sustainability

MDPI

Editorial

Household Food Waste from an International Perspective

Claudia Giordano [1,*] and Silvio Franco [2,*]

[1] Department of Department of Agricultural and Food Sciences (DISTAL), University of Bologna, 40127 Bologna, Italy
[2] Department of Economics and Management, Università degli Studi della Tuscia, via del Paradiso 42, 01100 Viterbo, Italy
* Correspondence: claudia.giordano4@unibo.it (C.G.); franco@unitus.it (S.F.)

The food waste debate has flourished during the last years, leading to an impressive increase in the number of scientific publications. After FAO [1] stated that about one-third of the total food produced at the global level goes wasted, the topic has been given increasing attention, and it became a specific sub-goal of the SDG 12 of Agenda 2030. The most recent study published by UNEP [2] reported that globally around 931 million tons of food waste was generated in 2019, 61% of which came from households.

The European Commission has devoted much effort to this concern by financing large projects specifically dedicated to addressing the issue. The FUSIONS project (2013–2016) provided a comprehensive attempt of harmonized methodology that was largely integrated by the EC Delegated Decision (2019) [3]. Within this project was also published the first assessment of waste generated in the EU food supply chain, where households were found to have contributed to 53% of the total food waste production.

Actually, households are the stage of the food supply chain where the greater part of food waste is generated in absolute terms. Scientific research followed this evidence by rapidly increasing studies on the issue. If we select the words "household" AND "food" AND "waste" on Scopus and limit the research to *social science*, *business*, *economics*, and *agriculture*, which are the relevant subject areas to this Special Issue, we get a total number of 739 documents, observing a 10 times increase in published papers, grown from 14 in 2010 to 141 in 2020 (see Figure 1).

Searching in the Scopus database for "food waste" only and limiting the results to the same subject areas, the number of documents is quite impressive: 443 in 2010 and 1986 in 2020. However, if we go in detail into the different stages of the food supply chain, the figures of the related documents are not so high. Food waste in retail, for instance, shows a peak of 54 documents in 2019. The search for food waste in agriculture reports slightly larger numbers, but it is not possible to associate all these documents directly to the field production stage. Food waste at the processing stage shows lower figures; this can be attributed to the fact that it is the most difficult to analyze as its quantification depends on whether companies provide data or allow researchers to perform audits; on the other hand, there is not a compulsory law anywhere in the world that makes the auditing of or reporting on food waste mandatory for private companies. This is the reason why the food waste literature concerning this stage of the food supply chain is often associated with energy recovery and recycling, chemistry, or environmental science [4].

What are the reasons that caused such a predominant interest in household food waste?

Probably its relevance to the quantity of food waste and the fact that household food waste is hardly recovered for other uses; thus, it is destined for the garbage bin most of the time. In other words, preventing food waste is the only mitigation measure of its impact, so analyzing drivers and causes is the first action to be run.

Citation: Giordano, C.; Franco, S. Household Food Waste from an International Perspective. *Sustainability* **2021**, *13*, 5122. https://doi.org/10.3390/su13095122

Received: 19 April 2021
Accepted: 29 April 2021
Published: 3 May 2021

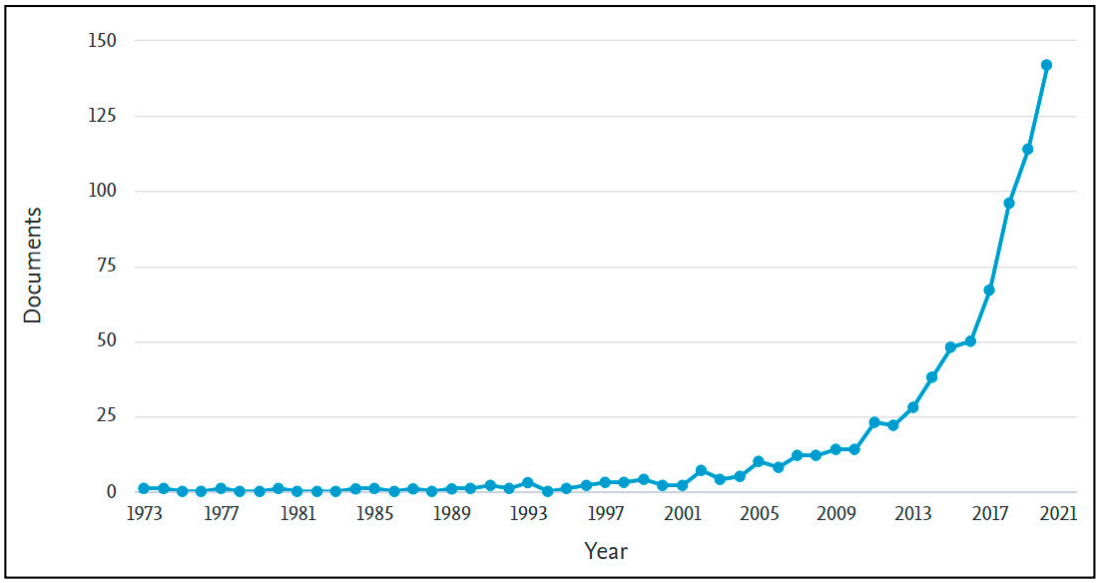

Figure 1. Documents on "household food waste" in Scopus database.

Nonetheless, other very practical reasons might motivate researchers' interest. Studying household food waste allows researchers a great autonomy: a simple questionnaire that might be run online, using free internet tools, allows creating and analyzing large datasets in terms of the range of data collected and sample size. The same autonomy is not possible for other stages of the food supply chain: retailers and canteens require an interaction with other stakeholders, which might hinder, slow down, or complicate data collection. This encourages the proliferation of questionnaire-based studies at the expense of other methods that might be more accurate in detecting behaviors and reliable quantities [5–9] but are known to be more expensive and "slow" [10,11].

However, despite the low predictive value of the questionnaires, they are able to detect respondents' sensitiveness to this problem, revealing the way people perceive themselves toward the food waste issue [12–15]. All these results might be able to feed awareness-raising campaigns and initiatives possibly able to change behavior at home [15–17]. There is a wide range of results related to the determinants of food waste at home, well summed up in the reviews of [18–21]; some key findings are recurrent, such as the role of household size and its correlation with waste quantities.

Despite the proliferation of household food waste studies, many of them have been produced by a relatively "small" club of countries, while little or no information is available about most of the other countries in the world (Figure 2). Indeed, there is a high presence of literature generated in the so-called Global North and former BRICS—namely, advanced economies plus Brazil, China, India, and South Africa in our case. As Figure 2 shows, there is a large number of countries, especially developing economies, that report no studies (in grey) or just one (in light blue).

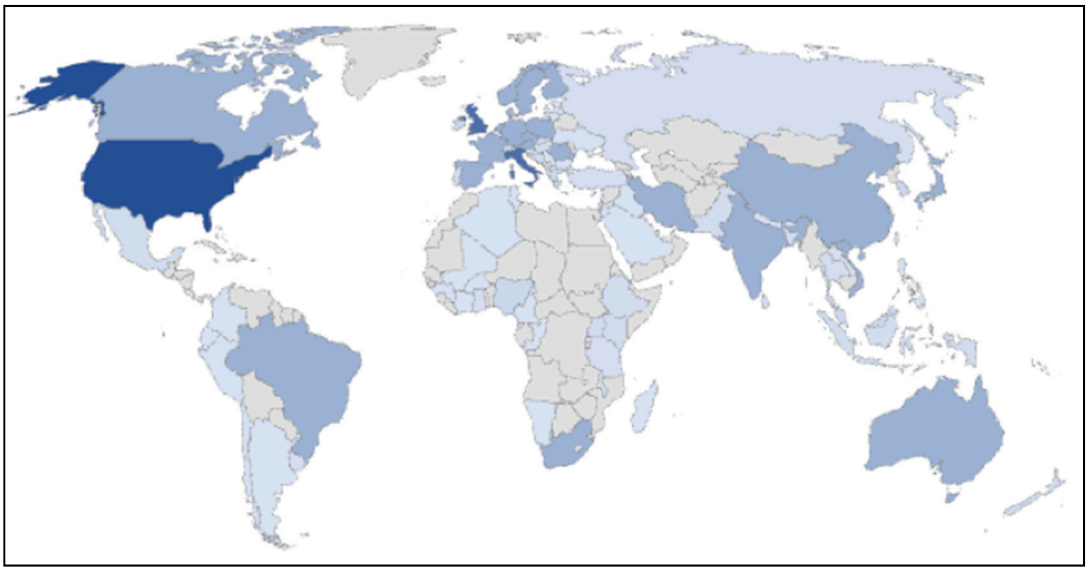

Figure 2. Geographical distribution of documents on "household food waste" in Scopus database.

On the whole, the scientific debate is strongly lead by the US, UK, and Italy, at least in numerical terms. Among the countries that count more than 10 studies on household food waste, 12 out of 26 are from the EU, while most of the others are OECD countries (US, Canada, Australia, Norway, Switzerland) and 4 are former BRICS countries (Brazil, India, China, South Africa). Eventually, we have 32 studies reported in Scopus not fitting into one of the above country classifications, as well as Iran and Vietnam with 11 studies each (Figure 3).

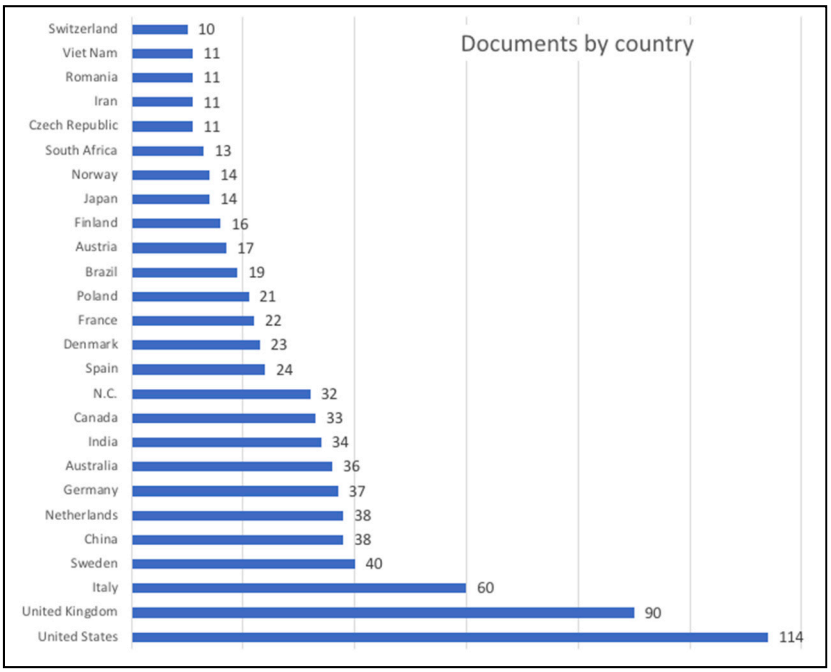

Figure 3. Documents on "household food waste" in Scopus database by country. "NC": not classified.

Not surprisingly, the scientific production by country partially reflects the funding capabilities of a sponsoring country, which sees a predominance of EU, US, Canadian, and Chinese sponsors. The strict connection with the economic power of the countries and their wealth is probably applicable to all the scientific research, including other disciplines

and topics. Looking at the sponsors, it is clear that the top 15 contributors are basically supported by public funding, especially the EU, China, US, and Canada, followed by UK and Norway (Figure 4).

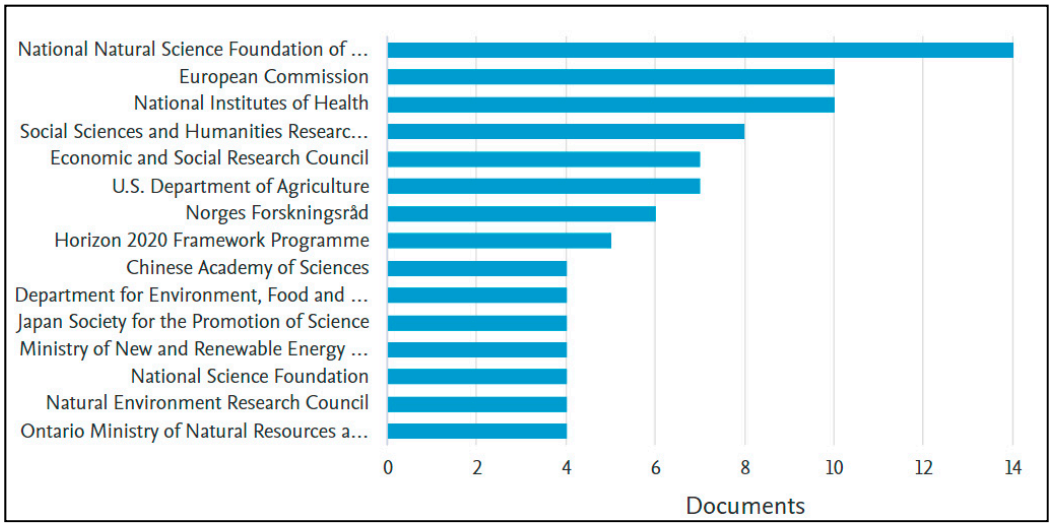

Figure 4. Documents on "household food waste" in Scopus database by funding sponsor.

Thus, on the whole, the debate about household food waste seems to be strictly related to the availability of a country's financial resources for research funding. For a decade and based on [1], it has been thought that developing economies have less household food waste than developed economies and more post-harvest food loss due to lack of infrastructure. While this is partially true, it is necessary to remind ourselves that developing economies have a wide variety of differences in food culture, food availability, and inequality in food access and consumption, both among and within them; for instance, Soma et al. [22,23] found that Indonesian households have alarming data on food waste in certain strata of the population, characterized by geography, status, and income. The most recent UNEP report [2] highlighted this concept, showing that developing economies present household food waste data not dissimilar from high-income countries. The phenomenon of increasing urbanization, along with upper-income consumption patterns and changes in food habits, lead to the so-called nutritional transition [24]: this might increase the relevance of household food waste studies in developing economies, as food habits tend to present common features in urban areas around the globe.

For all these reasons, we decided to open a Special Issue on household food waste, trying to stimulate the contribution from less represented countries and with a variety of sub-topics admitted.

It has been an ambitious challenge, first because this is an open access journal, which foresees a fee that is not affordable in the same way for all countries. Another challenge we had to consider was our network: despite having contacts with many researchers all over the world, we realized how difficult it was to reach countries outside of the US, Canada, and Europe, as our research network is mostly based in the Global North as well.

In order to encourage studies from different countries, we also advocated the contribution of small case studies, qualitative approaches, and mixed methodologies; nevertheless, a prevalence of on-line questionnaire studies has been noted. COVID-19 has been a hindering factor for the application of different methods, as contacts with people have been forbidden during the recurrent 2020–2021 lockdowns (and lockdowns are still occurring at the time of writing this editorial), thus limiting the opportunities to enquire into the issue with other methods (diary, waste audits, ethnographic approaches).

Therefore, both from a geographical and methodological point of view, we did not collect the variety of studies we were aiming to, especially contributions from developing

economies (see Table 1). Eight out of ten countries belong to the so-called Global North, with Brazil and Malaysia making exception. Five out of ten are questionnaire-based.

Table 1. Studies accepted for the Special Issue, with objectives, methodology, and country of analysis.

Authors	Objective	Methodology	Country
Van der Werf et al. 2020	Assessing household food waste quantities and determinants	Waste compositional analysis on a large-scale sample	Canada
Herzberg et al. 2020	Assessing household food waste and determinants	Food diaries on a large-scale sample	Germany
Heikal et al. 2020	Assessing household food waste during the first COVID-19 lockdown	Application of proxy over a waste compositional analysis	Malaysia
Pelau et al. 2020	Establishing relation between cultural influence (Hofstede's cultural dimensions) and fruits/veg waste	Hofstede's cultural dimensions analysis	European Union
Pocol et al. 2020	Identifying types of consumers depending on their perception of food waste	On-line questionnaire	Romania
Qian et al. 2020	Assessing household food waste during the first COVID-19 lockdown	On-line questionnaire	Japan
Przezbórska-Skobiej et al. 2021	Attitudes of young and older consumers towards the phenomenon of food waste	On-line questionnaire	Poland
Vidal-Mones et al. 2021	Food habits and food waste during the first lockdown due to COVID-19	On-line questionnaire	Spain
Schmitt et al. 2021	Food consumption and wastage behavior in Brazil during the COVID-19 pandemic outbreak	On-line questionnaire	Brazil
Keegan and Breadsell 2021	Household food waste quantities and motivations	Social practice theory approach and food waste diary	Australia

For instance, Herzberg et al. [25] produced an impressive dataset on household food waste in Germany based on a diary study: 6853 households were surveyed between 2016 and 2017. The study proposes a type of digital diary, which is suitable for large scale samples—indeed, a good tool for EU countries that are requested to account for and monitor food waste at national scale. To our knowledge, this is the largest database on household food waste produced by a country that is based on a diary study. Other EU countries may be inspired by this opportunity in order to comply with their mandatory reporting.

Van Der Werf et al. [26] present a four-season waste characterization study of over 200 single-family households across eight neighborhoods in Toronto, which adopted a Pay as You Throw (PAYT) system. Results are a milestone since PAYT is increasingly being adopted in Europe and Italy as well, with the belief it can reduce waste and increase garbage separation. In this study, it clearly emerges that the second statement is true but not the first. Such a result should be debated with pros and cons of adopting a PAYT system and producing an evidence-based set of policy measures.

The third study we received was [27] from Malaysia, where a proxy was applied to the total quantity of waste collected before and during lockdown by the waste management company in town and district areas of the Klang Valley. Authors assume that a decrease of food waste is recorded along with a whole decrease of waste, proportionally. Despite being a risky hypothesis, it is true that no waste compositional analysis has been allowed anywhere in the world due to the COVID-19 pandemic, thus legitimating a speculation with available data. Future studies should be based on a waste compositional analysis if possible, or else other methods might be of help (mass balance or volumetric assessment based on separated fraction of food waste; interviews).

Pelau et al. [28] performed an analysis aimed at testing the hypothesis that the quantity of food waste of fruit and vegetables is influenced by the characteristics of the "national culture" according to Hofstede's theoretical framework [29]. In order to test hypotheses,

two panel regression models were developed, where data were retrieved from FAO and Eurostat. Their results confirm that "national culture", according to Hofestede's definition, has an impact on the quantity of wasted fruit and vegetables. The analysis is one of the most original reads about food waste: a very different approach, one that was more qualitative, was adopted. Limitations of the study are briefly listed at the end of the article, and a question arises in the last sentence: "it would be interesting to analyze whether food waste is a matter of a natural born characteristic or if it can be re-educated in order to reduce the quantities of wasted food." It is not clear what the authors assume to be a "natural born characteristic", especially with reference to food waste, but further studies based on qualitative approaches are advocated by us too, perhaps focused on how to change social norms that might support food waste reduction at the collective and individual level.

Another group of researchers in Romania [30] present a study based on an on-line questionnaire that reached out to 2541 respondents. By using a K-means clustering model, they created three clusters: the "careless", the "precautious", and the "ignorant" (namely, those people who have not formed anti-waste habits), according to how much they declare to care about the issue, their daily actions in food waste management, and their perception of food waste being a problem for which they are responsible. This type of analysis (clustering consumers according to their answers to a questionnaire) is a kind of exercise that has already been proposed many times in the literature, see for instance [31–33].

The studies from [34] with reference to Japan, as well as [35] from Spain and [36] from Brazil, reported that the COVID-19 pandemic has had an influence on households' perception of food waste, where respondents declared that they have cared more about food waste during the lockdown. Previous studies demonstrated the same, such as [37–39]. On the one hand, these studies all rely on questionnaires, so distorted self-perceptions of respondents are possible [5–8]. On the other hand, all these studies let emerge a strong social norm, common to all these countries, which suggests that "wasting food is wrong", especially during an emergency situation.

Przezbórska-Skobiej and Wiza [40] surveyed the food waste behavior of two age-based classes of consumers in Poland, one mostly 19–26, the other mostly 35–50 (all respondents were students of their department): their results suggest that young people declare to waste more food than older people.

Last but not least, Keegan, E.; Breadsell [41] ran a study in Australia based on Social Practice Theory. They also involved the participants in the "Grow It Local" movement: Grow It Local seeks to engage the community in growing, sharing, and eating locally grown food. On the whole, 21 people completed food diaries (for two weeks) and 64 completed the on-line questionnaires. This study is particularly interesting since it starts to answer the question: Do people who grow their own food waste as much as people who do not? The answer seems to be that no, those who grow their food are more sensitive and actually waste less. Limitations of the study are again included in the sphere of self-reporting, despite the fact that diaries ensure a lower rate of self-reporting bias than questionnaires. However, this study asks a crucial research question about household food waste quantities in relation to sustainable practices of food purchasing, such those offered by Alternative Food Networks (AFNs), which is an important gap in the current literature [42]. After all, reducing food waste is part of creating sustainable food systems, and it is a component of the SDG 12: sustainable production and consumption. The mainstream approach adopted by research and policy making until now has split production and consumption in two parts, mostly focusing on (and blaming) the consumer for the second component [43,44]. A general lack of contestation to the current food provisioning regime is recorded in literature related to food waste, disconnecting the consumer from the surrounding economic context and thus limiting the real transformative potential of the alternatives [45]. Indeed, we hope that the study by [41] will be the first of a new series analyzing the relation between AFNs and household food waste.

It is clear that the food waste debate is highly centered in Europe and the Global North and that this feature might be nourished by both the wide acceptance in these countries of

the publish-or-perish system and by the availability of public funding for research. Indeed, an important knowledge gap is noted for all the countries being outside this "club". Despite years of thinking that developing countries see their food waste happening most at the first stages of the food supply chain [1], recent studies are revealing different conclusions. Increasing urbanization [46] is leading to deep change in diets and food consumption habits [23], driven by the so-called "nutritional transitions" [24].

As outlined by [23], we need to rethink the food waste debate in developing countries and transition economies, as new consumption habits are leading to a higher food waste in urban areas, and we need to be particularly careful because some countries do not have efficient waste management infrastructures and services that are suitable for mitigating food waste impact, such as methane emissions. In the meantime, Global North countries need to harmonize the strengths for quantification through standardized methodologies that allow comparison and monitoring.

Another consideration is related to the mainstream narrative about household food waste: consumers seem to be analyzed out of their economic context, and they are framed as being entirely responsible for lowering food waste toward the SDG 12.3 [4,44]. How the consumer deals with organizing, planning, and cooking meals and managing leftovers seems to be at the core of food waste reduction at the household stage, based on the idea that food provision and consumption can be a perfectly rational act, disconnected from crucial external issues such as corporate marketing strategies, daily-life context, and social and psychological factors. Conversely, psychological factors influencing food-related actions are many [47] because shopping is neither a completely rational nor conscious process [48] and consumers are notoriously poor planners [49]. Any approach that requires the final consumer alone to address the systematic problem of over-production and over-consumption pushed purposively by the economic system [44] is not able to fully face the problem of household food waste.

Therefore, our suggestion for future research in the field encourages studies based on holistic analysis of the food system, abandoning the sector-based approach that sees the final consumers as the undisputed stars of the household food waste solution. At the same time, food waste studies in developing economies, especially in urban areas, are particularly encouraged to fill the current gap of knowledge.

Author Contributions: Conceptualization, C.G. and S.F.; methodology, C.G. and S.F.; investigation, C.G.; writing—original draft preparation C.G. Review and editing, C.G. and S.F. Both authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Data Availability Statement: Research in Scopus database. (TITLE-ABS-KEY (household AND food AND waste) AND (LIMIT-TO (SUBJAREA, "SOCI") OR LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "ECON") OR LIMIT-TO (SUBJAREA, "AGRI") was run on 25 January 2021 on the Scopus website.

Acknowledgments: We would like to thank the contributors to this issue, who have given their time and effort to help create this collection of essays.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Gustavsson, J.; Cederberg, C.; Sonesson, U.; van Otterdijk, R.; Meybeck, A. *Global Food Losses and Food Waste: Extent, Causes and Prevention*; Food and Agriculture Organisation of the United Nations (FAO): Rome, Italy, 2011.
2. Forbes, H.; Quested, T.; O'Connor, C. *Food Waste Index Report 2021*; United Nations Environment Programme: Nairobi, Kenya, 2021.
3. European Commision. EC Delegated Decision, C. 3211 Final and Annex. Supplementing Directive 2008/98/EC of the European Parliament and of the Council as Regards a Common Methodology and Minimum Quality Requirements for the Uniform Measurement of Levels of Food Waste. Available online: http://ec.europa.eu/transparency/regdoc/rep/3/2019/EN/C-2019--3211-F1-EN-MAIN-PART-1.PDF (accessed on 3 March 2021).

4. Giordano, C.; Falasconi, L.; Cicatiello, C.; Pancino, B. The role of food waste hierarchy in addressing policy and research: A comparative analysis. *J. Clean. Prod.* **2020**, *252*, 119617. [CrossRef]
5. Giordano, C.; Piras, S.; Boschini, M.; Falasconi, L. Are questionnaires a reliable method to measure food waste? A pilot study on Italian households. *Br. Food J.* **2018**, *120*, 2885–2897. [CrossRef]
6. Giordano, C.; Alboni, F.; Falasconi, L. Quantities, determinants and awareness of households' food waste in Italy: A com-parison between diary and questionnaires quantities. *Sustainability* **2019**, *11*, 3381. [CrossRef]
7. Elimelech, E.; Ert, E.; Ayalon, O. Exploring the Drivers behind Self-Reported and Measured Food Wastage. *Sustainability* **2019**, *11*, 5677. [CrossRef]
8. van der Werf, P.; Seabrook, J.A.; Gilliland, J.A. Food for thought: Comparing self-reported versus curbside measurements of household food wasting behavior and the predictive capacity of behavioral determinants. *Waste Manag.* **2020**, *101*, 18–27. [CrossRef]
9. van Herpen, E.; van Geffen, L.; Vries, M.N.-D.; Holthuysen, N.; van der Lans, I.; Quested, T. A validated survey to measure household food waste. *MethodsX* **2019**, *6*, 2767–2775. [CrossRef]
10. Lebersorger, S.; Schneider, F. Discussion on the methodology for determining food waste in household waste composition studies. *Waste Manag.* **2011**, *31*, 1924–1933. [CrossRef]
11. Cicatiello, C. Measuring household food waste at national level: A systematic review on methods and results. *CAB Rev. Perspect. Agric. Veter. Sci. Nutr. Nat. Resour.* **2018**, *13*, 1–8. [CrossRef]
12. Graham-Rowe, E.; Jessop, D.C.; Sparks, P. Identifying motivations and barriers to minimising household food waste. *Resour. Conserv. Recycl.* **2014**, *84*, 15–23. [CrossRef]
13. Graham-Rowe, E.; Jessop, D.C.; Sparks, P. Predicting household food waste reduction using an extended theory of planned behaviour. *Resour. Conserv. Recycl.* **2015**, *101*, 194–202. [CrossRef]
14. Stancu, V.; Haugaard, P.; Lähteenmäki, L. Determinants of consumer food waste behaviour: Two routes to food waste. *Appetite* **2016**, *96*, 7–17. [CrossRef]
15. Van Der Werf, P.; Seabrook, J.A.; Gilliland, J.A. Reduce food waste, save money: Testing a novel intervention to reduce household food waste. *Environ. Behav.* **2021**, *53*, 151–183. [CrossRef]
16. Reynolds, C.; Goucher, L.; Quested, T.; Bromley, S.; Gillick, S.; Wells, V.K.; Evans, D.; Koh, L.; Kanyama, A.C.; Katzeff, C.; et al. Review: Consumption-stage food waste reduction interventions—What works and how to design better interventions. *Food Policy* **2019**, *83*, 7–27. [CrossRef]
17. Soma, T.; Li, B.; Maclaren, V. Food waste reduction: A test of three consumer awareness interventions. *Sustainability* **2020**, *12*, 907. [CrossRef]
18. Quested, T.; Marsh, E.; Stunell, D.; Parry, A. Spaghetti soup: The complex world of food waste behaviours. *Resour. Conserv. Recycl.* **2013**, *79*, 43–51. [CrossRef]
19. Visschers, V.H.M.; Wickli, N.; Siegrist, M. Sorting out food waste behaviour: A survey on the motivators and barriers of self-reported amounts of food waste in households. *J. Environ. Psychol.* **2016**, *45*, 66–78. [CrossRef]
20. Schanes, K.; Dobernig, K.; Gözet, B. Food waste matters—A systematic review of household food waste practices and their policy implications. *J. Clean. Prod.* **2018**, *182*, 978–991. [CrossRef]
21. Van Geffen, L.; Van Herpen, E.; Van Trijp, H. Household food waste—How to avoid it? an integrative review. *Food Waste Management* **2019**, 27–55. [CrossRef]
22. Soma, T. The tale of the crying rice: The role of unpaid foodwork and learning in food waste prevention and reduction in Indonesian households. In *Learning, Food and Sustainability: Sites for Resistance and Change*; Sumner, J., Ed.; Pal-grave Macmillan: New York, NY, USA; pp. 19–34.
23. Soma, T. Gifting, ridding and the "everyday mundane": The role of class and privilege in food waste generation in Indonesia. *Local Environ.* **2017**, *22*, 1444–1460. [CrossRef]
24. Popkin, B.M. The nutrition transition and obesity in the developing world. *J. Nutr.* **2001**, *131*, 871S–873S. [CrossRef] [PubMed]
25. Herzberg, R.; Schmidt, T.G.; Schneider, F. Characteristics and determinants of domestic food waste: A representative diary study across Germany. *Sustainability* **2020**, *12*, 4702. [CrossRef]
26. Van Der Werf, P.; Larsen, K.; Seabrook, J.; Gilliland, J. How neighbourhood food environments and a pay-as-you-throw (payt) waste program impact household food waste disposal in the city of Toronto. *Sustainability* **2020**, *12*, 7016. [CrossRef]
27. Ismail, M.H.; Ghazi, T.; Hamzah, M.; Manaf, L.; Tahir, R.; Nasir, A.M.; Omar, A.E. Impact of movement control order (MCO) due to coronavirus disease (COVID-19) on food waste generation: A case study in Klang Valley, Malaysia. *Sustainability* **2020**, *12*, 8848. [CrossRef]
28. Pelau, C.; Sarbu, R.; Serban, D. Cultural influences on fruit and vegetable food-wasting behavior in the European Union. *Sustainability* **2020**, *12*, 9685. [CrossRef]
29. Hofstede, G. *Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations*; Sage Publication: Thousand Oaks, CA, USA, 2001.
30. Pocol, C.; Pinoteau, M.; Amuza, A.; Burlea-Schiopoiu, A.; Glogoveţan, A.-I. Food waste behavior among romanian consumers: A cluster analysis. *Sustainability* **2020**, *12*, 9708. [CrossRef]
31. Falasconi, L.; Cicatello, C.; Franco, S.; Segre, A.; Setti, M.; Vttuari, M.; Cusano, I. Consumer approach to food waste: Evidences from a large scale survey in Italy. *Italian Rev. Agric. Econ.* **2016**, *71*, 266–278.

32. Gaiani, S.; Caldeira, S.; Adorno, V.; Segrè, A.; Vittuari, M. Food wasters: Profiling consumers' attitude to waste food in Italy. *Waste Manag.* **2018**, *72*, 17–24. [CrossRef]
33. Di Talia, E.; Simeone, M.; Scarpato, D. Consumer behaviour types in household food waste. *J. Clean. Prod.* **2019**, *214*, 166–172. [CrossRef]
34. Qian, K.; Javadi, F.; Hiramatsu, M. Influence of the COVID-19 pandemic on household food waste behavior in Japan. *Sustainability* **2020**, *12*, 9942. [CrossRef]
35. Vidal-Mones, B.; Barco, H.; Diaz-Ruiz, R.; Fernandez-Zamudio, M.-A. Citizens' food habit behavior and food waste consequences during the first COVID-19 lockdown in Spain. *Sustainability* **2021**, *13*, 3381. [CrossRef]
36. Schmitt, V.; Cequea, M.; Neyra, J.V.; Ferasso, M. Consumption behavior and residential food waste during the COVID-19 pandemic outbreak in Brazil. *Sustainability* **2021**, *13*, 3702. [CrossRef]
37. Ben Hassen, T.; El Bilali, H.; Allahyari, M.S. Impact of COVID-19 on food behavior and consumption in Qatar. *Sustainability* **2020**, *12*, 6973. [CrossRef]
38. Jribi, S.; Ben Ismail, H.; Doggui, D.; Debbabi, H. COVID-19 virus outbreak lockdown: What impacts on household food wastage? *Environ. Dev. Sustain.* **2020**, *22*, 1–17. [CrossRef] [PubMed]
39. Principato, L.; Secondi, L.; Cicatiello, C.; Mattia, G. Caring more about food: The unexpected positive effect of the Covid-19 lockdown on household food management and waste. *Socioecon. Plan Sci.* **2020**, 100953. [CrossRef]
40. Przezbórska-Skobiej, L.; Wiza, P. Food waste in households in Poland—Attitudes of young and older consumers towards the phenomenon of food waste as demonstrated by students and lecturers of PULS. *Sustainability* **2021**, *13*, 3601. [CrossRef]
41. Keegan, E.; Breadsell, J. Food waste and social practices in Australian households. *Sustainability* **2021**, *13*, 3377. [CrossRef]
42. Giordano, C.; Piras, S.; Graziano, R.P.; Lazzarini, M.; Spaghi, S. Alternative food networks and household food waste: Evidence from an Italian case study. In Proceedings of the RETASTE Conference, Session: Food Loss and Waste Prevention, Athens, Greece, 6–8 May 2021.
43. Evans, D. Blaming the consumer—Once again: The social and material contexts of everyday food waste practices in some English households. *Crit. Public Heal.* **2011**, *21*, 429–440. [CrossRef]
44. Messner, R.; Richards, C.; Johnson, H. The "Prevention Paradox": Food waste prevention and the quandary of systemic surplus production. *Agric. Hum. Values* **2020**, *37*, 805–817. [CrossRef]
45. Berti, G.; Giordano, C.; Mininni, M. Assessing the transformative potential of food banks: The case study of magazzini sociali (Italy). *Agriculture* **2021**, *11*, 249. [CrossRef]
46. UNCTAD Handbook of Statistics 2020 Population. Available online: https://unctad.org/system/files/official-document/tdstat45_FS11_en.pdf (accessed on 1 January 2021).
47. Köster, E. Diversity in the determinants of food choice: A psychological perspective. *Food Qual. Preference* **2009**, *20*, 70–82. [CrossRef]
48. Gram, M. Self-reporting vs. observation: Some cautionary examples from parent/child food shopping behaviour. *Int. J. Consum. Stud.* **2010**, *34*, 394–399. [CrossRef]
49. Block, L.G.; Keller, P.A.; Vallen, B.; Williamson, S.; Birau, M.M.; Grinstein, A.; Haws, K.L.; LaBarge, M.C.; Lamberton, C.; Moore, E.S.; et al. The squander sequence: Understanding food waste at each stage of the consumer decision-making process. *J. Public Policy Mark.* **2016**, *35*, 292–304. [CrossRef]