



HOUSEHOLD FOOD WASTE BEHAVIOUR: SUBJECTIVE AND OBJECTIVE EVIDENCE

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ABSTRACT

This paper is concerned with the issue of quantifying food waste as a basic assumption for an effective measure to achieve the lowering of its volume. From literary sources one can see great differences in the amounts recorded, caused, among other reasons, by the unclear methods of monitoring and the unclear terms used for description of the term food waste. From questionnaire research carried out on the opinions and causes of waste among 1582 respondents it was found that it is regarded as a significant problem by society but the everyday behaviour of the individual does not correspond to this. Changes in the behaviour of the individual occur during their realisation of this waste issue, for instance by means of objective research into wasted food (through the weighing of the individual types of food thrown out). The average value of wasted food reached approximately a quarter of the amount given for EU and corresponds to the amount reported in Finland.

Keywords: Food waste; consumer behaviour; wasting of food; waste motivations; causes of waste

INTRODUCTION

Food is an inseparable and daily part of people's lives. The issue of food waste is a problem for the whole society, which is addressed in the entire food chain – from the level of primary manufacture to consumption of food by households. This issue has varying forms in various parts of the world. In one part of the world there are almost 800 million people suffering for undernourishment, in another part of the world, in economically developed countries, wasting of food has a large environmental and economic impacts and also introduces ethical aspects (FAO, IFAD and WFP, 2015). Nunley (2013) adds that among other things, the inhabitants of cities in developed countries are today de facto separated from the production of food and waste infrastructure and that many people consume food without any knowledge and awareness of their role in that system. The impacts of food waste however, are often worse than the general consumer imagines. The results are not just large economic losses, but also the wasting of natural resources vital for people's existence or damaging the environment as a result of the raising of emissions of carbon gases and the consumption of water.

Society is realising this fact more and more, and thus currently lowering food waste is one of the key points of sustainable global development. Food wastage can be regarded as an ecological, economic and moral problem. In 2015, one of the aims for sustainable development (SDG

12.3) which was adopted at the UN summit, on the basis of which it is necessary to lower the amount of food losses and waste in the entire food chain by half by 2030 (European Parliament, 2017). In light of this fact, the issue of the production of food waste and searching for possibilities to limit it has been given great attention in many differing countries. Compulsory reporting on the food waste generated by households should be introduced from 2020 at state level in the individual member states of the EU, in later years the other links in the food chain should also join in compulsory reporting of data on food waste (DG SANTE, 2018). On the basis of the data from 2012, a voluntary pilot project was carried out at Eurostat level, the so called "food waste plug in" within the framework of which member states could provide Eurostat with data to estimate the amount of food waste (Schrör, 2015). Using this data (it relates to data divided according to individual categories of waste according to the Waste Catalogue under which food wastage can occur and in accordance with CZ-NACE) Eurostat then processes the data and creates estimates from it. The purpose of the project is to evaluate whether the existing data can be used to express food waste. However, the carrying out of this project immediately drew attention to a number of inadequacies – a unified system for collecting data is missing at the level of individual states (every state can choose from a number of prescribed methods and on that basis then provide data to Eurostat). Another limitation is

the fact that the selected categories of waste do not include only food waste, but also other organic waste components, which should not be treated as food waste. Any comparison of data across varying states is thus problematic (Stenmarck et al., 2016; Hanssen et al., 2013). Currently the issuance of a common method for measuring food waste is awaited which should result from a discussion by experts involved in a working group dedicated to losses of food and food waste. The form of the method should be published during 2019 (Directive (EU) 2018/851).

This decision, even though well meant, and definitely needed, will meet one big problem, which is the lack of unification of methods and in particular the ambiguous interpretation of terms in the individual countries.

The terms connected with the issue of food waste and biological waste, which are dealt with by European law in Directive (EC) no. 98/2008 concerning waste, article 3:

“waste” is any substance or item which its holder gets rid of, or intends getting rid of, or of which they are required to dispose of”.

“Biological waste” is biologically degradable waste from gardens or parks, food or kitchen waste from households, restaurants, catering and retail outlets and comparable waste from food industry facilities”. These terms however are inadequate to define the issue of food waste.

From the point of view of the term food waste generally a valid definition does not exist. It is questionable whether it is possible to find a unified definition for wasting food over the whole extent of the food chain, that is from the level of farmers to the level of households (European Union Committee, 2014). The UN’s specialized agency, the Food and Agriculture Organisation (FAO) has been trying to contribute to creating a common definition, in particular due to global harmonization of the issue, improvement in the collection of data, the comparison of data and at the same time the creation of regulation measures to reduce waste. Currently the FAO defines food wastage as lowering the mass of edible food originally intended for human consumption. Wasting of food includes losses arising during manufacture, harvesting and the phase of processing of food and waste from food, which occurs at the point where retailers are involved and during consumption’ (FAO, 2014).

In EU countries, as for the Czech Republic, the term food waste is not legally fixed and defined. The fixing of the term in the EU should not be undervalued, as it has an effect on the creation of the politics and quantification across all sectors of the food chain (Östergren et al., 2014).

In the opinion of the European economic and social committee related to the limitation food losses and food waste it is stated that, “*food losses and food wastage can be defined as “any food originally intended for human consumption (with the exception of products which do not serve nutritional purposes), which are thrown out or destroyed at all levels of the food chain from agricultural companies to the consumer.”*

In the studies and publications of certain authors we can find and alternative terms for food losses and food waste. Parfitt, Barthel and Macnaughton (2010) mention that the wasting of food after harvest is usually identified as food losses. These according to him are related to

a lowering of quantity or quality of food which makes them unsuitable for human consumption. In the later phases of the food chain it is more common to use the term food waste, which according to him is more related to the behaviour of consumers. We will not find terms related to food waste in either European or Czech legislation. The differentiation between food losses and waste is however also mentioned in the FAO’s document Toolkit: Reducing the Food Wastage Footprint (FAO, 2013) and Priefer, Jörissen, Bräutigam (2013):

Food loss means the depletion of the amount of food intended for human consumption, which is lost from the supply chain for differing reasons. They are usually related to the production phase, harvesting and the post harvesting manufacturing processes. Food losses are related to and caused by ineffective food chains – Infrastructure and logistics, technologies, inadequate skills, knowledge, management capacity in the subject in the food change and inadequate access to markets. In the case of food losses natural disasters also play a role.

Food waste is a subset of food losses. It concerns food which was intended for human consumption, but was thrown out because they had exceeded their expiration date or they were thrown out due to human action or inactivity. The reasons can be an excessive offering from the market or the individual buying and consumption behaviour of the inhabitant.

The scientific community differentiates between the terms avoidable, unavoidable and potentially avoidable food waste as defined by WRAP (Quested and Johnson, 2009). Avoidable food waste is food and drink, which at the point at which it was thrown away was still suitable for human consumption, or would be still edible, if it was consumed in time (for instance a slice of bread, meat, apple). Potentially avoidable waste is food and drink which some consumers consume and others don’t because of preferences (for instance the crust of bread, apple peel). Unavoidable waste is related to products and raw materials which are already not suitable for consumption. These include the inedible parts of food such as banana skins, bones or egg shells, but also products which are so damaged either due to bad weather, illnesses or pests, that they cannot be consumed.

Gillick and Quested (2018) then tend to use the definition of food waste not on the basis of avoidability in three categories (as is described above), but rather on the basis of the edibility of part of the food waste which is edible and non-edible. Both parts thus form food waste. Another change in the altered definition of food waste is the fact that food, which were fed to animals (but sold for human consumption) are not considered food waste according to this altered definition any more.

The ambiguity of terms around the issue of food waste over the entire extent of the food chain from production to the final consumer leads to very different values of food losses and food waste from that the data about the economic costs connected to the disposal of waste and protection of the environment. Due to the fact that food losses are related to many technologies used during the production of food, the level of losses can be better quantified than in the case of food waste. Food waste has one basic difference – the amount of food is dependent on the behaviour of the consumers, from the behaviour of

every individual. Even though the wasting of food is a global problem, every individual is able to influence their own consumption of food and the amount of waste produced.

Quested and Johnson (2009) sum up three of the most often used methods of determining food waste in households. This is the waste composition analysis in which a community waste analysis is carried out. Then there is keeping diary recording the type of food and drink waste, their amount and reason why they become waste. The third is the subtraction method which compares the difference in the amount of sold and consumed food and drink, while the difference in their values is considered waste.

In general it can be said that the most significant reasons for limiting food waste are personal benefits because reasons of a societal and ecological character are overshadowed in daily human behaviour. The personal level of wastage comes to the fore in daily behaviour (time savings, money) and is very different based on the identifiable features of the consumer (amount of income, place of residence, age, economic activity and so on). In everyday life the Czech public realises the effects of waste primarily through statements but the result of the complex effects of throwing out food in the areas of the environment, waste disposal, social health and the ethical and economic sides are issues which do not affect them. They are more likely to be sceptical as to whether their behaviour can change the position of society as a whole.

The aim of the paper is to discover the amount of wasted food in households. To compare information on the amount of food waste from various data sources with estimates of the wasted amounts in kg per person per year on the basis of questionnaire surveys and with the results of objective checks carried out through weighing and recorded daily for a period of one month by actual households in the Czech Republic. The authors of the paper, on the basis of the information obtained during their study of the issue of food waste, see the main issue as not only in the quantification of food waste but also in recognising the behaviour of each individual, their standpoint and opinion on the issue of waste. Thus they regard it as beneficial to widen the aims of the paper by the investigation of subjective opinions of individuals to the issue of food waste and on the basis of this knowledge seek out incentives for changes in behaviour in the sense of lowering the amount of wasted food.

Scientific hypothesis

There were formulated few hypotheses which were tested with appropriate statistical methods. Hypothesis was formulated as follows:

There is no relationship between the amount of food waste and qualitative variables such as specific shopping habits or attitudes to the problem of food waste (Table 4 with results of hypotheses testing).

MATERIAL AND METHODOLOGY

Secondary data concerning the production of food waste are taken from the sources of a number of companies and organisations active in the world, European and national

level. The majority of these companies use data from Eurostat and the FAO as a basic source of data. These data will be used to compare the following results concerning the wasting of food in households.

The primary data concerning consumer behaviour, their opinions and standpoints in relation to the issue of food waste was obtained in a questionnaire survey carried out in 2017 among 1582 respondents in the Czech Republic. The chosen set was a representative set of the Czech Republic from the point of view of sex and age. The questionnaire contained 21 questions relevant to the issue of food waste and 9 identification questions. A scale with 10 point steps was used for expressing opinions and standpoints on the issue of food waste. These data are regarded as subjective, as they were obtained on the basis of the subjective estimates of the respondents themselves.

Other primary data come from a diary survey that is from an objective determination of food waste in households. This investigation was carried out in 99 Czech households, for a period of one month in the period of September to October 2018. The task of the respondents was daily weighing of the amount of waste food while also including a listing of the composition of the waste food and the method of its further processing (thrown into communal waste, feeding animals, compost).

Descriptive statistical tools were used to process the primary data. After carrying out the individual analyses the results are compared and commented in light of the stated aim of the paper.

Statistic analysis

χ^2 test (1) was used to check the relationship of the amount of food waste and chosen qualitative variables. The strength of the potential dependence was expressed by the Pearson coefficient (2). The relations used are shown below:

$$\chi^2_{\alpha,(k-1)(m-1)} = \sum \sum \frac{(n_{ij} - o_{ij})^2}{o_{ij}} \quad (1)$$

$$P = \sqrt{\frac{\chi^2}{\chi^2 + n}} \quad (2)$$

The SPSS Statistics and Statistica programs by Statsoft were used for work with the data. The p -value used to test the null hypothesis in order to quantify the statistical significance is provided in Table 4.

RESULTS AND DISCUSSION

Lowering the amount of food waste is one of the main aims of sustainable development. Determining the amount of food wasted in households and achieving a reduction of that amount, is related not only to the lack of a method of how to monitor wastage, but also the ambiguity of terms which the issue of food wastage uses. After carrying out the comparison (Table 1) of the listed results for food waste from various sources and their differences an argument merged that, the problem of food waste is not addressed just by the objectification of the quantification of waste, but it is also necessary to consider the behaviour of the individual.

Table 1 Existing data sources concerning the amount of food waste.

Countries, groups of countries	Year measured	Source	Amount of food waste	Definition	Method
Europe	2007	FAO (2011)	95 – 115 kg/person/year (data summarised for Europe and North America)	Food waste is only the edible part, not animal food or its parts, which are not edible, it also includes food originally intended for consumption but redirected to non-food use (animal feed, bioenergy and similar).	The estimates used data from the FAO food balance, also supplemented by literary research and estimates from the SIK institute according to the similarity of regions, the steps in the food chain and commodity categories.
EU-28	2012	Stenmarc et al. (2016)	92 ±9 kg/pers*	Food waste also includes the non-edible part of food (FUSIONS definition) - the edible part is estimated at 60% on average..	Data from the waste statistics of selected member states (11 states provided data), the values were later recalculated for the entire EU-28**.
EU-27	2006	Monier et al. (2012), BIO Intelligence service, study for the EC	76 kg/person	Taken from catalogue waste numbers (EWC codes).	Altered EUROSTAT data and national sources.
Czech Republic	2006	Monier et al. (2012), BIO Intelligence service, study for the EC	25 kg/pers/year	Taken from catalogue waste numbers (EWC codes).	Altered EUROSTAT data and national sources.
UK	2015	Gillick and Quedstedt (2018)	108 kg/person (32 kg inedible part and 77 kg edible part)	The division of food waste into a inedible part (does not include wrappings) and an edible part (does not include food fed to animals, a difference compared to FUSIONS definition).	Analysis of the composition of waste in combination with food diaries.
Finland	2010	Katajajuuri et al. (2014)	23 kg/pers/year	Includes only avoidable waste (not unavoidable like skins, shells and similar), it includes milk among fluids .	Diaries (380 households selected from an online panel).
Denmark	2012	Halloran et al. (2014)	76 kg/person (42 kg edible part and 34 kg inedible part)	Only hard waste is studied, divided into its edible and inedible parts.	Analysis of the composition of waste in households.

Note: *95% reliability interval.

**the data were provided in particular by states with a higher GDP than the EU-28 average. If the amount of food waste is related to the level of GDP, then the data given are overvalued.

Table 2 The amount of food wasted weekly in households (% of respondents).

The amount of food thrown out (grams)	Questionnaire survey	Diary survey
less than 50	19.53	0.00
51 – 500	48.76	48.48
501 – 1,000	19.91	23.23
1,001 – 1,500	8.69	12.12
1,501 – 2,000	2.60	6.06
2001 and more	0.00	10.10

Table 3 Place of disposal of food waste.

Calculated values from the diary survey	The amount of food thrown out (diary survey)	Which were placed in: waste/bins	animals	compost heaps
Average (grams per household per month)	3892.1	2183.1	901.2	566.4
Total for all respondents (grams per month for all households)	385317.0	216126.3	89214.0	56074.7
Percentage*	100%	56%	23%	15%

Note: *Some of the respondent do not fill the place, where the food is frown, therefore the sum of all variants is not 100%.

Table 4 The dependence of the amount of food waste on selected variables.

Variable	p-value	Dependence	Pearson's chi-squared test
I buy less often and in larger amounts.	0.42675	NO	
I go food shopping regularly.	0.31627	NO	
Before buying food I check the fridge, cupboard etc., so that I can find out my needs.	0.00010	YES	39.0866
I buy in accordance with a list prepared in advance.	0.02688	YES	23.10111
Price is the most important factor for me when buying food.	0.55191	NO	
I give preference to buying large packages of food because they are cheaper per unit.	0.02589	YES	23.22268
I use discounts and I often buy foodstuffs which are discounted	0.06336	NO	
Planning purchases and the preparation of food so that nothing gets thrown out	0.00000	YES	54.83071
I consume all food bought.	0.00000	YES	132.3506
Food wastage is a current issue.	0.00000	YES	59.44576
Food waste represents a great threat to us in the future.	0.00000	YES	56.85539

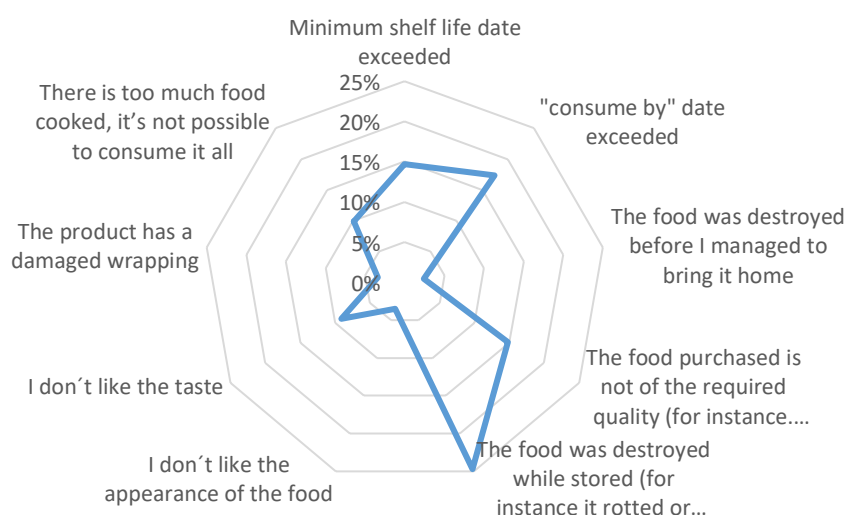


Figure 1 Causes of waste.

Data on the amount of food waste and the differences arising from these data concerning waste produced by households raises doubts about their descriptive capabilities and these inaccuracies are transferred to the estimates of the environmental and economic effects of food wastage. Even this fact does not contribute to enlightenment concerning waste and the need to lower food waste and also raises doubts about meeting the government resolutions of individual countries about the need to lower the amount of food waste by half by 2030 and so on. Data from various sources concerning the amount of food waste at household level are given in Table 1 below.

These primarily concern data which are for Europe as a whole, or for groupings in the European union and from chosen countries. Apart from the Czech Republic, there are also values shown for states such as Denmark, Finland and the UK, where the issue of food waste is given great attention. In Denmark for instance, Selina Juul, the great proponent of the fight against food waste is active. She spread the understanding about the problem of food waste and founded the Stop Wasting Food movement, a movement which is also supported by the Ministry of Environment and Food of Denmark and also The Danish Environmental Agency. Within the framework of the UK a group experts is active as part of the WRAP program, which is working on the issue of food waste as part of the framework of various sectors of the entire food chain just the same as Finland where the issue of food waste is given great attention (for instance the Wastestimator project).

The estimates by respondents about the amount of food waste produced by them and objectively determined (by weighing) amount of waste and recorded each day in household diaries are given in Table 2. The daily records of food wastage carried out over a period of a month in 99 households contained identification data (related to households), data on the amount of food wasted and data on the food composition (Table 2).

Interesting findings arise from the Table 2. When required to estimate the amount of wasted food, consumers give very underestimated amounts. Consumers have no understanding of the weight of the individual types of food wasted, most (approximately 70% of the answers) give values of 500 grams, 20% give up to 1000 grams of food thrown out per week in the questionnaire. The average amount of food waste according to the subjective estimates of respondents after recalculation corresponds to 10.5 kg per household per year. It is a value which does not even approach the levels given in literary sources.

From the survey into the amount of food waste, carried out by weighing the individual types of food wasted and recorded in the diary, it was found that the average value of the amount of waste comes out at around a value of 46.7 kg per household per year. This value differs considerably from the estimates given for the EU from literary sources (approximately 90 kg per person per year), but it corresponds to the amount of food waste reported in Finland.

The reasons for the differences of food waste amounts reported could be various definition of food waste and methods for its measurement as well as the fact that the individual who has been asked to collect data has their wastage influenced. It gets into their consciousness and

they behave differently than if they had not been informed about the issue of waste and had not realised the complexity and effort which went into their production. This fact strengthens the opinion on the process and methods of influencing individuals but also society as a whole. Society must create an understanding of the issue of food waste and everything related to it.

But the behaviour of the individual when trying to lower food wastage and the costs related to their disposal is a deciding element of the protection of life on the planet.

The diaries also allowed the discovery of how the wasted food was handled. Another use was found for almost 40% of it (feeding animals and composting). Almost 60% of the total food waste ends up in mixed communal waste, which represents not only financial costs for its disposal, but this waste is also regarded as a significant source of climatic change, as the manufacture of an excessive amount of food and its potential disposal is accompanied by the production of a large amount of CO₂. The place of disposal of food waste, determined from diary records is in Table 3.

From the questionnaire survey, which focussed on the behaviour of individuals in relation to the buying, consumption and wasting of food, carried out with 1582 respondents in the Czech Republic in 2017 it was clearly found that the approach to the issue of wastage of food is shaped over the entire life of an individual with a significant influence from family and upbringing on the individual.

It was further found from the research that more than 90% of respondents regard waste as a great threat to society, particularly due to the threat to human life on Earth and the high costs of disposal of waste. The everyday behaviour of individuals however does not correspond to these views with the exception of the segment of consumers which is formed from people aged 65 years and over, people living in the countryside, equipped with knowledge about the demands of work related to the production of agricultural products, aware of the process of their production and the necessity to connect it to nature. This segment has a positive relationship to nature and their daily behaviour is based on respect for nature. They do not consider the issue of waste; their own nature is to not waste food.

The opinions and positions on the issue of food waste taken from the answers to the questions asked which indicate daily behaviour, allowed the grouping of consumers into three segments with similar approaches to the issue of wastage. Almost all respondents from all three segments believe finding a solution to solving this significant problem is important. The segment with the greatest numbers is the one, where respondents showed an interest in the issue, for whom the problem is important, who want to learn more about the issue, speak more about waste and use the media, but have not however yet changed their daily behaviour.

These stances towards waste however do not appear in the daily behaviour towards the amount of food wasted, they continue to waste. Despite this it is a group which has a great potential to change their behaviour. They are primarily young people who have a certain understanding of life on Earth. It is necessary that an upbringing which promotes nature and life on Earth begins at the earliest possible age, both through the education system as well as

at the same time examples within the family. At school it is necessary to receive information about products which are used to feed people and within the family learn habits in relation to the approach to food. The second segment which was mentioned before, has lesser numbers and is formed of people with a relationship to nature, mostly living in the countryside for whom it is normal not to waste food. Attention must be given to the third segment which is formed from individuals of a productive age, financially secure but who don't consider the issue of wastage and are not even interested and where the economic means of these families allow them to live in a food excess. The re-education of these individuals is very difficult, it is almost unrealistic, because in their thoughts, economic thoughts dominate and they are only willing to consider a change of behaviour in relation to a threat to their health and the quality of life on Earth.

The dependence of the amount of wasted food and the consumer behaviour of individuals in the market for food is shown in the Table 4 above.

From Table 4 it is found that the lowering of food waste is positively affected by, preparations for the purchase of food (current state of supplies, necessity, amount purchased), the approach to food as a raw material and making an effort related to its production and processing. The amount of food waste is not affected by the frequency or size of the purchases or the current price of food.

The authors **Giordano et al. (2019)** draw attention in their research on a sample of 385 households in Italy to the fact that the frequency of purchase is one of the variables that affects the amount of food waste. According to the conclusions of their study, households have more food waste that buy less often in comparison with households that buy more often. In this the authors do not agree with our results. **Giordano et al. (2018)** also concluded that the positive or negative effect of shopping for cheap food on food waste cannot be confirmed, in this respect they agree with our results since our survey shows that the purchase of food at lower prices has no effect on the amount of food waste.

However the price of food is often referred to a significant factor affecting consumer decision process when buying food – as was also confirmed by research conducted in Slovakia where more than 80% of respondents perceived the price as the most important factor in their purchasing decision-making (**Golian et al., 2018**).

Koivupuro et al. (2012) have found that the amount of food waste is affected not only by selected household socio-demographic indicators (such as the type and size of household), but for example also by the purchase of cheap food, their results showed that people who buy discounted food or take up special food offers produce less food waste (this explains their tendency to be more economical and save money, appreciate the value of food and throw less of it away). On the other hand, these authors did not manage to show the clear effect of shopping habits, such as shopping frequency and handling food, on the amount of generated food waste.

However it must be stressed that our outputs were created on the basis of testing hypotheses on data obtained from questionnaire research on the sample of 1582 respondents in the Czech Republic, while the conclusions of the study

of **Giordano et al. (2019)** are based on the diary research. The study carried out by the team of authors **Koivupuro et al. (2012)** is based on data collection in the form of questionnaire research and the addition of outputs from the diary research. **Giordano et al. (2018)** discuss the appropriateness and reliability of the outputs of the questionnaire research used to quantify the amount of food waste in one of their older studies.

The conclusions of this older study by **Giordano et al. (2018)** show in a sample of 30 Italian households that the amount of food waste differs according to their findings – specifically speaking they compared the amount of food waste obtained from respondents from the questionnaire research, from the diary research and from waste sorting. To obtain more reliable results they are more inclined towards the method of gaining food waste data from the diary research, particularly in case that waste sorting can be used which provides objective and credible results. **Richter and Bokelmann (2017)** talk of the appropriateness of the diary research method as they carried out diary research on a sample of 25 households in Germany. Their research showed that the storage of food, shopping and waste is correlated and supplemented, that when determining a campaign focusing on creating awareness, findings about individual behaviour concerning food handling and food waste are also required.

Respondents expressed the most frequent causes of food waste with the aid of a 10 point scale. The intensity of the individual causes is shown in Figure 1 below. The most frequent reason of food waste mentioned was that the food was spoiled during storage or that the food sell by date or shelf life had expired.

Authors **Richter and Bokelmann (2017)** or **Silvennoinen et al. (2014)** came to the same conclusions stating that their studies showed that spoiled food and the sell by date or shelf life had expired as the most common reasons for the creation of food waste.

CONCLUSION

For the Czech Republic there is a favourable finding that the amount of waste food determined based on the diaries maintained on the amount and type of food wasted (46.7 kg per household per year) while not approaching the information on the amount of wasted food in EU countries (92 ±9 per person and year) but is close to the values achieved in countries who are concentrating on this issue and are successfully reducing the amount of food wasted. It is a country which pays systematic attention to the environment, landscape protection and this approach to nature is the practice of each individual. It is precisely the lower values of food waste found which the authors attribute to the fact that at the point where the respondents were requested to make daily records of food thrown out that they started to think about the issue and began to change their behaviour. Despite the importance of recognising the behaviour of individuals on the market for food, their decisive role during their daily behaviour (regardless of their opinion and stance on waste) it is not possible to rely on estimated quantification of food waste. As the comparison of the results of the estimated amount and the objectively determined amount in households showed, these data can be proven to differ significantly.

However the questionnaire survey confirmed that for most Czech households food waste is a significant issue which society should take an interest in. In the everyday behaviour of the individual however this opinion does not appear, based on the individuals behaviour it is found that "it is an overall issue" and the behaviour of the individual does not influence it or they do not realise it. From the results of the research it is clear how important the daily behaviour of the individual is and not only his opinion. The achievement of changes in behaviour requires the systematic re-education of society as a whole, beginning not only with the actions of educational institutions but also examples within the family and most importantly a change in the relationship of society to the products of nature and life on Earth.

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