



Food wasters: Profiling consumers' attitude to waste food in Italy

Silvia Gaiani^a, Sandra Caldeira^b, Valentina Adorno^c, Andrea Segrè^a, Matteo Vittuari^{a,*}

^a Department of Agricultural and Food Sciences, University of Bologna, via Fanin 50, 40127 Bologna, Italy

^b European Commission, Directorate General Joint Research, Centre Directorate F - Health, Consumers and Reference Materials, Via Enrico Fermi 2749, I-21027 Ispra, Italy

^c DatascienceLab, Via Masini 12, 40126 Bologna, Italy



ARTICLE INFO

Article history:

Received 29 March 2017
Revised 26 October 2017
Accepted 4 November 2017
Available online 23 November 2017

Keywords:

Italy
Household food waste
Consumers' behaviour
Awareness
Food waster types

ABSTRACT

Scientific literature suggests that in developed countries food is predominantly wasted at the consumption stage of the food supply chain. This study aims to profile consumers' attitude to waste food in Italy investigating households' behaviours leading to food waste generation by addressing what is being wasted and why it is wasted. The work is based on a survey performed in Italy on a heterogeneous sample of 3,087 respondents. A cluster analysis was performed to detect consumers' profiles.

Results, based on self-reporting, allow to sketch different 'waster' types, providing a picture of food waste related to eating, shopping, and storage behaviours and suggesting a number of differences existing in terms of perceived quantities and causes of generated food waste. Out of seven profiles identified, four are the most representative ones in terms of size: the conscious-fussy type, who wastes because food doesn't smell or look good; the conscious-forgetful type, who forgets what is in the fridge or on the shelves; the frugal consumer who tends not to consume fruits and vegetables and declares to waste nothing (or almost nothing); and the exaggerated cook, who overbuys and overcooks.

Profiling specific waste types can help to better understand if groups with common characteristics exist, what their specific features are and what levers can be employed to stimulate a change in their behaviour.

© 2017 Elsevier Ltd. All rights reserved.

1. Introduction

Despite the growing attention from the academic world, civil society and policy makers, the debate on food waste (FW) is still affected by a lack of a consensus over its definition, scope boundaries, causes and quantification and reporting methods. Beside the uncertainty about its exact amount, FW represents a global challenge that calls for intervention. Literature suggests that food is predominantly thrown away, at least in developed countries, at the consumption stage of the supply chain (European Commission, 2010; Parfitt et al., 2010; FAO, 2011; WRAP, 2011; Stenmarck et al., 2016).

In this paper household food waste is defined as the food waste occurring between acquisition (house-gate) and food preparation, food preparation and food serving and after food serving (plate waste) (FAO, 2011). These phases include a set of deeply interrelated routines – planning, purchasing, storing, preparing/cooking, serving, eating, disposing – where the upstream actions deeply

influence the downstream ones. Food and beverages prepared within the households, as well as those prepared elsewhere but consumed in the home, are included in this definition (Van Geffen et al., 2016). This therefore excludes food and beverages consumed outside the home – i.e. food eaten on the go, in the workplace, or in catering establishments. It also excludes food scraps fed to domestic animals and sink disposals (Jones, 2004).

Several reasons leading to the generation of food waste in the household have been identified. Examples include: the lack of food-related knowledge (i.e. lack of understanding of food labels); suboptimal storage; certain retailer practices (e.g. special offers); poor cooking skills; perceived social norms, personal values, and financial resources; and elements related to different geographical and cultural contexts (Abeliotis et al., 2014; Canali et al., 2017; Koivupuro et al., 2012; Lanfranchi et al., 2016; Mondéjar-Jiménez et al., 2016; Neff et al., 2015; Quested et al., 2013; Secondi et al., 2015; Segrè and Gaiani, 2011; Stancu et al., 2016; Van Geffen et al., 2016; Visschers et al., 2016). Such a variety of drivers suggests that food waste can best be understood as the result of the complex interaction of different factors (Canali et al., 2017; Quested et al., 2013) and that such factors are deeply interrelated. For example the type of diet and cooking habits may influence purchase decisions, and purchase decisions may have cascade effects

* Corresponding author.

E-mail addresses: silviagaiani@yahoo.it (S. Gaiani), sandra.caldeira@ec.europa.eu (S. Caldeira), valentina.adorno@gmail.com (V. Adorno), andrea.segre@unibo.it (A. Segrè), matteo.vittuari@unibo.it (M. Vittuari).

on storage and preparation. Moreover, independently from the type of diet or the cooking habits, consumers may buy or cook too much, may have limited cooking skills or manage food improperly.

In addition to that, the association of wasting food with emotional and moral judgements, makes underestimation by consumers a quite common feature. [Quested et al., 2013](#), have indeed shown that self-reported waste is often underestimated and have stressed that wasting food is not a conscious decision.

The lack of awareness is associated with different aspects related to food waste. A high percentage of people remains unaware of how much food they dispose of and the environmental impact this has, although the economic consequences of food waste are understood ([Hamilton et al., 2012](#); [Neff et al., 2015](#); [Segrè and Falasconi, 2011](#); [Segrè, 2014](#); [Scherhauer et al., 2015](#); [Silvenius et al., 2014](#); [WRAP, 2007](#)).

Qualitative evidence for domestic food waste generation is available and has been validated by scientific research, however reliable quantitative data are still missing since measuring the amount of food waste generated in the home is difficult for a number of reasons:

- As activities in the home around food are highly habitual, people are often unaware of the quantity of food they throw away and they tend to forget how much food they waste. This means that self-reported behaviours do not always provide an accurate account ([Møller et al., 2014](#); [Neff et al., 2015](#); [WRAP, 2007b](#)).
- Food is disposed through different routes and therefore quantifications should be carried out for each route and might require several sections of work in order to estimate the total amount of waste ([Møller et al., 2014](#); [Östergren et al., 2014](#); [Tostivint et al., 2016](#)).
- Door-to-door data collection, compositional analysis, or the installation of 'bin cameras' in households represent expensive methodological options for measuring food waste at household level ([Møller et al., 2014](#)).

Nevertheless, several authors dedicated considerable efforts to improve the measurement of household food waste ([Edjabou et al., 2016](#); [Møller et al., 2014](#); [Tostivint et al., 2016](#); [Painter et al., 2016](#); [Parizeau et al., 2015](#)). Among those, some studies have measured household food waste as a percentage of the total bought calories, others as a percentage of the total weight of bought food or as a percentage of each of the consumed food items ([Parfitt et al., 2010](#); [WRAP, 2008](#)).

Methodologies therefore vary considerably, from weighing edible food waste to using 7-day diaries completed by household members and from measuring the calories lost in the wasted food to physically sorting garbage ([WRAP, 2009](#)).

In some cases, estimates are indirectly derived from loss coefficients based upon existing research. Some of the studies use very small sample sizes while others are performed at a more aggregate scale than households, namely at regional or national levels ([WRAP, 2008](#)).

Utilized methods can be roughly assigned to two groups: (1) collection, sorting, and analysis by a third party; and (2) measuring and reporting by the consumers.

As emphasized in [Table 1](#), in Italy household food waste has been studied mainly through methodological approaches based on direct measuring and reporting by consumers, such as structured questionnaires centred around consumers' opinions and self-perceptions, both with statistically representative ([Last Minute Market – with SWG, 2013, 2014, 2015, 2016](#); [Setti et al., 2016](#)) and targeted samples ([Lanfranchi et al., 2016](#); [Mondéjar-Jiménez et al., 2016](#)). Additionally, it has been addressed through mixed methods based on the combined use of questionnaires,

diaries, and waste sorting. This literature addressed both consumers' behaviour and household food waste quantification.

Different surveys ([Last Minute Market – with SWG, 2013, 2014, 2015, 2016](#); [SIMA, 2015](#)) suggest that the larger share of household waste less than 300g per week, while its monetary value range between 343 and 454 euro per year ([ADOC, 2009](#); [Last Minute Market – with SWG, 2013, 2014, 2015, 2016](#); [Save the children, 2012](#)). However, it has to be emphasized that collected data are not statistically comparable, due to the different methodological approaches and to the different objectives of the studies. The most important commonalities among the studies consist in the identification of the causes that lead to the generation of food waste.

This work aims to contribute to the advancement in the understanding of household food waste causes by profiling consumers' attitude to waste food according to a clustering methodology which allows the characterisation of consumers by grouping them according to similar behavioural attitudes.

2. Methodology

2.1. Structure of the survey

Collected data are based on a survey conducted in late 2012 and early 2013 in the framework of a collaboration between Waste Watcher, the Italian Observatory on Food Waste,¹ Last Minute Market² and SWG,³ and with the support of the Institute for Health and Consumer Protection at the Joint Research Centre in Ispra,⁴ Italy and the Karlsruhe Institute of Technology⁵ in Karlsruhe, Germany.

Beside the limitations related to self-reporting, the conduction of a survey is likely to induce a smaller bias on consumers food waste behaviours and reporting as they do not feel observed or judged by researchers ([Koivupuro et al., 2012](#); [WRAP, 2009](#)). Furthermore it is usually less costly than door-to-door collection or other similar methodologies ([Fonseca, 2013](#)) and allows for a more rapid appraisal. The survey consisted of 49 questions organized in five sections addressing demographic information, consumption habits, consumption attitudes, food waste behaviour, potential solutions to prevent or reduce food waste. It was hosted on line for two months and promoted through radio broadcasts, social media like Facebook and internal mailing lists of the University of Bologna and of the Joint Research Centre.

The questionnaire did not include open-ended questions. Depending on the type of question, respondents could choose either one or more than one option.

The technique used for data collection was CAWI (Computer-Assisted Web Interviewing), a surveying technique which is the latest version of a suite of statistical applications for the development and management of on-line interviews.

Respondents, when filling the questionnaire, which consisted of check-boxes and pull-down menus, run a flash client application that allows the simultaneous reading of the data and the subsequent production of graphics. Collected data are immediately available for queries and processing in real time.

CAWI allows the execution of complex questionnaires that contain single- and multiple-choice questions, tables, textual and numeric open-ended questions and automatic fields.

In order to examine a specific portion of the questionnaire data, particularly the responses to the question about why food is wasted, a cluster analysis was used. Unlike other multivariate statistical techniques, the cluster analysis does not include any *a priori*

¹ Waste Watcher: <http://www.sprecozero.it/waste-watcher/>.

² Last Minute Market: <http://www.lastminutemarket.it/>.

³ SWG: <http://www.swg.it/>.

⁴ Joint Research Centre (JRC): <https://ec.europa.eu/jrc/en/about/jrc-site/ispra/>.

⁵ Karlsruhe Institute of Technology: <https://www.kit.edu/>.

Download English Version:

<https://daneshyari.com/en/article/8870045>

Download Persian Version:

<https://daneshyari.com/article/8870045>

[Daneshyari.com](https://daneshyari.com)