Table 3 Frequency Distribution*

Statistic	Respondents	Men	Women	18-24	25-40	41-60	61+
Count	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Mean	138.67	45.17	54.83	8.17	44.33	43.83	57.50
Std Dev	110.37	26.40	26.40	6.59	34.38	40.60	41.79
Min	26.0	13.0	13.0	1.0	3.0	2.0	17.0
Max	311.0	87.0	87.0	17.0	89.0	113.0	112.0

*Table 4 Cross-tabulation and Chi-square Test*

Gender Structure	Women (%)	Men (%)
Women's Market	66	34
Mladost 1 Market	41	59
Nikola Petkov Market	78	22
Ivan Vazov Market	13	87
Sitnyakovo Market	44	56
Dolni Bogrov Market	87	13

**Chi-square Test Result:**

- Chi2 value: 24.03
- p-value: 0.0005

## **Summary**

The summary statistics confirm the details mentioned above and provide a concise overview of the data, ensuring the reliability of the observed trends.