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## CONSUMER ATTITUDE AND BEHAVIOUR TOWARDS FOOD WASTE

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**Abstract.** This paper presents the attitudes and behaviour of young consumers towards food waste based on a pilot qualitative research and data published in the literature. Qualitative research was conducted with the use of focus group method, with approximately 8–10 selected students per group. Four focus group sessions were held, with open discussion led by a moderator and the scenario containing problematic issues. The study included a total of thirty-seven students, aged 22–25 years. Studies have shown that negative attitude of household towards food waste is not frequently reflected in consumers' behaviour, despite their fundamental knowledge on how to reduce food waste. Respondents emphasized the need for educational campaigns. Properly selected and presented information will stimulate both consumer's attitude and behaviour.

**Key words:** consumer, food waste, qualitative research

### INTRODUCTION

The process of food markets development is accompanied by a progressive food waste phenomenon and losses related to irrational food management. Food losses and waste have both an environmental and economic dimension and is closely linked to social and ethical aspects.

According to the nomenclature adopted by the Working Group of Rational Use of Food at the Federation of Polish Food Banks, two terms should be distinguished: losses and food waste. The term *food loss* measures the decrease in edible food mass resulting from mismanagement, errors and irregularities at the production,

distribution and trade stages. The term *food waste* refers to the irrational economy management processes taking place in the hospitality and households sector (Kołożyn-Krajewska et al., 2014; Wrzosek et al., 2012).

In 2011 FAO published the first report assessing global food losses and food waste (FAO, 2011). FAO also makes a distinction between the *unintended food losses* and *food waste*. Food loss refers to a decrease in mass (dry matter) or nutritional value (quality) of food that was originally intended for human consumption. These unintended losses are mainly caused by inefficiencies in food supply chains, such as poor infrastructure and logistics, lack of technology, insufficient skills, knowledge and management capacity of supply chain actors, and lack of access to markets. Food waste refers to food appropriate for human consumption being discarded, no matter if it is kept beyond its expiry date or left to spoil (FAO, 2011).

According to FAO report (2013), the global volume of food wastage in 2007 was estimated at 1.6 Gtonnes. The total food waste for the edible part of food amounted only to 1.3 Gtonnes. This amount can be weighed against the sum of domestic agricultural production of all countries which is about 6 Gtonnes. The study published by the European Commission estimates annual food waste generation in the 27 Member States at approximately 89 million tonnes (European Parliament, 2012).

Food losses and waste depend on specific conditions and may be caused by many different factors. All factors

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in the entire food chain carry responsibility in reducing food losses and waste, therefore joint initiatives should be undertaken to reduce this phenomenon. A fundamental change in food system is necessary through a systematic revision of knowledge and awareness among different actors in the food chain (Kołozyn-Krajewska et al., 2014).

In the past decade, food waste has received increased attention on both academic and social levels. An increasing number of studies have examined food waste as a result of irresponsible behaviour of society. In developed countries, consumers are one of the biggest sources of food waste; therefore it is necessary to have an in-depth understanding of factors shaping food waste-related consumer perception and behaviour.

The aim of this study was to show the factors influencing consumer behaviour towards the problem of food waste in the review of the literature and to present the results of own qualitative research of young consumer attitudes and behaviour towards relation this issue.

## REVIEW OF THE LITERATURE

Barr (2007) identified three main mechanisms aimed at reducing food waste, among which he distinguished situational, psychological and environmental factors. Active role in the activities towards waste management is mostly ascribed to young people, one person household, women and the educated with well-paid jobs.

Due to the complexity of behaviour that may affect the amount and likelihood of food waste in the household, the anticipation of food waste does not constitute an easy task (Quested et al., 2013). As reflected in the literature, society does not have enough motivation to prevent food waste. On the other hand, actions aimed at reducing food waste at household are characterized by low efficiency, if they do not concern key psychological mechanisms, constituting the basis for motivation and/or barriers for reducing food waste in household (Graham-Rowe et al., 2015). Psychological aspects are the subject of growing interest in scientific studies on waste management at household. It has been shown that the consumers who are positively evaluating the effectiveness of activities towards waste management manifest pro-ecological behaviour (Swami et al., 2011). People who notice a threat of their own well-being are also prone to ecological behaviour (Segun et al., 1998). Moreover, it has been proved that subjective, individual

norms play a significant role in shaping attitudes towards waste management (Barr, 2007).

Research in the area of environmental factors (Fransson and Garling, 1999; Dunlap et al., 2000) has shown that people who manifest a higher level of concern about their body than to the state of the environment, demonstrate less environmentally friendly attitudes (Schultz and Zelezny, 1999). On the other hand, other studies point out at rather weak or moderate correlation between the concern for the environment and environmentally friendly attitude (Bamberg, 2003).

The results of the research conducted within the framework of European project “Fusions” (Fusions..., n.d.) have identified the following groups of factors that commonly influence consumers’ behaviour towards the problem of food waste:

- social factors such as household type, stage of family life and associated lifestyles,
- individual behaviour and perception of expectations towards food,
- lack of awareness, knowledge and skills.

Research Report of the European Parliament highlights that the social urbanization trend and diet changes, as well as general consumer culture, are also major causes of changes in consumer behaviour in this area (EPRS, 2014).

An interesting model of factors which influence consumer’s behaviour towards food waste was proposed by Aschemann-Witzel et al. (2015). The model includes two groups of factors: socio-demographic and psychological, which are of great importance in explaining consumer’s behaviour towards food waste. Psychological factors play an important role in the model including motivation dependent on financial benefits, ethical considerations, religious beliefs as well as concern for the environment. The authors attributed less importance to socio-demographic factors, stressing that attitude towards food waste can vary depending on the type and size of household.

The activities aimed at reducing discarded food can also be affected by economic factors. The economic crisis may trigger some alternative or new models of behaviour referred to in the literature as “freeganism” or “dumpster diving”. In addition, if one avoids wasting food it can become a part his lifestyle and identity (Aschemann-Witzel et al., 2015).

It has been demonstrated that the attitudes against food waste depend on the degree to which the consumers

are aware of the information contained on the product packaging, especially those related to minimum durability date and expiry date (Newsome et al., 2014). However, the proper use of terms such as “the-use-by date” and “best before” is not adequately understood by consumers, who interpret this information differently depending on the food category (Van Boxtael et al., 2014).

## REVIEW OF OWN RESEARCH

### Materials and methods

In the study, attitudes and behaviour of young consumers towards food waste were analysed and discussed based on a pilot qualitative research and data published in the literature. Qualitative research was conducted with the use of focus group method, with approximately 8–10 selected students per group. Four focus group sessions were held, with open discussion led by a moderator and the scenario containing problematic issues. Each session lasted for about 2.5 hour. The target group constituted Faculty of Food Sciences students from the University of Warmia and Mazury in Olsztyn. The study included a total of thirty-seven students, aged 22–25 years. All focus group sessions used semi-structured open-ended questions to guide the discussion and ensure a consistent approach between groups. Sessions were divided into three parts:

- questions diagnosing the understanding and defining the concept of food waste,
- issues enabling the identification of causes for food waste in household,
- issues for determining ways to prevent food waste in household.

The study used an uncontrolled association technique (sentence completion) where the respondent is presented with some sentences containing incomplete stimuli and is asked to respond with the first word or phrase that comes to his/her mind. In all focus groups, there was a trusting, natural atmosphere among the participants and between them and the moderator. No inter-group conflicts were observed. All focus group sessions were audio-recorded and transcribed verbatim, what was then subjected to qualitative analysis.

## RESULTS AND DISCUSSION

Table 1 and 2 show the selected literal expression of respondents with individual themes scenario. In order to

recognize the understanding and definition of the concept of food waste, free word association technique was used. Among the survey participants “food waste” (Table 1) was associated primarily with: discarding food, hunger in the world, wasting money, mismanagement, reckless discarding of purchased large portions of food, environmental pollution, and bio-waste. It is interesting that some of the associations were related to moral aspects. They connected the term “food waste” with sin, which is in line with Polish tradition not to discard food (I had been taught since early childhood to have respect for food, because one day it may be lost) and the current Catholic social teaching, which recognizes wasting the Earth’s resources as immoral. This is an example of a young respondent’s attitudes which are not reflected in their behaviour. Despite of declared elementary knowledge on how to reduce food waste, in the examined group, only a few respondents admitted that in their households food is not wasted. The main groups of wasted food are bread, food of animal origin, vegetables and fruits. The participants expressed the view that the most vulnerable to waste are: food products offered in large packages and those with more affordable prices than the smaller ones. This fact was reflected in the manner of doing shopping. The majority of respondents declared that they are susceptible to the promotional activities and: when buying promotional products are aware that not everything will be consumed and after some time they will be forced to throw away products exceeding the expiry date.

Buying more products than one can consume in a timely manner is situated in the area of the causes of food wastage in households (Table 2). An example is the statement: we eat outside in the city, despite the fact that we did food shopping before, we spend more time outside our houses, we buy too much and make an unintended purchases. According to the respondents, the reasons for food waste are closely linked to the season: during the summer, when it is warm the largest amount of food is ejected. Participants reported that more likely to waste food: due to lack of experience and imagination on food management – are households run by young people, particularly by young marriages.

The respondents were aware of the principles of rational food management in the household. Rational management of larder and reasonable shopping, planned according to schedule were listed as ways of reducing food waste. According to the surveyed group, educational

**Table 1.** Associations with the concept of “food waste”

**Tabela 1.** Skojarzenia związane z terminem „marnowanie żywności”

Associations with the term food waste reported by the respondents Skojarzenia podawane przez respondentów po usłyszeniu pojęcia marnowanie żywności	Answers frequency Współczynnik odpowiedzi
Ddiscarding food – Wyrzucanie żywności	0.43
Waste – Marnotrawstwo	0.26
Hunger in the world – Głód na świecie	0.23
Waste of money – Strata pieniędzy	0.18
Sin – Grzech	0.18
Mismanagement – Niegospodarność	0.14
Dumping sites – Wysypiska śmieci	0.14
Unconsidered, excessive portions of meals – Nieprzemyślane, duże porcje posiłków	0.11
Bio-waste – Bioodpady	0.09
Environmental pollution – Zanieczyszczenie środowiska	0.06

Source: own researches.

Źródło: badania własne.

activities which should be carried out from an early age and education focused on waste minimization habits play an important role in limiting the food waste.

In order to broaden the analysis of affective component of students’ attitude towards the phenomenon of food waste, some visual materials, i.e. paintings depicting graphic examples of unconsumed food stored in landfills and garbage containers, were used. The implementation of this part of the study made it possible to note the emotions of each of the participants. All the respondents have taken negative attitudes towards the pictures. The most frequent expressions were: I feel disgusted, I will never throw any food away, I’ll pay attention to what I buy and how much, from now on I’ll change my shopping habits, I’m sorry that people do not respect the environment and what we received from the Mother Earth, there should be more programmes dedicated to the problem of food waste. These findings suggest that appropriately selected message in educational campaigns, manifesting against food waste, can not only stimulate the affective element but also behavioural element of negative attitudes towards the phenomenon of food waste.

According to research of Polish Food Bank, about 30% of Poles admitted to waste food (Dąbrowska and Janoś-Kresło, 2013). According to Achremowicz (2012)

the problem of food waste mostly concerns the consumers who cause about 42% of losses. The problem of food waste in households may vary/differ, depending on regional conditions or socio-economic status. The literature mentions the irrational purchasing decisions and irresponsible food management while cooking (EUFIC, 2012) as possible reason for this phenomenon.

## CONCLUSION

According to the literature, the attitudes and consumer behaviour in relation to the phenomenon of food waste is affected by several factors. Knowledge and awareness of consumers do not fully reflect the activities of anti-food waste supporters, which was also reflected in the personal research.

The respondents who took part in the questionnaire were fully aware of the social and ecological effects of food waste, however, it was not reflected in their behaviour. The students possessed basic knowledge on how to properly deal with food (planning, portioning, keeping/storing).

Research points to the need for educational campaigns against food waste should be concentrated on properly selected information and presented in mass

**Table 2.** Demonstrative statements of focus group participants on causes and prevention of food waste

**Tabela 2.** Przykłady wypowiedzi uczestników zogniskowanych wywiadów grupowych dotyczące przyczyn marnowania żywności oraz sposobów zapobiegania marnowaniu żywności

Selected comments on causes of food waste in households Wybrane wypowiedzi na temat przyczyn marnowania żywności w gospodarstwach domowych	Selected comments on how to reduce food waste Wybrane wypowiedzi na temat sposobów zapobiegania marnowaniu żywności w gospodarstwach domowych
<ul style="list-style-type: none"> <li>Fresh food is better for me Lepsza jest według mnie świeża żywność</li> <li>I buy a large amount of food, even though I know that I need less Kupuję za duże ilości żywności, chociaż wiem, że potrzebuję jej mniej</li> <li>I do not control the terms of the products suitability Nie kontroluję terminów przydatności produktów</li> <li>I forget what I have in the fridge and do another (sometimes unnecessary) shopping for food Zapominam, co mam w lodówce i robię kolejne (czasem zbędne) zakupy żywnościowe</li> <li>I do not want something (food product) at this moment Nie mam w danym momencie ochoty na to (produkt żywnościowy)</li> <li>Another member of the household buys what he falls into the hands and later that is not consumed Inny członek gospodarstwa domowego kupuje, co mu wpadnie do ręki i później tego nie konsumuje</li> <li>I leave food in the refrigerator over the weekend, when I leave Zostawiam w lodówce żywność na weekend, w który wyjeżdżam</li> <li>Our country compared to the USA does not have such a serious problem, where food is wasted at a massive scale. In the USA everyone buys huge amounts and stocks up food products, which is associated with the expiry date of minimum durability or use-by-date U nas nie ma tak dużej skali problemu marnowania żywności jak w USA, gdzie wszyscy kupują ogromne ilości produktów na zapas, co wiąże się często z upływem daty ich przydatności do spożycia</li> </ul>	<ul style="list-style-type: none"> <li>We should plan our daily menu, make a shopping list before going to the store, and stick to it Należy zaplanować jadłospis danego dnia, robić listę zakupów przed pójściem do sklepu, trzymać się listy zakupów</li> <li>Make reasonable choices while shopping especially when it comes to perishable products Należy rozsądnie robić zakupy, szczególnie jeżeli chodzi o produkty szybko psujące się</li> <li>If we go to the store, we shouldn't take a large trolley, small will do, do not go shopping when we are hungry, because reportedly we take everything of the shelves Podczas zakupów lepiej nie brać raczej dużego wózka, tylko mały i nie iść głodnym na zakupy, bo wtedy podobno bierze się wszystko z półek</li> <li>We should pay more attention in terms of checking the products, we should check their validity/expiry date Należy bardziej przeglądać się zakupywanym produktom, należy patrzeć na ich terminy ważności</li> <li>We should share with others, feed the animals Można podzielić się z innymi, zaprosić gości lub nakarmić zwierzęta</li> <li>We should check the fridge regularly Należy sprawdzać lodówkę na bieżąco</li> <li>We should use/dalate the food until it's run out and only then buy more Należy zużyć zakupione produkty do końca i dopiero robić kolejne zakupy</li> <li>We can convert excess food to other meals or otherwise utilize redundant food, which ends its shelf-life, for example dry bread and process it into breadcrumbs, prepare a moisturizing mask from cucumber or compost Można przerobić nadmiar żywności na inne posiłki lub w inny sposób spożytkować zbędną żywność, której upływa termin przydatności do spożycia, np. wysuszyć pieczywo i przerobić je na bułkę tartą, zrobić maseczkę z ogórka, przerobić na kompost</li> <li>We should think about education for children, not to throw away sandwiches not eaten at school Należy pomyśleć o edukacji dzieci, by nie wyrzucały kanapek niezjedzonych w szkole</li> <li>Some products are easier to process or to reuse, bread for example, this is not that difficult as in the case of dairy products or meat Z produktów, które zostają, najłatwiej jest zagospodarować chyba chleb, gorsze do zagospodarowania są produkty mleczne i wędliny</li> </ul>

Źródło: badania własne.  
Source: own research.

media supporting the battle against food waste. This can not only combat some negative attitudes, but also stimulate model behaviour towards food waste in the household.

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## POSTAWY I ZACHOWANIA KONSUMENTÓW WZGLĘDEM ZJAWISKA ZWIĄZANEGO Z MARNOWANIEM ŻYWNOŚCI

**Streszczenie.** W pracy omówiono postawy i zachowania młodych konsumentów względem zjawiska marnowania żywności na podstawie pilotażowych badań jakościowych własnych oraz danych opublikowanych w literaturze przedmiotu. Badania własne przeprowadzono z wykorzystaniem metody zogniskowanych wywiadów grupowych, w grupach 8–10 osób. Przeprowadzono cztery sesje fokusowe, które polegały na swobodnej dyskusji kierowanej przez moderatora, według scenariusza zawierającego kwestie problemowe. W badaniu uczestniczyło ogółem trzydziestu siedmiu studentów, w wieku 22–25 lat. Badania wykazały, że prezentowane w gospodarstwach domowych negatywne postawy względem zjawiska marnowania żywności często nie mają odzwierciedlenia w zachowaniach, pomimo posiadanej przez badanych elementarnej wiedzy dotyczącej sposobów ograniczenia marnowania żywności. Respondenci wskazywali na konieczność prowadzenia kampanii edukacyjnych, gdzie odpowiednio dobrany i prezentowany przekaz informacyjny stymulować będzie zarówno postawy, jak i zachowania konsumentów.

**Słowa kluczowe:** konsument, marnowanie żywności, badania jakościowe

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