

Food Wastage in Turkey: An Exploratory Survey on Household Food Waste

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Abstract Increase in food demand, mainly due to population growth and diet changes, is putting an increasing pressure on food system and food security. In this framework, food losses and wastes (FLW) together create one of the main causes of food systems unsustainability. The two differ on the fact that food losses refer to the part of food that is lost along the supply chain before reaching final consumer while food waste represents the waste of food by final consumer. This paper focuses on the role of demographic, social and economic factors affecting household behavior related to food waste (FW) and explores some factors which can play an important role in tackling food waste issue in the case of Turkey. The paper is based on an online survey with 150 Turkish respondents in January-March 2015. The sample was not gender balanced since 71% of them were females. About two fifths of the respondents (38%) belong to the age group 35-44 years and 62% of the sample has a high level of education (master and PhD). The fact that the majority of the respondents are employees (70% of the sample) in the big cities of Turkey shows how the pace of the metropolitan life structure affects consumer food consumption habits and orient purchases towards supermarkets. The results of the survey show that still 95% of the respondents are responsible of FW and 90% think that food waste increases during the month of Ramadan. Nevertheless, about 50% of respondents declared the willingness to throw less away and ask for better information about the negative impacts of food waste on the environment and on the economy. Preventing bread waste campaign of the Ministry of Food, Agriculture and Livestock was launched in 2013 in order to increase consciousness of the society towards bread waste which is quite important in Turkey. Similarly, there are some other initiatives on both national and local level with the objective of informing people about the food waste, sustainable food consumption and reuse of the food through food recipes.

Keywords: food waste, Turkish household, online survey, household behavior, sustainable food consumption

Cite This Article: Heval YILDIRIM, Roberto CAPONE, Alkan KARANLIK, Francesco BOTTALICO, Philipp DEBS, and Hamid EL BILALI, "Food Wastage in Turkey: An Exploratory Survey on Household Food Waste." *Journal of Food and Nutrition Research*, vol. 4, no. 8 (2016): 483-489. doi: 10.12691/jfnr-4-8-1.

1. Introduction

The rapid population growth is seen as the main factor that results in increased demand for food. According to the FAO [1], the world's population is expected to increase by 50 percent between 2000 and 2050. In Turkey, for instance, it is expected to be 84.247.088 citizens in 2023 with a population growth rate of 9,8 percent per year [2]. Increase in food demand, mainly due to population growth and diet changes, is putting an increasing pressure on the food system and food security. The increasing demand of food may cause intensive exploitation of natural resources with a consequent degradation of the environment. Agriculture, for instance, has direct impacts on soil, biodiversity and water, which are all affected by farmer's practices. Food waste is an important part of this environmental and economic issue.

Food losses and waste (FLW) are defined as "the edible parts of plants and animals produced for human consumption but are not ultimately consumed by people" [3]. The main distinction between food losses and food waste is that food losses refer to the part of food that is lost along the supply chain before reaching final consumer. On the other hand, food waste corresponds to the part of the food that reaches final consumer but that is not consumed for some reasons. Indeed, both of them have important environmental and economic costs. According to FAO, food that is produced but not eaten is responsible for a carbon footprint corresponding to 3.3 billion tons of carbon dioxide equivalents that make up food wastage as the third top emitter after the United States and China [4]. For this reason, a good FLW management is required in order to reduce such negative environmental impacts.

Grizzetti *et al.* [5] studied the impact of food waste on nitrogen loss to the environment. Using different methods

such as nitrogen footprint and life cycle assessment, they show that the nitrogen emissions in the atmosphere linked to food waste are 0.4 tons of N per year in the European Union (EU 27); 20% of this emission is estimated to be in the form of greenhouse gases [5].

Nevertheless, it should be noticed that exist two different perspectives in examining food waste and food losses. The first approach focuses on the relationship between food waste and environmental implications while the second approach focuses more on food security concerns [6]. The fact that a billion people are chronically hungry shows that FLW problem has several dimensions from environmental to moral aspects [7].

The problem of food waste can be considered in two different ways. On one hand, the food supply chain requires the improvement of the technological infrastructure for the production and logistics stages through market-led large-scale investment, especially in developing countries [8]. Post-consumer food waste, on the other hand, requires to focus on consumer's choices and to analyze some socio-economic and institutional factors that affect consumer's behavior. The perspective of the research is positioned on the post-consumer food waste examining social and economic aspect of the problematic. We suppose that starting from the study of the socio-economic factors at household level is inevitable in order to extend the research on the future taking into account environmental or food security concerns.

Sustainable food systems can be considered as an alternative to huge consumption and so food waste. The idea of "locally produce, locally consume" can enrich sustainable production models improving small and medium sized farming at local scale. Merle and Piotrowski [9] state that one of the motivational factor for the consumer for being a part of the local food system is the desire for sustainable consumption.

According to the Waste and Resources Action Programme [10], households in the United Kingdom produce approximately 7 million tons of food waste each year, where 4.2 million tones is categorised as avoidable and 2.8 million tones as unavoidable. In other words, the amount of wasted food corresponds to 25 per cent of that purchased (by weight) [8]. Jones [11] draws attention to the value of food waste in the United States. He states that American households waste 48.3 billion \$ of food each year. He highlights the role of government agencies and corporations in tackling the problem of food waste. These institutions play an important role in informing people about how to change daily practices in order to minimize food waste.

In Turkey food wastes at the stage of final consumption are relatively smaller [12]. According to a study where 500 people were surveyed in the capital of Turkey in 2005, the average daily discard per household and per person was 816.4g and 318.8g, respectively [13]. It should be noticed that bread waste represents a huge waste in Turkey. Studies conducted in 2008, 2012, 2013 on bread waste show that of the total 4.9 million loaves of bread wasted daily in 2013, 3 million loaves (62.1%) are wasted at bakeries, 1.4 million loaves (27.7%) are wasted by households and 0.5 million loaves (10.2%) are wasted at restaurants, hotels and dining halls [12]. For this reason, in 17th January 2013, the Ministry of Food and Turkish Grain Board (TMO) launched a campaign in cooperation with

public organizations, governorates, universities, municipalities, non-governmental organizations, private sector and media. It is argued that bread waste at household, staff and student dining halls decreased by 40% and by 1% in private sector like restaurants, hotels and bakeries thanks to this campaign [12]. "Recipes for Stale Bread", an information booklet about bread waste, contains information about nutritive value of bread, how to keep it in good conditions and all the information about the reuse of stale bread.

Energy equivalent of wasted food per person per day is 215.7 kcal in Turkey. This means that the wasted amount of food meets more than 10% of average daily energy requirement (2000 kcal) per person [13].

Potentially the most effective institutions in Turkey for reducing food waste are Ministry of Food, Agriculture and Livestock, and Turkish Grain Board. It has been considered that the Ministry must legislate against food waste and impose sanctions.

The first food bank in Turkey was established by TISVA (Turkish Foundation for Waste Reduction) in 2004 in Diyarbakir city. Today, there are 20 food banks and 29 associations of food bank [14]. Here we consider food banks as important actors in Turkish food waste context even if, by definition, they are not directly interested in food waste but in the charity for supplying food to poor people. Food banks in Turkey, however, share the objective of raising awareness of the society and try to mobilize people towards all types of waste including food waste issue as priority.

The aim of this paper is to analyse household food waste in Turkey.

2. Materials and Methods

2.1. Research Context and Background

During the last years the International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM-Bari) developed with FAO and other Italian and international institutions, collaborations and activities related to food sustainability in the Mediterranean region. In the framework of these activities, a particular attention was devoted to the issue of food waste. In fact, some problems exist which make difficult to analyze current food waste situations in Mediterranean countries. The first reason is that basic statistics on the types and quantities of food waste are based on very limited data. This shows the necessity of conducting more studies in order to enlarge effective database. Second, the definition of waste concept can vary from one region to another and even between the different territories of the same region. This fact highlights the importance of data collection regarding food waste and losses in the Mediterranean region [15,16]. Thus, although this research is based on a small study it is quite important for the fact that, through an exploratory survey, it tries to obtain some basic information related to household's behavior which allows deepening the research based on the different dimensions on the future.

2.2. Survey

The present paper is based on the results of a voluntary survey in Turkey. The questionnaire has been adapted to

the Turkish context from previous questionnaires and studies on food waste carried out by the Environment Protection Authority (EPA), [17] in the State of New South Wales (NSW), Australia, and by the University of Bologna [18].

The questionnaire was designed and developed in Turkish language in December 2014 and was made available from January till the end of March 2015 through the *Survio* website. Participation was entirely on a voluntary basis and responses were analysed only in aggregate.

The questionnaire consisted of 26 questions. It included a combination of one option and multiple-choice questions. It was developed into 6 sections: food purchase behavior and household food expenditure; knowledge of food labeling information; attitudes towards food waste; extent of household food waste; economic value of household food waste; willingness and information needs to reduce food waste. In the introductory part of the questionnaire, the concept of FLW was introduced in order to inform the respondents.

The survey has been disseminated by the following channels:

- E-mail: the survey was sent to the respondents by e-mail.
- Facebook: the survey link was published on Facebook.

- By phone: the survey was conducted by phone for those who were not Internet users.
- Face-to-face: face-to-face interviews were done when it was possible.

Online (E-mail and Facebook) respondents represent 81% of the sample while phone and face-to-face respondents represent 13% and 5%, respectively.

2.3. Respondent Profile

Each participant is asked to give information about age, family status, education level, household composition and occupation (Table 1). The sample is composed by 150 respondents, 71% of them were females. About a fifth of the respondents (38%) belong to the age group 35-44 years old. As expected, the age group 18-24 years old had a low participation to the survey because of their low interest in food wastage issue. The percentage of respondents with university and higher degrees (master and PhD) is 42% and 20% respectively. These respondents are expected to be regular Internet users. The percentage of respondents who have a fulltime or part-time job is 63.3%. A total of 91 out of 150 respondents are married and live with children. About 18% of households is composed by 1-3 persons.

Table 1. Profile of respondents (n=150).

Item	Percentage (%)	Percentage (%) Turkey ⁽¹⁾	
GENDER	Male	28.6	50.18
	Female	71.4	49.82
Age	18-24	0.7	11.32
	25-34	20	16.12
	35-44	38	14.93
	45-54	19.3	11.71
	55 and over	22	07.87
Level of Education	Primary School	8	30.80
	Secondary School	16	-
	Technical Qualification	13.4	24.50 ⁽²⁾
	University Degree	42	10.59
	Higher Degree (MSc, PhD)	20	01.03
No Formal Schooling	0.6	07.69	
Occupation	In paid work (fulltime or part-time)	63.3	47.20 ⁽³⁾
	Student	0.7	05.70 ⁽³⁾
	Unemployed and looking for work	2	09.30 ⁽³⁾
	Home duties	13.3	14.60 ⁽³⁾
	Retired/Age pensioner	20.7	05.19 ⁽³⁾
Family Status	Single person household	17.4	14.37
	Living with parents	8.7	07.80
	Partnered	5.3	-
	Married with children	60.7	44.83
	Shared household, non-related	1.3	02.18
Household Composition (Number of members)	1 to 3	76	54.79
	4 to 6	23.3	38.11
	7 to 10	0.7	07.09
	> 10	0	-

⁽¹⁾Source: Turkish Statistical Institute (TUIK)

⁽²⁾Secondary school +technical qualification

⁽³⁾Persons aged over 15.

3. Results and Discussion

3.1. Food Purchase Behavior

The respondents were asked where they purchase their food items (Table 2), and the majority (63.3%) declared that their food purchase is mostly done in supermarkets/hypermarkets. This might be explained by the fact that the majority of respondents are working people. This high percentage of Turkish that prefer buying from supermarkets may explain the fact that 37.3% said they purchase food once or twice a week, since once in hypermarket/supermarket consumers purchase not on a daily basis but what is needed (or not) for the whole week. Only 10.7% mentioned they buy food every two days.

Table 2. Food purchase outlets.

Answer choices	Ratio (%)
Hypermarket /supermarket	63.3
Mini market / small market (butcheries, dairies, bakeries...)	16.7
At the market (once a week)	18
At the farm	2

Source: Authors' elaboration based on the survey data.

Supermarkets and hypermarkets attract consumers and increase their purchase by applying marketing strategies such as the special offers (buy 2 get one free, buy 2 and get 30% off, etc.) and according to the survey, about 51% of respondents are attracted to such offers while 37.3% are sometimes attracted. These marketing strategies may play a key role in increasing food wastage since a higher quantity of food products is purchased even if it is not needed. As a result consumers keep the food in the fridge too long and consequently it becomes unsuitable for eating or passes its use by or expiry date.

The fact that the majority of the respondents are working people can affect consumer's behavior regarding food purchase and food wastage as well. Respondents with a more consumerist mindset with a speed pace of life may purchase more food than required and waste more than others. Life and working conditions can be directly linked to food wastage.

Interestingly 44% of respondents *always* make a shopping list, while 33.3% make it *sometimes*. According to the results of the survey on household food waste carried out in the State of New South Wales – Australia [17], 42% of respondents plan meals in advance and do shopping to a strict list. Preparing a shopping list is considered as a positive behavior for the prevention of unnecessary spending and consequent food wastage.

In a lot of cases, the load of food expenses on the family budget is more than 200 Turkish lira (1 TL = 0.34 US\$). Table 3 shows the expenditure in groups and the percentage of respondents whose food budget falls into these groups.

Table 3. Estimated food budget (month)

Answer choices	Ratio (%)
Up to 70 TL	0
71 TL-120 TL	1.3
121 TL- 160 TL	4
161 TL-200 TL	15.3
More than 200 TL	79.3

Source: Authors' elaboration based on the survey data.

The results of the survey show that Turkish household's behavior might be explained by a combination of factors including behaviors and attitudes that depend on the life and working conditions. These factors affect the amount and frequency of wasted food.

3.2. Knowledge of Food Labeling Information

Consumers' poor understanding of complex "use by" and "best before" food dates labelling may encourage food wastage at household level. Different studies highlight that this confusion can lead to further waste of food products [19,20].

For that reason, for instance, the European Commission wants to help consumers reducing food waste by making "best before" and "use by" dates clearer [6].

In order to investigate knowledge about food date labels, respondents were asked what is meant by "use by" dates. According to 96.7% of respondents, "use by" date label means that a food item must be eaten or thrown away by this date. Only 3% of the respondents stated that food can be consumed after the expiration date as long as it is not damaged. In the sample, where the level of education is high, the category of consumers shows a good understanding of date labels and, consequently, acts in a manner that is sensitive to food wastage.

About 59.3% of the respondents still make confusion regarding the meaning of "best before" label thinking that it is the same as "use by". Only 39.3% of the respondents correctly identified that food is still safe to eat after the "best before" date as long as it is not damaged or deteriorated. That means that there is still some confusion surrounding the definitions of the food date labels and consumers' awareness is needed on this issue in order to avoid food wastage in Turkey. On the contrary, 64% and 70% of Australian respondents identified the correct definitions for "use by" and "best before" date labels, respectively [17].

3.3. Attitudes towards Food Wastage

A fifth of the respondents expressed that they would not be able to change their consumption habits in the near future to reduce food waste. On the other hand, 80% of the respondents take food waste as a serious issue and try to reduce it or avoid it.

About the amount of food that is thrown away in household without being consumed, 45.3% of the respondents stated that they throwaway "a reasonable amount", 28.7% "low amount", and 21.3% "almost none". It should be noticed that this result can have a kind of subjectivity due to the perception of the term "reasonable" by each household. In other words, the amount that is wasted may be considered *reasonable* by respondent seven if it is high. Thus, food waste issue has to be taken seriously into consideration even for the sample with higher level of education.

In a similar survey carried out in Australia, 57% of the respondents' households throw out "a very little amount" of food while 14% throw "more" or "much more" than they should. Only 9 % reported that they throw out no food at all [17].

Uneaten food is thrown away by 75% of the respondents while a significant proportion (48%) use this food to feed animal. It should be noticed that the majority

of respondents live in big cities and they contribute to feeding animals in the street with leftovers. Feeding animal with unconsumed food can be considered as food waste as food is not used for human consumption although it is suitable for this purpose. The NSW-EPA [17] survey in Australia had similar results with 20% of respondents indicating they dispose of 'all' of their food waste in garbage. In the same survey, feeding uneaten food to pets and animals was found to be the next common disposal method.

Leftovers are thrown away less than one time a week by 63.3% of the respondents but once or twice a week by 31.3% of the respondents. Although the majority of the respondents does it rarely (less than one time a week), a significant portion of them usually throws away leftovers, even if not frequently (Table 4).

Table 4. Frequency of thrown food per household

Answer choices	Ratio (%)
Never	4
Less than one time a week	63.3
From one to two times a week	31.3
More than twice a week	1.3

Source: Authors' elaboration based on the survey data.

The frequency of thrown food per household indicates that even those with high levels of education need to be enlightened on food waste and to change their consumption habits in order to reduce food wastage.

Table 5. Behaviors towards eaten food (%)

	Never	Less than twice a week	Three to six times a week	Seven to ten times a week	More than ten times a week
Cook a main meal from raw main ingredients	0.7	20	69.3	8	2
Eat a meal left over from a previous day	3.3	53.3	43.3	0	0
Eat store-purchased readymade meals e.g. frozen dinners	70.7	24	4.7	0.7	0

Source: Authors' elaboration based on the survey data.

3.4. Extent of Household Food Wastage

To the question "What is the amount per week of still eatable/consumable food products that you throw away?" about 44% of the sample responded that they do not throw away anything, while 27.3% answered that they throw less than 250g and 21.3% throw out between 250g to 500g (Table 6). Although the amount of consumable food that is thrown away seems to be low, considered on a national scale, it clearly means serious economic loss and waste of resources.

Table 6. Quantity of thrown food per week

Answer choices	Ratio (%)
I do not throw away food that is still consumable	44
Less than 250 g	27.3
Between 250 and 500 g	21.3
Between 500 g and 1 kg	6.7
Between 1 kg and 2 kg	0
More than 2 kg	0.7

Source: Authors' elaboration based on the survey data.

As expected, cereals and bakery products are the most wasted products. According to the survey, 30% of respondents declared that they waste more than 6% of

Table 5 represents respondents behavior towards eaten food. It shows that 69.3% of respondents prefer to cook a main meal from raw main ingredients three to six times a week. About half of respondents eat meal left over from a previous day less than twice a week. Interestingly, the majority of respondents doesn't eat store-purchased readymade meals or do it very rarely. Approximately half of the respondents eat out or eat takeaway 1-2 times a week while 34.7 never do it.

According to the results of the NSW-EPA study in 2012 half of the Australian respondents state that all members of the household eat the same main meal 5-7 times a week [17]. Concerning food behaviors towards main meal 40% of respondents cook it from raw main ingredients 3-4 times while 34% do it 5-7 times a week. 37% state that they never eat store-purchased readymade meals. 53% of the Australian respondents eat out or eat takeaway regularly ever week while only 14% never do it. Among the possible reasons of food waste, the majority of the respondents mentioned that food has been stored in the refrigerator for too long, food is damaged, and food is expired.

A significant share of respondents (90%) thinks that food wastage increases during the fasting month of Ramadan. This finding is important as it indicates that special attention should be paid to this sensitive issue and more work needs to be done especially during the holy month in order to reduce and/or avoid food wastage.

purchased cereals and bakery products. In addition, wastage of vegetables is significant in Turkish households.

The survey revealed that for about 42% of the respondents the economic value of wasted food is less than 12 TL (less than 5\$), while for 42.7% of the respondents economic value of wasted food is between 13 and 45 TL (6 - 20\$) (Table 7). The results of the NSW-EPA [17] study show that the mean value of the estimate of how much the respondents spend for the purchased but uneaten food is \$620.30 (\$51 per month) per household per year.

Table 7. Economic value of wasted food.

Answer choices	Ratio (%)
Less than 12 TL	42
Between 13 and 45 TL	42.7
Between 51 and 120 TL	10.7
More than 120 TL	4.7

Source: Authors' elaboration based on the survey data.

3.5. Willingness and Information Needs to Reduce Food Wastage

About respondents' willingness to reduce food wastage, results indicated that 53.7% of the respondents would throw less if they were better informed about the negative

impacts of food wastage on the environment, and 45.6 % if better informed on the negative impacts of food wastage on the economy. About 35% have this willingness if the packaging of food was more suitable and 14.1% if food date labels were clearer. Meanwhile, 31.5% of the respondents would throw less if they have to pay higher taxes based on what they throw.

Regarding the information needed to reduce food wastage, 66.4% of the respondents said that they need to know what are the organizations and initiatives that deal with food wastage prevention and reduction, 45% need information on the freshness of products, 45.6% need tips on how to conserve food properly and finally 36.2% need recipes with leftovers.

Consumers need to be more aware on economic and environmental impacts of food wastage as well as health information in relation to food. Who thinks that food is valuable is less likely to waste it. This statement is true when the person is well informed on economic and environmental implications of wasting food. The consumer has not enough information about who produced the food, how it is produced and how is transported. Some labels and product certification schemes can provide necessary information; however, they highlight, in general, food quality properties rather than its environmental characteristics.

4. Conclusions and Recommendations

This paper, based on a very small study in Turkey, suggests that household living and working conditions can be important factors to shape their behavior and attitudes towards food waste. Although the study is based on a small sample and does not allow differentiating results according to different data collection methods, it offers essential information related to household's food consumption and waste that can be useful for a more detailed research in the future.

The survey showed that in the Turkish sample food waste is a significant issue. In fact, the majority of respondents admit to waste food. This is due to various factors, as the role of marketing, which often leads to the purchase of more products or larger quantities. The fact that households are attracted by marketing strategies and offers at supermarkets seems to be a key cause of food waste. Thus, food waste starts at the supermarket rather than at home. Storage of the food in the refrigerator for too long, damage of food and expiration are the main reasons of food waste declared by respondents.

Another factor contributing to food waste is that Turkish households confuse "best before" food date label with "use by" due to the poor knowledge on the difference between two labels. Moreover, the majority of respondents think that food waste increases during the holy month of Ramadan. These findings underline the necessity to work on these two issues, labelling and Ramadan food waste, through initiatives and campaigns.

Concerning food behaviors, the survey shows that Turkish households have still traditional habit related to food preferring to cook at home and eat a meal left over from a previous day. This habit can reduce food waste.

A fifth of the respondents expressed that changing their food consumption habits in the near future for reducing

food waste is not possible. However, a significant part of the respondents try to adapt good practices at home in order to reduce food waste.

Less than half of the respondents stated that they waste reasonable amount. In general, wasted food is thrown in the garbage or used for feeding animals. As the majority of the respondent live in big cities we consider that food waste is used for feeding animals in the street rather than animals in the shelter because the second is more costly in terms of transportation and time spending. In Turkey, there are lots of dogs and cats that live in the street. From this perspective, feeding animals with leftovers is quite important. The frequency of thrown food shows that most of the respondents have habit to throw leftovers and rotten food once a week.

Regarding the amount, we see that less than half of the respondents do not throw food which is still consumable. The frequency of thrown food shows that most of the respondents have habit to throw leftovers and rotten food once a week. Economic value of food waste lies on two major tendencies: less than 5\$ or between 6\$ and 20\$.

The survey highlights the need of information for households related to negative impacts of food waste on the economy and environment. Similarly most respondents state that they need information in order to know organizations and initiatives that work on food waste issue. A special attention should be paid also to supply information on the freshness of products as well as on how to conserve and reuse food.

It is true that in Turkey food waste is a significant problem and there is more and more attention among consumers towards the environmental and economic consequences of food wastage. In this context, the role of institutions is crucial. About that, a campaign was launched in 2013 by the Turkish authorities. Looking at the results of the survey, we see that environmental and economic side of the food waste issue should be seriously taken into account at household level.

Local food system can be one of the important solutions in order to improve consumption practices at household level. Direct agricultural markets can be considered as an important alternative to industrialized way of consumption. Sales in farm, local traditional markets and community-supported agriculture are part of local sustainable production systems.

Regarding sales in farm and local markets, many cities in Turkey have the advantages to be closer to agricultural area except for Istanbul which is surrounded by industrial districts. Consumers, obtaining seasonal fresh and organic products at reasonable prices through these local markets, can improve supermarket-based food consumption practices. Changing food habits towards healthy food can allow reducing excessive purchase of unhealthy food and waste.

Community-supported agricultural models offer another alternative way in order to change food habits towards locally produced food. The ones with weekly basket such as AMAP (*Association pour le maintien d'une agriculture paysanne*) in France may reduce redundant food shopping obliging households to consume seasonal fruits and vegetables. Moreover, respondents' behavior towards eaten food and main meal shows that households in the sample have traditional habit such as cooking at home or eating a meal left from a previous day. This habit can be

considered a positive behavior. It can facilitate the process of developing such initiatives and mobilizing households towards local healthy food.

In Turkey there is a great attention to consuming fresh and healthy food and the number of community-supported agricultural model is increasing in Izmir and Ankara, the cities where a significant part of sample respondents come from (some community-supported agriculture groups in Turkish cities: *İzmir Gıda Grubu, Batı İzmir Topluluk Destekli Tarım-BİTOT, Doğal Besin Bilinçli Beslenme Grubu-Ankara, Yaşam Dostu Ürün Grubu-Balıkesir, Boğaziçi Mensupları Tüketim Kooperatifi-İstanbul, Tüketim Birliği-İstanbul*, etc.). The practices related to food diversity and food delivering depends on the principles of each group. The existence of these groups is quite important for launching some local initiatives towards local food consumption and food waste. *Sefertası Hareketi*, for instance, is a movement at a local level whose objective is to raise awareness related to food waste and consumerist way of consumption mobilizing people, local food products and recipes. Being a movement born in a slow city Seferihisar (near Izmir city) it can be considered as an important example which combines different dimensions of food consumption issue.

Today there is more and more attention in Turkey towards local healthy food, sustainable food systems and food waste. As mentioned earlier institutions have an important role in order to turn the spotlight on this issue. It needs much more participative initiatives and campaigns where key institutions (e.g. NGOs; Turkish Ministry of Food, Agriculture and Livestock; Turkish Grain Board) can collaborate with the local ones in order to mobilize Turkish households towards food waste issue.

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