

Food Waste in Generation Z: The Impact of Social Media and the Ineffectiveness of Current Promotional Strategies

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Abstract

This paper aims to contribute to a deeper understanding of Generation Z's perception of food waste. The primary data were obtained through quantitative research using the CAWI (Computer-Assisted Web Interviewing) method. Generation Z sees itself as environmentally orientated and is aware of the undesirable consequences of food waste. The results show that food waste is 33.1% higher when members of Generation Z live independently (with friends, a partner, spouse etc.) than when they live in a shared household with their parents. These results are confirmed by data from similar studies.

The second part of the paper looks at the effectiveness of current advertising strategies to combat food waste. It was found that there is no significant impact on the amount of estimated food waste, regardless of whether respondents have been exposed to any form of advertising. The current advertising measures are therefore rated as ineffective for Generation Z. Only 3.4% of respondents could recall any advertising to reduce food waste through influencers or online education campaigns. Given that the majority of Generation Z representatives spend a lot of time on social media and almost three quarters of respondents get their information from these platforms, the lack of credible influencers promoting sustainable consumption is worrying. Currently, only 16.3% of respondents trust influencers in this area. This lack of trust is likely due to influencers focusing on paid partnerships and personal gain, which diminishes their credibility.

The results show that Generation Z is aware of the problem of food waste, with 67.7% of respondents expressing an interest in this topic. The choice of communication channels will now play a key role in raising awareness of the issue of food waste and in shaping attitudes and values towards sustainability.

Keywords: food waste, Generation Z, influencers, social media, subjective perception.

Introduction

While the problem of food waste in households is relatively well documented, many questions remain in relation to Generation Z, defined as people born between 1995 and 2010. Comprehensive research conducted between 2019 and 2022 on food waste and municipal waste found that Generation Z wastes the most food¹. According to other studies, the composition of households also affects the amount of food waste, with younger members wasting more than older members². These findings suggest that understanding the consumption behaviour of Generation Z is crucial to reducing food waste. Currently, a significant proportion of Generation Z still live in their parents' home³, where they are not yet fully independent, and their behavioural patterns are passed on through social learning. It is therefore a favourable time to examine how this generation deals with food and to propose appropriate measures.

It is important to recognise that these young consumers have the potential to influence food consumption behaviour in relation to sustainability and climate change⁴. This is also the age when young consumers are starting to live independently and can develop proper food habits⁵. There is a need to provide sufficient information in an appropriate format to shape positive attitudes and influence sustainable behaviours and reduce food waste. In social media, there is a high demand for authenticity, which is defined in different ways in media communication. However, most definitions include factors such as honesty, trustworthiness, accuracy, originality and spontaneity⁶. This paper explores how social

media users perceive the authenticity and trustworthiness of new digital celebrities, influencers, and the impact this has on advertising results⁶.

The influencer phenomenon is dynamic evolving over time. What was understood as an influencer a decade ago may have changed⁷. Despite having several definitions, social media can be commonly understood as a collection of online tools, activities, and networks that people use to generate and share their ideas, thoughts, feelings, and perspectives⁸. The latest study by Ami Digital shows that Generation Z prefers to access social media via mobile phones and spends more time on these platforms than any other age group — an average of 210 minutes a day⁹. One of the reasons for the higher food waste among Generation Z is the fast-paced lifestyle and the strong influence of the FOMO effect¹⁰ (Fear of Missing Out).

This generation is often seen as one that cares about sustainability and environmental protection and believes that companies should focus less on profit and more on global benefit¹¹. However, a 2024 survey¹² shows that climate change only concerns 24 % of Generation Z respondents in the Czech Republic. Generation Z should recognise that climate change is closely linked to food waste. Research¹³ on food waste has shown that there is a discrepancy between Generation Z's environmental beliefs and their actual behaviour in relation to food waste. Although many people have an environmentally friendly attitude, there is often a gap between their beliefs (food waste is not sustainable) and their behaviour (food waste)¹³. Knowledge of a responsible and ethical lifestyle does not automatically lead to sustainable consumption patterns. This gap between knowledge, attitude and actual behaviour can be attributed to various obstacles that hinder the practical application of sustainable principles¹⁴. Given that Generation Z has been labelled the "sustainability generation," we might expect their efforts to reduce food waste to be greater¹⁰. Ferencuhová (2021) explains that adaptation to change, in her case to climate change, should be very subtle and, over time, become a routine (unreflected) behaviour that becomes automatic, with which people identify and feel no need to communicate it to others¹⁵. Generation Z should achieve a similar goal by integrating elements that lead to the reduction of food waste into their daily lives without having to think about it.

This paper aims to deepen the current understanding of Generation Z's consumer behaviour in relation to food waste by addressing the following research questions:

- How accurately does Generation Z estimate the amount of food they waste?
- How does the estimated amount of food waste differ between Generation Z living with their parents and Generation Z living independently?
- How does Generation Z perceive current campaigns to reduce food waste?
- What influence do advertising campaigns have on the estimated amount of food waste?
- How would Generation Z want to be educated about reducing food waste?
- What role does family influence play in shaping Generation Z's food waste habits?

Previous research has dealt with the topic of food waste in a more general way, without detailed analyses of Generation Z, whose importance will increase considerably in the coming years. Based on research findings, this paper proposes ways to shape positive attitudes and subjective norms for sustainable behaviour in the fight against food waste among Generation Z.

Materials and Methods

The primary data were collected in a questionnaire survey conducted at the beginning of November 2023. The questionnaire was distributed via a link to a form created in Google Forms, using the CAWI method, which is completely anonymous. A total of 362 respondents from Generation Z participated in the survey, with an emphasis on people born between 2000 and 2004 who have the social status of a student, as this group of people will subsequently be targeted within the educational campaign. As it was a typological sample focussing on Generation Z, household type (with parents or independent) was chosen as the quota variable. A 2019 survey by Residoma and STEM/MARK found that 63% of young people aged 18 to 24 were still living with their parents. In this study, 65.47% of respondents lived with their parents, while 34.53% had already moved out³. The survey was divided into several sections, each focussing on different aspects (planning, purchasing, storage, waste etc.) and comprised a total of 50

questions, 12 of which were demographic questions. Most Generation Z respondents lived in large cities (35.64%) or communities with fewer than 3,000 inhabitants. Almost two thirds of respondents lived in a household with their parents and had a monthly net income of between CZK 50,000 and 60,000. Table 1 below shows the demographic data of Generation Z respondents.

Table 1: Demographic Data of Generation Z Respondents (N=362)

Gender	Frequency	
	Absolute	Relative (%)
Male	144	39.78
Female	218	60.22
Household Type	Frequency	
	Absolute	Relative (%)
Living with Parents	237	65.47
Living Independently (alone, with friends, partner etc.)	125	34.53
Size of Municipality	Frequency	
	Absolute	Relative (%)
Less than 3,000 inhabitants	92	25.41
3,001 - 10,000 inhabitants	58	16.02
10,001 - 50,000 inhabitants	59	16.30
50,001 - 100,000 inhabitants	11	3.04
100,001 - 200,000 inhabitants	13	3.59
More than 201,000 inhabitants	129	35.64
Monthly Net Household Income	Frequency	
	Absolute	Relative (%)
Less than CZK 10,000	35	9.67
CZK 10,001 – 20,000	29	8.01
CZK 20,001 – 30,000	30	8.29
CZK 30,001 – 40,000	29	8.01
CZK 40,001 – 50,000	39	10.77
CZK 50,001 – 60,000	61	16.85
CZK 60,001 – 70,000	38	10.50
CZK 70,001 – 80,000	22	6.08
CZK 80,001 – 90,000	26	7.18
CZK 90,001 – 100,000	21	5.80
More than CZK 100,001	32	8.84

Source: Authors' own survey (N=362)

The first part of the paper focuses on the quantification of food waste and compares the survey results with similar results from studies conducted by Mendel University in Brno. These results are also compared with analyses of real household waste collection data (MSW – Municipal Solid Waste). In autumn 2023, winter 2024 and spring 2024, waste collections were carried out in ten university halls of residence across the Czech Republic, resulting in 30 waste analyses. The second part of the study examines the impact of food waste reduction campaigns on Generation Z, focussing on social media and influencers. The questionnaire included questions on media and social networks. In addition, Instagram was analysed with keywords related to food waste.

The survey largely used a seven-point Likert scale on which respondents could indicate the extent to which they agreed with the statements or how important certain factors were to them. The answer options were grouped together to make interpretation easier. For example, if a respondent selected "definitely not" (1), "no" (2) or "not at all" (3), these answers were summarised in the "no" category. Similarly, answers in the middle of the scale (4) were interpreted as "neutral" or "undecided". On the positive side of the spectrum, the answers "rather yes" (5), "yes" (6) and "definitely yes" (7) were summarised in the category "yes". The relative frequencies of the individual response categories were calculated for selected questions.

A combination of factor and regression analyses was used to uncover the most important factors influencing respondents' willingness to change. The appropriateness of the factor analysis was determined using the Kaiser-Meyer-Olkin (KMO) measure and the Bartlett test. A KMO value above 0.8 indicated that the dataset was suitable for this method. The factor analysis was performed with IBM SPSS Statistics Version 29.

Results and Discussion

The first part of the paper deals with the quantification of food waste in Generation Z. The results are based on the authors' own survey (N=362), which first assesses Generation Z's general perception of food waste in households, followed by specific estimates of the amount of food waste, which are then compared with the results of similar studies.

Figure 1 below illustrates how Generation Z perceives its own food waste at home. Most respondents state that they tend not to waste food and only 4 % of respondents claim that they do not waste food at all, while the same percentage of respondents state that they waste more food than average. In addition to the scale-based assessment of food waste, respondents were asked to estimate the amount of food waste. Respondents who reported higher levels of food waste estimated their food waste at 110 g/person/day, significantly higher than the estimates of those who reported not wasting any food at all (33.5 g/person/day). Approximately 75 per cent of respondents stated that they "do not waste any food" (35.7 g/person/day) or "tend not to waste any food" (48 g/person/day). Seventeen per cent of respondents stated that they "moderately" waste food, which is an estimated 57.1 g/person/day. As the following figure shows, the estimated quantities of food waste are in line with the subjective assessment of the respondents.

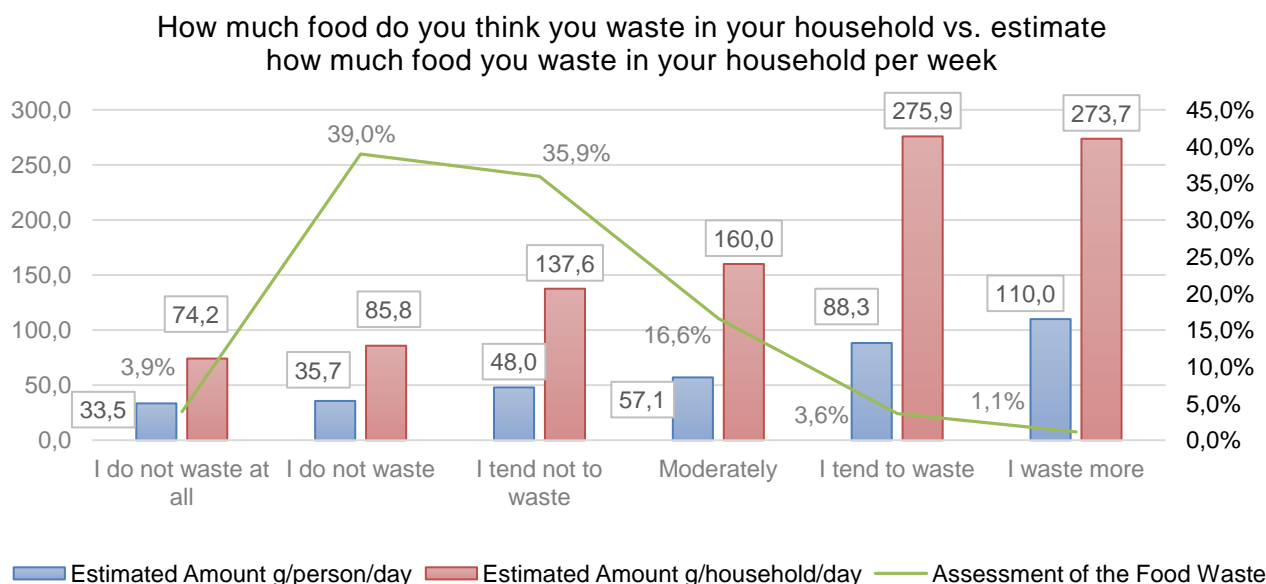


Figure 1: Subjective Assessment of Food Waste in Relation to the Estimated Amount of Food Waste

Source: Authors' own survey (N=362)

In the survey, respondents were asked to estimate the amount of food they waste each week in their households. The questionnaire included specific examples of the weight of different foods (e.g. a slice of bread/roll = approx. 50 g, an apple = approx. 150 g, a portion of boiled potatoes = approx. 200 g). Respondents could choose from predefined categories or select "I have no idea". For the calculations, the mean value of the selected interval was used to estimate the average amount of food waste per day. Respondents who selected "I have no idea" were excluded from the calculations. The Generation Z group analysed appears to be relatively homogeneous and shows no significant differences in terms of gender, education or place of residence. However, there was a difference in household composition, e.g. whether respondents lived with their parents or independently. The respondents were therefore divided into two groups: those who still living with their parents and those who have moved out. Members of Generation Z living with their parents estimated that they waste an average of 43.7 grammes of food per person per day (equivalent to 16.0 kg per person per year or 54.4 kg per household per year). In contrast, members of Generation Z who living independently (alone, with a partner etc.) estimated their food waste at 58.4 grammes per person per day (equivalent to 21.3 kg per person per year or 37.3 kg per household per year). Food waste therefore increases as soon as members of Generation Z move out and live independently. However, it is necessary to compare these figures per household member and not per household as such, since food waste tends to increase as the number of household members decreases. Approximately 13% of Generation Z respondents had no idea how much food waste they generate per week. It is important to note that these figures represent respondents' subjective estimates.

A large-scale survey (N=1,008) conducted by Mendel University in Brno in 2023 came to similar conclusions¹⁶. Members of Generation Z living with their parents estimated their daily food waste at 38 g/person/day, while those living in university halls of residence reported 59 g/person/day. Mendel University also conducted waste analyses at 10 university campuses in the Czech Republic, which revealed that members of Generation Z living in halls of residence waste an average of 43.4 g/person/day¹⁷. This figure, derived from 30 real waste (MSW) analyses, is the first figure published by Mendel University (from the first series of analyses)¹⁷.

Table 2: Estimated Food Waste by Household Type Compared to Similar Research

Type of Survey	Living with Parents		Living Independently		Difference %
	Annual Food Waste (kg)	Daily Food Waste (g)	Annual Food Waste (kg)	Daily Food Waste (g)	
Own survey (calculated per person)	16.0	43.7	21.3	58.4	+33.1
Mendel University Survey ¹⁶	13.9	38.0	21.5	59.0	+54.7
Real Waste Collection (MSW) ¹⁷	x	x	15.8	43.4	x

Source: Authors' own survey (N=362)

An earlier study measuring actual food waste in Czech households found that apartment blocks produce an average of 53.6 kg of food waste per person per year, compared to 37.4 kg per person per year in all other types of housing²⁰. However, respondents significantly underestimated their food waste and estimated that they only waste a third (approx. 12 kg) of the actual amount²⁰. This illustrates the significant discrepancy between the perceived and actual amount of food waste. A similar study, which measured food waste using diary surveys, found that the average amount of food wasted in 400 Czech households was around 57 kg per person per year²¹. In another study²² looking at rural households, significant variations were found, but the final measured food waste was only 7.9 kg per person per year.

The results of this survey (N=362) show that estimated food waste increases by 33 % annually when members of Generation Z live independently compared to when they live with their parents. The Mendel University survey showed an even greater increase of almost 55 %. Furthermore, the estimated amount of food waste (21.3 kg annually) is higher than the actual measured amount of MSW (approximately 16 kg annually). However, it should be noted that the measurement of municipal solid waste was conducted in halls of residents where students spend only part of their day, so the total daily amount of food waste is likely higher. Therefore, the actual figure of 16 kg per year should be considered

a minimum estimate. The consistency between the respondents' estimates and the actual amount of waste suggests that the survey estimates are reasonably accurate.

In the questionnaire, respondents were asked whether they could remember any advertising campaigns aimed at reducing food waste. The answers were further analysed in the next section. Respondents who recalled a campaign (e.g. waste reduction flyers, in-store warnings, radio campaigns, posters, social media posts etc.) described its characteristics, motives, location, etc. Fifty per cent of respondents (50.28%) recalled a campaign, while 49.72% did not. A correlation was then analysed between respondents who recalled an advertising campaign to reduce food waste and the amount of food waste they estimated. However, the results showed no statistically significant influence of these campaigns on the estimated amount of food waste.

Table 3: Estimated Food Waste by Household Type and Promotional Campaigns

Household Type	Recalled Promotion		Did Not Recall Promotion	
	Relative (%)	Estimated amount of waste in grams per day	Relative (%)	Estimated amount of waste in grams per day
Living with Parents	32.60	37.46	32.87	44.14
Living Independently	17.68	54.78	16.85	56.10
Total	50.28	x	49.72	x

Source: Authors' own survey (N=362)

As shown in Table 4, respondents who did not recall any food waste reduction communication estimated the amount of food wasted to be slightly higher, but the difference is not particularly significant. It can therefore be concluded that the current intervention measures have very little impact on Generation Z.

Table 4: Estimated Average Weekly Food Waste per Generation Z Household (calculated per person) Based on Whether They Were Exposed to a Food Waste Reduction Promotion

Average amount of food waste per person per week	Recalled Promotion		Did Not Recall Promotion		Total	
	Absolute	Relative (%)	Absolute	Relative (%)	Absolute	Relative (%)
Less than 100 g	20	0.11	21	0.12	41	0.11
101–200 g	50	0.27	36	0.20	86	0.24
201–300 g	34	0.19	27	0.15	61	0.17
301–400 g	25	0.14	28	0.16	53	0.15
401–500 g	8	0.04	12	0.07	20	0.06
501–600 g	2	0.01	7	0.04	9	0.02
601–700 g	2	0.01	6	0.03	8	0.02
701–8000 g	14	0.08	11	0.06	25	0.07
More than 800 g	5	0.03	8	0.04	13	0.04
No Idea	22	0.12	24	0.13	46	0.13
	182	1.00	180	1.00	362	1.00
Average amount of food waste in grammes per person	306.92 g/week (43.84 g/day)	x	337.23 g/week (48.18 g/day)	x	x	x

Source: Authors' own survey (N=362)

Although it is encouraging that more than half of the respondents (50.28%) recalled a campaign, this did not have a significant influence on their food handling behaviour. Therefore, further analysis was conducted to identify the key elements of these advertising campaigns. The text responses (n=182) were categorised into eight identified groups based on common characteristics. Eight responses could not be categorised because they were vague or incomplete (e.g. respondents who stated they "did not remember"). The results are presented below:

- Information and discount campaigns from retail chains: 49 responses (28.2%)
- Culinary advice and challenges (cooking, recipes): 42 responses (24.1%)
- Ecological thinking (composting, zero-waste shops): 22 responses (12.6%)
- Statistical data on food waste: 21 responses (12.1%)
- Adverts, flyers or posters from educational institutions or NGOs: 21 responses (12.1%)
- Technological solutions (apps, online tools): 7 responses (4.0%)
- Emotional appeals (hunger, poverty, children): 6 responses (3.4%)
- Online educational campaigns and influencers: 6 responses (3.4%)

The majority of respondents mentioned campaigns by retail chains. In 12 cases, respondents referred specifically to Lidl, in 9 cases to Albert and in two cases to Penny and Tesco. The remaining respondents did not name a specific retailer but described the elements of the campaigns that appealed to them. Many responses referred to reduced food close to its expiration date, particularly fruit and veg boxes. Information about food waste was often communicated through culinary advice, such as how to cook with leftovers. Respondents also expressed their ecological awareness by mentioning composting, reusable bags and zero-waste shops. Most information about food waste was communicated through traditional offline communication. Only 3.4 % of respondents mentioned online campaigns or influencers advocating for food waste reduction, a surprisingly low number considering the majority of Generation Z spends a lot of time on social media.

Based on these findings, the following section focuses on issues related to influencers and their impact on social media. The average trust score for influencers, measured on a seven-point scale, reached only 3.44, which can be considered a relatively low level of trust.

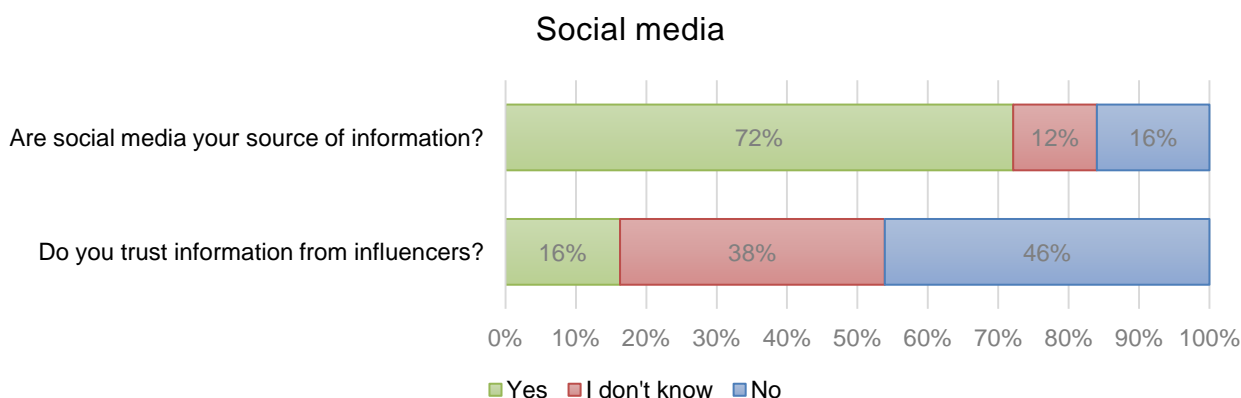


Figure 2: Social Media as a Source of Information and Trust in Influencers
 Source: Authors' own survey (N=362)

Figure 2 shows that only 16.3% of Generation Z respondents trust influencers, but 72.2% of respondents use social media as a source of information. In her article, Sujata²³ discusses social media and argues in favour of disseminating environmental information via so-called opinion leaders (e.g. influencers) who remain active in the online world. In the previous section of this article, it was mentioned that food waste reduction campaigns are mainly carried out by retail chains that offer various strategies to reduce waste (e.g. organisations such as "Save the Food"). However, traditional advertising and the promotional tools used to date do not appear to be effective with this demographic. It would make more sense to reach Generation Z through influencers who are sufficiently authentic and can gain the trust of young consumers.

Strong opinion leaders among influencers should be involved in campaigns to reduce food waste, with a focusing on long-term awareness raising. An analysis²⁴ of the most influential influencers in 2023 revealed that none of the top twenty social media personalities are concerned with food waste or environmental protection. This list mainly included well-known public figures such as Petr Čech, Makhmud Muradov, Leoš Mareš, Karolína Kurková, and Adam Ondra, whose activities mainly focus on other topics. The absence of environmental topics among the most influential influencers does not contribute to improving awareness of the issue of food waste among the general public²⁴.

However, the results for 2024 indicate a growing interest in sustainability, including efforts to reduce food waste. A prominent profile on Instagram is “Shluk buněk” by Rozárie Haškovcová, who focuses on sustainability issues and frequently discusses the waste of resources, including food and clothing, and their impact on the environment. Although this profile is gradually gaining more followers, a larger number of influencers with similar content would be necessary to make a more significant positive change in the consumer behaviour of Generation Z. These influencers could share practical tips, such as how to cook with leftovers, or encourage the purchase of aesthetically imperfect but fully usable products. In this way, they could significantly influence the attitudes and behaviours of this generation and contribute to a more effective reduction in food waste. Therefore, targeted approaches that consider the specific preferences of this generation should be used in the fight against food waste.

The next question focusses on how Generation Z representatives would prefer to receive more information and tips on food handling or the environmental impact of food waste. Respondents were able to select several options, which are summarised in the following chart. They also had the option to select "other" Only one respondent chose this option and suggested that such information "should be included as part of the curriculum alongside financial education in schools."

What methods of obtaining information about the issue of food waste do you prefer?

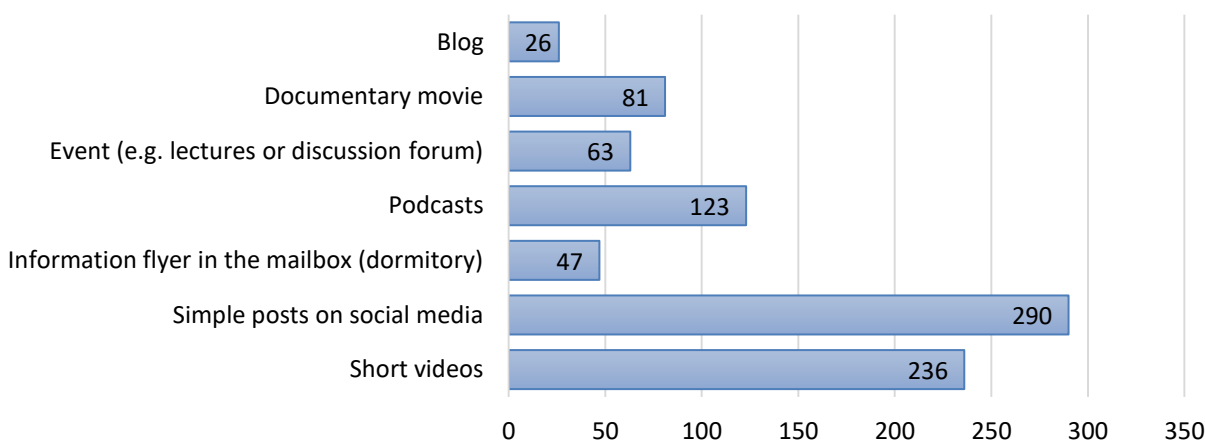


Figure 3: Preferred Methods of Obtaining Information on Food Waste Issues
Source: Authors' own survey (N=362)

Although respondents could select multiple answers, the results clearly show that the preferred methods are simple posts on social media (80.1%) and short videos (65.2%). In third place are podcasts. An analysis was also carried out to examine the platforms on which users are active several times a week. The results show that Instagram is the leading platform, used several times a week by 94.5% of respondents. In second place is YouTube, which is used weekly by 62.2% of respondents. Facebook and TikTok are in almost equal third place. Only two respondents (0.55%) stated that they do not use social media, which corresponds to the high level of social media use among Generation Z.

Which social media are you active on several times a week?

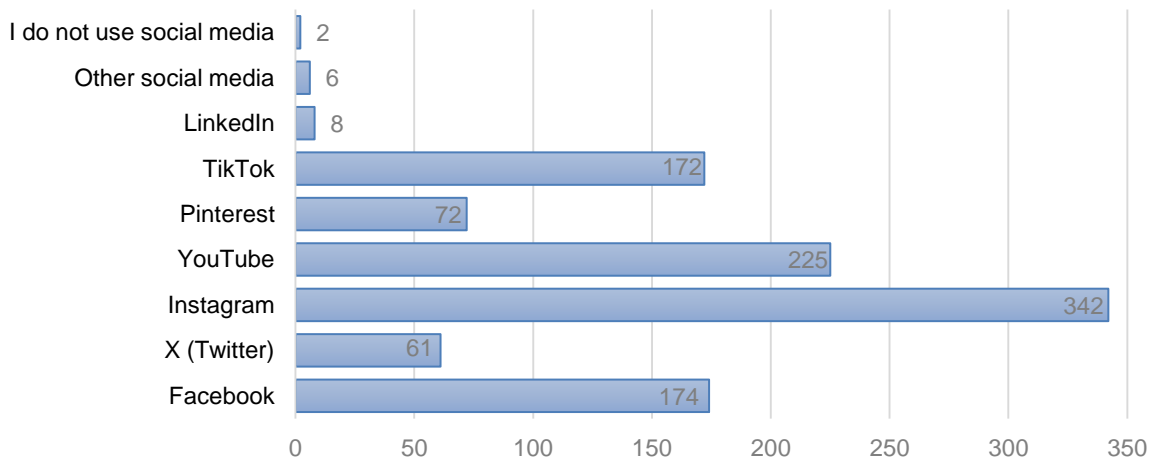


Figure 4: Social Media Preferences
Source: Authors' own survey (N=362)

It is crucial to educate consumers about proper food handling, especially the shelf life of perishable foods and the "first in, first out" rule for storage. In addition, regular stock checks, careful shopping planning and knowledge of how to deal with surplus food are crucial²⁵.

As can be seen in Figure 5 below, Generation Z is aware of the negative consequences of food waste, when asked to indicate their level of agreement on a 7-point scale (1 being "definitely not" and 7 being "definitely yes"). 83% of all respondents said that food waste is undesirable, 6% did not know and the remaining 11% disagreed with this statement. This is the second column with an average level of agreement of 5.91 (6 being "definitely"). The highest average level of agreement (89% of respondents) with a value of 6.07 was for the third and fifth statements: All purchased food should be consumed and Food waste is a loss of money for our household. 88% of respondents think that the issue of waste in society should be addressed. 67% of respondents say they are interested in reducing food waste, while 13% have no opinion and 20% are not interested in this issue at all.

The issue of food waste - agreement to the statements



Figure 5: Agreement to the Statements on Food Waste
Source: Authors' own survey (N=362)

The next section focuses on analysing Generation Z's motivation to reduce food waste (see Figure 6). The two most important motivating factors are financial: firstly, financial savings (74%) and secondly, the rise in food prices (70%). The third most important factor was the protection of the environment or natural resources (69%). Although the differences between these factors are not significant, financial incentives may be the most important driver for reducing food waste. Only 2% of respondents said that nothing would motivate them to reduce food waste. A third of respondents believe that an influencer could motivate them to reduce food waste.

However, almost half of respondents (48%) stated that influencers do not motivate them to change their behaviour, although half of this group also stated that social media plays an important role in their leisure activities. This is a clear contradiction: Respondents spend a lot of time on social media, but current influencers are unable to motivate them. For this group of "unmotivated" respondents, the most influential motivating factor was the financial savings from better food management, which was attractive to almost three quarters of them. The second strongest motivating factor for two thirds of respondents was the rise in food prices. The majority of respondents who said that environmental protection did not motivate them to reduce food waste (only 16% of the total sample) said that opinion leaders, exemplary behaviour of others or information about specific local impacts did not influence them. These respondents were more likely to change their behaviour due to financial motivation.

What would motivate you to reduce the amount of food waste?

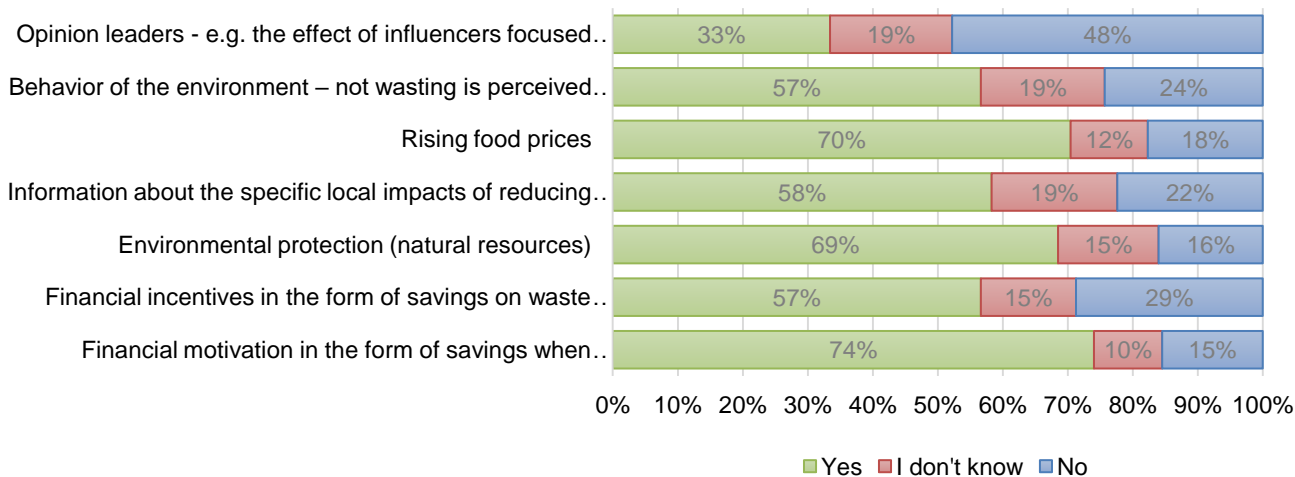


Figure 6: Potential Motivators for Reducing Food Waste
 Source: Authors' own survey (N=362)

Figure 7 shows the results regarding the sources for the eating habits of Generation Z. The average rating of media influence was 3.42, which is consistent with the relative frequencies below and shows that only 29% of respondents believed that the media (social media, television etc.) influenced their dietary habits. The influence of education at school was also low, with only 15% of respondents thinking that education influenced their food handling habits. It is therefore clear that Generation Z did not have information in their school curricula that related to food handling, how to shop, where to store food, etc. Instead, these habits are mostly passed on within the family, which was confirmed by 86% of respondents. It is therefore important to engage Generation Z in a way that ensures that they change their consumption behaviour towards sustainability and automatically pass on these habits to future generations.

Habits in the field of food management are particularly affected?

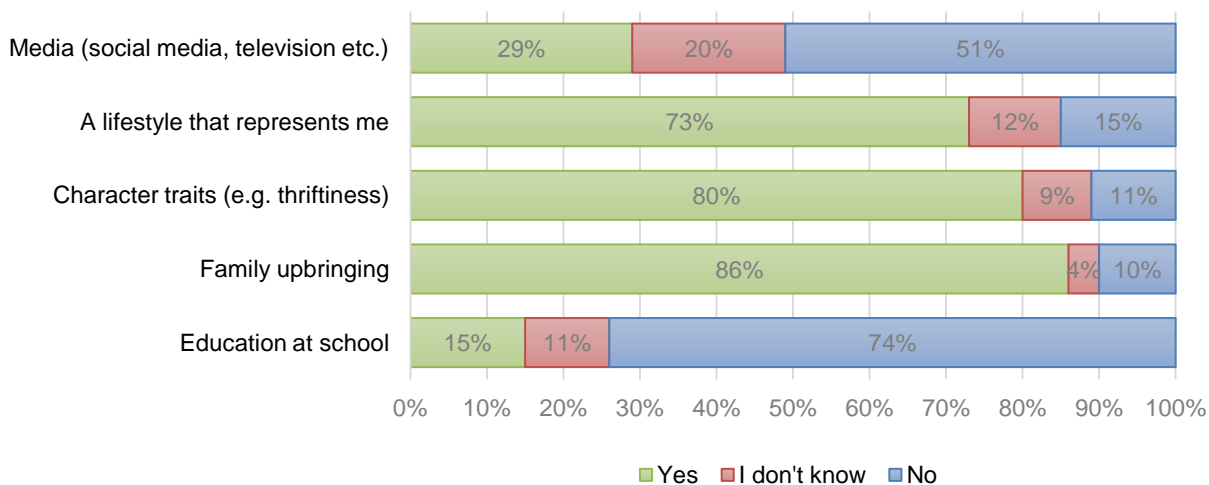


Figure 7: Food Management Habits Sources

Source: Authors' own survey (N=362)

In the questionnaire survey, respondents mostly rated their answers on a scale of 1 to 7, from which 46 observed variables that could influence food waste in households were selected. Exploratory factor analysis successfully reduced the original number of variables to thirteen areas to be observed and addressed to understand and potentially influence consumer behaviour to reduce food waste. The suitability of this method was tested using the Kaiser-Meyer-Olkin (KMO) criterion and Bartlett's test for sphericity, with the results shown in Table 6 below. With a KMO value of approximately 0.84 and a statistically significant result of the Bartlett's test at a 1 % significance level, which allows the rejection of the null hypothesis that there is no correlation between the input variables, it can be concluded that the necessary criteria for the application of factor analysis are met.

Table 5: Verification of the Suitability of Factor Analysis Application

Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy		0.843
Bartlett's Test of Sphericity	Approximate Chi-Square	5,756.979
	Degrees of Freedom (df)	1,035
	Significance (p-value)	0.000

Source: Own processing of the data from the questionnaire survey in IBM SPSS Statistics

Based on the results of the analysis, the optimal number of newly created latent variables (extracted factors) was set at thirteen. This selection corresponds to Kaiser's criterion, according to which thirteen components have an eigenvalue greater than one. These extracted factors explain a total of 62.03 % of the variability in the responses of all respondents, as shown in Table 6 below. For some input variables, no specific factor loading is given, but " ≤ 0.500 ," which means that the coefficient is less than 0.5, indicating that the variable is not strongly associated with the factor. The extracted factors are as follows: Awareness of social consequences of food waste (1), Effective planning and stock control (2), Financial and environmental motivation (3), Food disposal due to expiration (4), Ineffective planning (5), Discipline when shopping (6), Influence of social media and influencers (7), Self-Assessment in relation to waste (8), Aesthetic perception (9), Awareness (10), Preference for bulk purchases and discounts (11), Social norms (12) and Knowledge of food labelling (13).

Table 6: Factor analysis

Extracted Factors	Original Variables	Factor Loadings	Eigenvalue	% of Total Variance
1. Awareness of the Social Consequences of Food Waste	<i>Food waste should be addressed in society</i>	0.791	5.521	12.003
	<i>Food waste is a threat to society</i>	0.765		
	<i>Food waste is undesirable</i>	0.709		
	<i>All purchased food should be consumed</i>	0.676		
	<i>I would like to learn how to use leftover food</i>	0.661		
	<i>I plan to reduce food waste in the next year</i>	0.647		
	<i>I am interested in reducing food waste</i>	0.622		
	<i>Food waste means a financial loss for our household</i>	0.602		
	<i>I try not to throw away food and use everything I buy</i>	0.519		
2. Effective Planning and Stock Control	<i>I plan to buy only as much food as I will use</i>	0.635	2.626	17.710
	<i>I monitor the condition and quantity of food at home to consume it before it spoils</i>	0.583		
	<i>Before I prepare food, I always think carefully about how much I will need</i>	0.550		
	<i>Increase in food prices</i>	≤ 0.500		
3. Financial and Environmental Motivation	<i>Financial motivation in the form of savings on waste disposal</i>	0.798	2.469	23.077
	<i>Financial motivation in the form of savings through better consumption planning</i>	0.653		
	<i>Information about the specific local impact of waste reduction in my neighbourhood</i>	0.564		
	<i>Environmental protection (natural resources)</i>	0.505		
	<i>Behaviour of others – non-wasteful behaviour is considered appropriate</i>	≤ 0.500		
4. Food Disposal Due to Expiration	<i>Expired "best-before" date</i>	0.792	2.305	28.088
	<i>Expired "use-by" date</i>	0.782		
	<i>Sometimes I have unprocessed food left over that I throw away</i>	≤ 0.500		
5. Ineffective Planning	<i>Cooked too much food that cannot be eaten</i>	0.739	2.247	32.973
	<i>My plans have changed, and I have eaten out</i>	0.727		
	<i>Donated food that I didn't consume in time</i>	0.664		
	<i>Large harvest of home-grown produce that we could not use</i>	0.561		
6. Discipline When Shopping	<i>I shop according to a prepared list</i>	0.819	2.176	37.704
	<i>I only want to shop according to a prepared list</i>	0.692		
	<i>I always check the pantry (fridge) before I go shopping</i>	0.609		
7. Influence of Social Media and Influencers	<i>Trust in influencers</i>	0.754	1.960	41.965
	<i>Opinion leaders – e.g. influence of influencers who deal with sustainable living</i>	0.670		
	<i>Social media as a source of information</i>	0.537		
8. Self-Assessment in Relation to Waste	<i>It is difficult for me to estimate how much food our household consumes in a week</i>	0.710	1.756	45.783
	<i>I have full control over my grocery shopping</i>	-0.560		
	<i>I have the feeling that I cannot do anything about food waste</i>	0.558		
	<i>I can significantly influence the opinions of the people around me.</i>	≤ 0.500		

9. Sensory Perception	<i>The product has damaged packaging</i>	0.781	1.651	49.372
	<i>I do not like the appearance of the food</i>	0.735		
	<i>The food I bought does not meet my expectations (e.g. I do not like the taste)</i>	≤ 0.500		
10. Awareness	<i>I have enough information about food waste</i>	0.691	1.647	52.952
	<i>I know how to use leftover food</i>	0.673		
11. Preference for Bulk Purchases and Discounts	<i>I prefer to buy food in bulk packs</i>	0.724	1.516	56.248
	<i>I take advantage of discounts and often buy food on sale, even if I do not need it at the moment</i>	0.567		
12. Social Norms	<i>I feel social pressure about food waste from people around me</i>	0.564	1.341	59.163
	<i>Food waste is common in Czech culture</i>	0.538		
	<i>Food spoils during storage (e.g. rots)</i>	≤ 0.500		
13. Knowledge of Food Labeling	<i>I can explain the difference between the "best-before" and "use-by" date.</i>	0.686	1.319	62.031

Source: Own processing of the data from the questionnaire survey in IBM SPSS Statistics

The table above contains the individual input variables, the identified latent variables (factors), the factor loadings, the eigenvalues of the extracted factors and the percentage of variability explained by each factor. These factors can be understood as key indicators that reduce the dimensionality of the observed variables (46) included in the factor analysis to a smaller number of latent variables with minimal loss of information from the observations.

The analysis focuses on key variables that influence food waste, such as planning, purchasing, consumers' social, financial and environmental motivation, awareness and the influence of social norms. Newly included in the analysis are variables such as influencers, which appear in the seventh factor labelled "Influence of social media and influencers" All three variables showed a higher factor loading, suggesting that these variables are strongly associated with the factor "Influence of social media and influencers," which can promote changes in consumer behaviour towards more sustainable practises.

The factor "Influence of social media and influencers" is most strongly influenced by "Trust in influencers" (0.754), which indicates that this variable plays a key role in shaping this factor. The factor "Influence of opinion leaders (influencers) who focus on a sustainable lifestyle" also contributes significantly to this factor (0.670). The factor "Social media as a source of information" (0.537) has a moderate influence, suggesting that although it is an important information channel, it is not as crucial as trust in the opinion leaders themselves, which is the key aspect in influencing attitudes towards food waste. The factor "Influence of social media and influencers" explains 4.261% of the total variance. Its influence on the overall data structure is therefore not very strong, although it is statistically significant, which could be due to the low trust in influencers in relation to the topic of food waste.

Generation Z tends to align their behaviour with the influences of social media and the actions of their peers. While influencers can encourage and support positive behaviour, the study also identified barriers such as social norms and knowledge of food-related concepts that can hinder these efforts. Some people still believe that their individual actions do not have a significant impact, highlighting the need for more targeted campaigns aimed at correcting this misconception. To effectively change the behaviour of Generation Z consumers, it is essential to provide them with relevant information that will influence their attitudes and ensure a better understanding of the consequences of their food choices. Based on factor analysis, "Awareness of the social consequences of food waste" can be seen as an important factor that plays a key role in consumer behaviour, with strong personal motivation and family support leading to less waste. "Effective shopping planning and stock control" are crucial to reducing waste, as consumers who regularly check their stocks and shop according to a list tend to waste less. "Financial and environmental motivation" also have a significant impact on consumer behaviour. Although financial incentives may not seem motivating for Generation Z, Figure 6 in this study shows that they are still a relatively important variable.

Although The influence of the media and social networks cannot be ignored, it has less of an impact than individual and economic factors. Social media and influencers are an important factor in consumer attitudes and behaviour towards food waste. In the context of reducing food waste, social media can be an effective tool, but its success largely depends on the credibility of opinion leaders operating on these platforms. Increased awareness of the issue, relevant information and opinions shared through these channels can have a significant impact on people's attitudes and behaviour towards food waste. Together, these factors highlight the complexity of food waste and emphasise the need for an integrated approach to tackling it, which should include not only effective planning and inventory control, consumer awareness and social norms, but also the significant influence of social media and influencers.

Conclusion

The paper provides a more detailed insight into the problem of food waste among Generation Z. The results presented in the paper are based on a survey (N=362). The first part of the article deals with the quantification of the estimated amount of food waste, which was compared with the respondents' statements about the extent of food waste. Indeed, respondents who reported wasting more food had higher estimates of wasted food (110.0 g/person/day) than those who reported not wasting any food at all (estimated at 33.5 g/person/day). A comparison of these two variables showed that consumers' subjective perception of the amount of food wasted is relatively accurate. Although Generation Z appears to be a homogenous group, with gender, education or place of residence not playing a significant role, a notable difference in estimated food waste emerged when Generation Z was divided into two groups based on household type. The first group consists of members of Generation Z who still live with their parents and the second group consists of those who have already moved out. Members of Generation Z who live independently (with friends, a partner, spouse or children) estimate that they waste 33 % more food than when they live with their parents in a shared household. The estimated average daily amount of food waste for members of Generation Z living independently is 58.4 g/person/day. The actual amount of food waste from another study, based on 30 analyses of mixed municipal waste in residential homes, was found to be 43.4 g/person/day. However, this is the lowest possible amount of waste found in mixed municipal waste, as many students in halls of residence only spend part of their day there. It is therefore very likely that the estimated amount of food waste from Generation Z could be quite accurate. Approximately 13 % of Generation Z respondents have no idea how much food they waste in a week. The calculations also showed that the amount of food wasted decreases with the number of household members.

The second part of the paper focuses on the current promotion of the issue of food waste, which should lead to a reduction in the amount of food waste. The analysis looked at whether the amount of food waste changed when respondents encountered any form of advertising (warnings in shops, leaflets urging people not to waste food, radio campaigns, posters, information on social media etc.) targeting the issue of food waste. Based on the results, it can be said that the current advertising campaigns for Generation Z appear to be rather ineffective. Respondents who came across a campaign estimated their food waste at 43.84 g/person/day, while those who did not see the advert estimated it at 48.18 g/person/day, which is not a significant difference (equivalent to 1.6 kg/person/year). This type of advertising is mainly provided by retail chains, which is not an ideal format for Generation Z to reduce food waste. Another form of advertising that Generation Z respondents remembered was culinary and practical tips and challenges related to cooking. An interesting finding was that respondents ranked statistical data and figures on food waste third. However, it is striking that online educational campaigns or influencers were mentioned last by only 3.4 % of respondents. This low percentage can be attributed to the insufficient presence of these campaigns and influencers in food waste prevention. Influencers usually showcase their lifestyle while often promoting different products and brands through paid partnerships, which significantly undermines their credibility, as the survey results show. Respondents inform themselves mainly through social media (almost three quarters), but they do not trust influencers (only 16 % trust them). For effective intervention strategies, educational institutions and non-profit organisations working to reduce food waste should partner with sustainability influencers who already have a credible platform. These influencers should specifically focus on educating their audience about

proper food storage, understanding expiration dates and meal planning. The findings suggest that an effective media strategy, particularly through influencers, could capitalise on Generation Z's environmental values and their awareness of the consequences of food waste. Up to 89% of respondents from this generation believe that all food purchased should be consumed and they perceive food waste as a financial loss. The results show that Generation Z is aware of the problem of food waste and 67.7% are interested in this issue. These results offer an opportunity for strategic communications that could better address this generation's attitude towards responsible food handling. Influencers should be used to subtly and authentically raise awareness of food waste in everyday situations, as the results of the factor analysis also show. The interventions should also help consumers to make the transition from family to independent food management in their households.

The survey found that Generation Z primarily favours simple social media posts (80 %) and short videos (65%), with podcasts (34%) being another option. Regular sharing of sustainable practises and successes in reducing food waste could help to normalise this behaviour in society. The previous findings complement the results on what would motivate respondents to reduce the amount of food they throw away. The two most important motivating factors are related to finances: The first is financial motivation in the form of savings (74%), the second is the increase in food prices (70%). Financial and environmental motivations ranked third in the factor analysis, suggesting that these factors have a significant influence on Generation Z's food waste behaviour. In terms of influencing factors, they could motivate up to 52% of respondents as opinion leaders (33% strongly agree, 19% consider it). Another finding concerns food habits, 86% of which come from the family, while only 15% of respondents said they learnt these habits at school. So, if bad habits are ingrained in the family in terms of food planning, shopping and storage, it is clear that these will be passed on to the next generations. This can be changed by the influence of social groups outside the family, such as social media and the influencers already mentioned, or by educational institutions.

Influencers and social media therefore have the potential to play a key role in the fight against food waste among Generation Z due to their influence on public opinion and consumer behaviour. Their use will be crucial for effective measures aimed at significantly reducing food waste. The factor analysis also suggests that sustainability-focused influencers have the potential to significantly influence consumer behaviour in reducing food waste, especially if their messages are perceived as trustworthy. It follows that social media provides a platform for the dissemination of this information, with trust in the content playing a crucial role. This study represents a first inventory of the behaviour of Czech Generation Z consumers in relation to food waste, with a focus on advertising. The topic investigated is very broad and requires further detailed analyses that could complement this work and provide a deeper insight into the aspects investigated.

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Plýtvání potravinami u generace Z: Vliv sociálních médií a neúčinnost současné propagace

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Souhrn

Příspěvek přispívá k lepšímu pochopení vnímání problematiky plýtvání potravinami Generací Z. Primární data byla získána z kvantitativního šetření prováděného metodou CAWI. Generace Z se vidí jako generace, která je ekologicky orientována a uvědomuje si nežádoucí důsledky, které plýtvání potravinami přináší. Výsledky ukazují, že se jedná o poměrně homogenní skupinu, ovšem značný vliv sehrává typ domácnosti, ve které zástupce generace Z žije. Výsledky ukazují, že pokud členové generace Z bydlí již samostatně (sami, s kamarády, přítelem/přítelkyní, manželem/manželkou apod.) je množství potravinového odpadu vyšší o 33,1 %, než když žijí ve společné domácnosti s rodiči. S tímto výsledkem z dotazníkového šetření korespondují i výsledky získané z podobných šetření.

Druhá část příspěvku se zaměřuje na současnou propagaci v oblasti boje proti plýtvání potravinami, kdy je zjištěno, že na množství odhadovaného potravinového odpadu nemá vliv, zda se respondent setkal či nesetkal s „nějakým“ druhem propagace. Současné propagační nástroje lze tedy hodnotit jako neefektivní pro generaci Z. Jen 3,4 % respondentů z celkového souboru si vybaví propagaci, která se týká boje proti plýtvání potravinami ze strany influencerů či z nějaké online vzdělávací kampaně. Pro generaci Z je typické, že většina jejich zástupců je denně na sociálních sítích, což koresponduje se zjištěním, že téměř tři čtvrtiny respondentů čerpají z těchto sociálních sítí informace. Důvěryhodných influencerů v oblasti udržitelné spotřeby je ovšem málo. V současné době jim věří jen 16,3 % dotazovaných. Tento nedostatek důvěry pravděpodobně souvisí s jejich zaměřením na placené spolupráce a osobní prospěch, což snižuje jejich důvěryhodnost.

Výsledky ukazují, že generace Z si je vědoma toho, jaký problém plýtvání potravinami představuje a 67,7 % tato problematika zajímá. Prostor na změnu lze tedy u generace Z najít. Klíčovou roli nyní sehrává volba komunikačních kanálů, které mohou sloužit ke zvýšení povědomí o problematice plýtvání potravinami a k formování postojů a hodnot zaměřených udržitelným směrem.

Klíčová slova: plýtvání potravinami, generace Z, influenceři, sociální sítě, subjektivní vnímání.