



The impact of Too Good To Go on food waste reduction at the consumer household level

An explorative study

Sandra van der Haar (MSc) & Gertrude G. Zeinstra (PhD)



WAGENINGEN
UNIVERSITY & RESEARCH

The impact of Too Good To Go on food waste reduction at the consumer household level

An explorative study

Authors: Sandra van der Haar (MSc) & Gertrude G. Zeinstra (PhD)

This research project has been carried out by Wageningen Food & Biobased Research within the PPP project "Understanding Shelf Life" (project number 6239117701), and is funded by Too Good To Go and TKI Topsector Agri & Food (project number AF-15291).

Wageningen Food & Biobased Research
Wageningen, October 2019

Public

Report 1975

ISBN 978-94-6395-149-4

Version: final

Reviewer: Hilke Bos-Brouwers and Anke Janssen

Approved by: Annelies Dijk

Client: Too Good To Go

Sponsor: Too Good To Go and TKI Topsector Agri & Food (AF-15291)

This report can be downloaded for free at <https://doi.org/10.18174/501904/> or at www.wur.eu/wfbr (under publications).

© 2019 Wageningen Food & Biobased Research, institute within the legal entity Stichting Wageningen Research.

PO box 17, 6700 AA Wageningen, The Netherlands, T + 31 (0)317 48 00 84, E info.wfbr@wur.nl, www.wur.eu/wfbr. Wageningen Food & Biobased Research is part of Wageningen University & Research.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system of any nature, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the publisher. The publisher does not accept any liability for inaccuracies in this report.

Contents

	Preface	4
	Summary	5
1	Introduction	7
1.1	Background	7
1.2	Objective	8
2	Methods	9
2.1	Focus group discussions	9
2.1.1	Recruitment of focus group participants	9
2.1.2	Content of focus group discussions	10
2.2	Survey	10
3	Results	11
3.1	Focus group discussions	11
3.1.1	Participant characteristics	11
3.1.2	App experiences	12
3.1.3	Magic box experiences	13
3.1.4	Effects on awareness, attitude and behaviour	13
3.1.5	Possible improvements	14
3.1.6	Differences between new users and long-term users	14
3.1.7	Key learnings focus groups	14
3.2	Survey	15
3.2.1	Sample characteristics	15
3.2.2	App usage	15
3.2.3	Magic boxes	16
3.2.4	Effects on awareness, attitude and behaviour	18
3.2.5	Possible improvements	19
4	Discussion and recommendations	21
4.1	Main outcomes	21
4.2	Strengths and limitations	23
4.3	Implications and recommendations	24
5	Conclusion	25
6	Literature references	26
	Annexes	28
	Annex I Focus group guide (in Dutch)	28
	Annex II Questionnaire (in Dutch)	34
	Annex III Focus group results	44
	Annex IV Additional graphs and figures from survey	45

Preface

It is estimated that about one third of all food produced globally gets lost or wasted along the food supply chain, leading to economic, societal and environmental losses. To avert these losses and reduce the impact of food losses and waste on the food system, different initiatives have arisen to prevent and reduce food waste. One such initiative is the Too Good To Go concept that tackles the potential loss of unsold food from retail and food service industry across various countries. The basic approach of Too Good To Go consists of a consumer app with a system where “magic boxes” can be ordered from various shops. They are called “magic”, because consumers do not know beforehand what these boxes contain. These magic boxes need to be picked up at stores and contain food that otherwise would have gone to waste. In this way, food is saved from becoming wasted. The research project described in this report was executed within the PPP Understanding Shelf Life, which aims to contribute to food waste and food loss reduction at the cross field between retail and consumers. Within this specific research project, we studied what happens with the foods in the magic box, after these have been picked up. This contributes to creating in-depth insights in the potential that the Too Good To Go initiative has on food waste reduction.

The research in this report has been drafted and executed by Sandra van der Haar, researcher of the Food, Health and Consumer Research group of Wageningen Food & Biobased Research, and Gertrude Zeinstra, researcher and project leader in the same group. Rob Drent is gratefully acknowledged for leading and analysing the focus group discussions. The project was executed within the context of PPP Understanding Shelf Life, with project leader Anke Janssen providing useful input to the project set-up, the focus group guide and survey questions, as well as the report. Also Hilke Bos-Brouwers and Annelies Dijk are thanked for reviewing the report. We enjoyed the collaboration with Too Good To Go and appreciated their input on the focus group guide and survey questions.

Finally, the participants – the Too Good To Go waste warriors – are gratefully acknowledged for participating in the focus group discussions and the survey.

Sandra van der Haar (MSc) & Gertrude G. Zeinstra (PhD)
Food, Health & Consumer Research
Wageningen Food & Biobased Research

Summary

About one third of all food produced globally is wasted, which has negative economic, societal and environmental consequences. Different initiatives have arisen to prevent and reduce food waste. One such initiative is the Too Good To Go concept, that tackles the potential loss of unsold food from retail and food service industry. The basic approach of Too Good To Go consists of a consumer app with a system where “magic boxes” can be ordered from various shops. Consumers do not know in advance which foods are in the box, as the magic boxes contain foods that otherwise would have gone to waste. In order to understand what happens with the foods in the magic box after these have been picked up by consumers, the objective of this study was to explore the impact that can be made by users of the Too Good To Go app on food waste reduction and to explore if and which improvements are possible in the app or in the magic boxes, to increase its impact on food waste reduction.

The study consisted of focus group discussions and an online survey. For the focus groups, six groups of 6-8 users were recruited via the Too Good To Go platform in the province of Utrecht: three groups of *new users*, who were defined as having picked 1-2 magic boxes since they installed the app and three groups of *long-term users*, who were defined as having picked up ≥ 3 magic boxes. The *new users* were asked to pick up at least one magic box per week in the month prior to their focus group discussion. In a semi-structured group discussion of 90 minutes, led by a professional focus group moderator, experiences with the Too Good To Go app and magic boxes were discussed. Based on the results of the focus group discussions, a 15-minute online survey was developed. The same topic structure was used as in the focus groups and the survey was sent out to all users who picked up at least one magic box since they installed the app.

Thirty-six participants aged 37.8 years (15 new users and 21 long-term users) participated in the focus groups and 611 respondents with an average age of 49.5 years filled out the online survey. The results from both the focus group discussions and the survey indicated that very little food from the magic boxes is discarded. Eighty-eight percent of the survey respondents indicated that they discard (some) food from the magic box in less than 10% of the occasions. When there are left-overs from the magic box, only 8% of the respondents indicated that they discard this food. If food from the magic box is discarded, the main reasons were that the food was spoiled (health risks), the foods in the box were disliked or the type of food was usually not consumed. In addition, not having enough storage space was frequently mentioned in the focus groups. If there are left-overs or disliked foods from the magic box, both focus group and survey participants tried to prevent food waste by storing food in the freezer, using it the next day, or sharing it with others.

The focus group results indicated that there were three main drivers for using (downloading) the Too Good To Go app, that create a synergy together: a desire to reduce food waste, saving money and having a surprise experience. When forced to choose a main reason for using the app in the survey, respondents indicated that wasting less food was the main reason (35%), followed by the surprise-effect of the magic boxes (26%) and saving money (20%). Whereas all users are united by their interest in saving food from being wasted, there are different contexts (situations) in which users order a magic box via the app: solution seeking, exploring, scoring, and saving.

The survey showed that users valued the food from the magic box as more (46%) or as equal (48%) to their ‘regular’ groceries. The majority of users (58%) visited new stores due to the TGTG app, of which 76% became a recurring visitor.

The focus groups revealed hardly any changes in knowledge, attitude or behaviour due to using the app. This may be due to the participants’ high level of consciousness about not wasting food prior to instalment of the app. Using the Too Good To Go app enforces this awareness and supports users’ food waste reduction efforts. Only a few participants noticed a change in their food waste behaviour. The survey confirmed these results, showing a slight increase in consciousness and motivation about reducing food waste. Again, a small group (22%) started other behavioural actions to reduce food waste. Still, for most survey-items regarding self-reported food waste behaviour, no changes were observed.

In general, users were very positive about the Too Good To Go concept (average score of 7.9 out of 10 in the survey). Participants from the focus group discussions did not seem very interested in adding new features to the app or magic box, except the option to pick up a vegetarian box. Increasing the variety of participating stores and the possibility to let someone else pick up your magic box were rated as most attractive improvements in the survey. Widening pick-up times for magic boxes and the possibility to choose for specific eating moments boxes were rated as slightly attractive in the survey and may be appealing to a smaller group of users.

Strengths of this study are the combination of qualitative data (focus group discussions) and quantitative data (survey) leading to a comprehensive picture, as well a relatively large sample-size (survey) with various educational backgrounds. Limitations include the self-report of behaviour change and the fact that Too Good To Go users seem to be a group of consumers who are highly conscious and motivated about food waste reduction, which may not be representative for Dutch consumers in general. These aspects should be taken into account when interpreting the results.

In conclusion, the results show that Too Good To Go positively contributes to food waste reduction at the level between food service and consumers, as most of the saved food via magic boxes is actually consumed. The impact of using the Too Good To Go app on attitude, motivation or behaviour change is small, because the users are already highly aware, motivated and dedicated to reduce food waste. An even bigger effect will most likely be reached when Too Good To Go is able to get consumers on board who are currently less aware and less engaged in the food waste problem and its possible solutions. Users found 'increasing the variety (number) of participating stores' and 'having the possibility to let someone else pick up your magic box' the most interesting suggestions for improvement of the concept.

1 Introduction

The current report shows the results of a research project consisting of focus group discussions and an online survey. The research was commissioned by Too Good To Go, executed independently by Wageningen Food & Biobased Research, and funded by Too Good To Go and TKI Topsector Agri & Food. The project has been executed within the scope of the PPP project Understanding Shelf Life, which aims to reduce all food waste in retailers/on the shop floor and food waste by consumers in their homes which is related to expiry dates.

The main question of Too Good To Go was to understand what happens with the food in the magic boxes, after they have been picked up by users, in order to gain insight into the potential that the Too Good To Go initiative has on food waste reduction at the cross field between retail and consumers. An additional question was to explore which improvements are possible in the concept to increase its impact. The results of this report are applicable to Too Good To Go users, as the participants were recruited via the Too Good To Go platform, because they had to have experience with the app and magic boxes.

This report is initially written for Too Good To Go and for any other readers who are interested in the topic of food waste reduction.

1.1 Background

About one third of all food produced globally is wasted. This large amount of food waste leads to economic, social and environmental losses. A large part of wasted food is generated at the level of consumer households (Stenmarck et al., 2016). In general, most consumers are reluctant to food waste (Rohm, 2017), and consumers normally do not waste food intentionally (Van Geffen et al., 2016). Still, changing consumer food and waste behaviour is a challenging task (Aschemann-Witzel et al., 2015; Farr-Wharton et al., 2014). Based on the few studies that really measure effects on the actual behaviour of food waste at the consumer level, current interventions seem to achieve a 5-20% reduction in food waste (Reynolds, 2019).

Consumer food waste is the result of a complex set of behaviours (Quested et al., 2013), with different conscious and unconscious factors influencing those behaviours rather than the result of a single action. Some factors at the consumer level help in preventing food waste, such as knowledge and skills related to meal and food planning (Aktas, 2018; Quested, 2013), knowledge on the proper storage of (fresh) foods (Porat 2018), having environmental concerns (Quested, 2013), saving money (Quested, 2013; Falcone & Imbert, 2017), and attitudes or values towards the topic of food waste such as guilt, ethical considerations, strong personal norms (Quested, 2013; Schanes, 2018).

Other factors at the consumer level are barriers, and lead to food waste, such as habits and a lack of motivation (Quested 2013), anxiety about food safety or not understanding 'use by' or 'best before' dates (Aschemann-Witzel et al., 2015; Parfitt, 2010), poor home-economic skills such as recombining leftovers into new meal (Parfitt 2010), little time for purchase and preparation of foods, combined with low prices of food which makes that consumers care less about wastage (Aschemann-Witzel et al., 2015), overbuying and impulsive food purchases (Parfitt, 2010), inappropriate storing (Schmidt & Matties, 2018) or forgetting about stored foods (Martindale, 2016).

Apps may present a low-cost, scalable and effective approach to change consumer behaviour (Mummah et al., 2017) because most consumers nowadays have a smartphone or tablet and apps are often inexpensive, so a high number of consumers can be reached. In addition, various communication forms can be used at different, relevant time points for the consumer.

Too Good To Go developed an app that can be used to buy food for a discounted price that otherwise would be discarded. This can be done at restaurants, hotels, bakeries, cafes and supermarkets. Via the app, a so-called 'magic box' can be bought, because the buyer does not know in advance which food products are in the 'magic box'. After purchasing the 'magic box', it has to be picked up by the consumer who made the purchase, often within a defined time slot to assure food quality. In this way, the local entrepreneur is supported and generates less food waste and will possibly get new customers. The Too Good To Go app is available in 13 European countries and has been downloaded 15 million times. From the beginning of 2018, Too Good To Go is also available for download in The Netherlands, with over 2000 entrepreneurs joining the initiative and resulting in more than one million saved meals (August 2019). Since the 21st of January 2019, 'magic boxes' are also available in Wageningen.

The app is popular, the society is enthusiastic about the Too Good To Go initiative and many meals have been saved from being wasted. However, it is not known what happens with the food in the magic boxes after it has been picked up by the consumer. This question formed the basis for this project.

1.2 Objective

The objective of this study is to explore the impact that can be made by users of the Too Good To Go app on food waste reduction and to explore if and which improvements are possible in the app/magic boxes to increase its impact on food waste reduction.

Research questions:

1. How much of the Too Good To Go 'magic box' is actually eaten by the consumer?
2. If the food is not (entirely) eaten, what is the reason?
3. In which situations is the 'saved' food actually eaten/not eaten?
4. In which food consuming moments/situations (occasion/timing, context and with whom) do consumers use the app?
5. Do consumers who use the app think differently about food waste by using the app, so does the app increase self-reported awareness? How much were they aware of the food waste problem before using the app and how much afterwards?
6. Do consumers who use the app change their behaviour regarding food waste (self-reported)?
7. What possible improvements are mentioned by users of the app?

2 Methods

In order to get insight in the impact that can be made by users of the Too Good To Go app on food waste reduction and to explore if and which improvements are possible in the Too Good To Go app/magic boxes to increase its impact, two methods were used.

First, focus group discussions were performed, because qualitative research is suitable to explore a new topic such as this. The aim was to get insight into what happens with the food in the magic boxes after picking them up and to understand the attitudes, values and perceptions that underlie and influence this behaviour. In a subsequent step, an online survey was distributed among Too Good To Go app users to confirm and quantify the findings of the focus group discussions.

Too Good To Go gave input to the topics and questions from the focus group guide and survey and gave their agreement on the topics, but were not involved in the exact formulation of the questions, nor in the data analysis or data interpretation. Subscription for participation, communication with and planning of participants was handled by Wageningen Food & Biobased Research, according to the General Data Protection Regulations.

2.1 Focus group discussions

The focus group discussions took place in May 2019, in Restaurant Instock in the city of Utrecht. Utrecht was selected as the location for this study, since the app was launched in this area over one year ago, making it one of the more mature and experienced Too Good To Go regions. A total of six group discussions with a duration of 90 minutes each were performed by a professional focus group moderator (Rob Drent, Canvas Concepting). All discussions were audio recorded and a typist was present to take minutes for every session.

2.1.1 Recruitment of focus group participants

Two groups of adult users were recruited via the Too Good To Go user platform. This was done in order to explore whether there are differences in attitudes, perceptions and behaviour between new users and long-term users. *New users* were defined as having picked up one, or at the most two magic boxes since they installed the app. After subscribing for the study, they were asked to pick up at least one magic box per week in the month prior to their focus group discussion, in order to be able to discuss multiple Too Good To Go experiences. *Long-term users* were defined as having picked up three magic boxes or more since instalment of the app. For this group of users, there were no specific requirements prior to the focus group discussion, besides continuing their normal 'magic box behaviour'. It was intended to recruit 18-24 participants per user-group, based on a group size of 6-8 persons per focus group session.

All Too Good to Go users in the province of Utrecht were invited to participate by e-mail. The aim of the study was communicated as 'to investigate what users think of Too Good To Go and to explore what happens with the magic box at home, after purchasing it'. Interested users could subscribe for the focus groups by leaving their details in an online registration form; they were scheduled for the focus groups based on their availability. Three focus group discussions were held with new users, and three with long-term users

2.1.2 Content of focus group discussions

The group discussions were semi-structured, meaning the topics and questions were determined beforehand in a topic guide (see Annex I). In summary, the outline of the discussion was as follows:

1. *Introduction*

The discussion leader gave a short introduction on the outline of the discussion. He explained that the purpose of the discussion was to gain insight in experiences with the Too Good To Go app and magic boxes and that there were no right or wrong answers. The participants were informed that the session would be audio-recorded.

2. *Top of mind*

Participants were asked to write down the first things that comes to their mind when they think about Too Good To Go. They were given post its to write down a few key words. The key words were put on a flip-over and grouped by the focus group moderator. Participants could explain and discuss together.

3. *App experiences*

Experiences regarding using the Too Good To Go app were discussed. What were the main reasons to install the app? What are positive aspects, what are negative aspects? How did the new users perceive the experience of using the app every week? When do they use the app?

4. *Magic box experiences*

Participants were asked about their experiences with the magic box. What do they think of it? How do they appreciate the content? What do they think of the amount of food? What happens if they are not able to eat everything? If food from the magic box is thrown away, what are the main reasons?

5. *Effects of Too Good To Go on attitude and behaviour*

Participants were questioned about what effects using the Too Good To Go app had on their knowledge, attitude and behaviour. Additionally, they were asked to what extent they talk with others about Too Good To Go and to what extent they feel part of a 'community'.

6. *Suggestions for improvement*

Suggestions for improvement were discussed openly and further elicited by presenting a few concrete ideas for improvement of the app or magic box: the ability to choose for a specific box (e.g. lunch, dessert, snack or dinner), wider pick-up times, magic boxes tailored to personal preferences, tips & tricks in the magic box to waste less food at home, recipes in the Magic Box and a stimulation to share food with others.

2.2 Survey

An online survey was conducted in July 2019. The questionnaire was designed based on the research questions and the findings of the focus group discussions. The aim was to confirm (or disconfirm) and quantify the findings of the focus group discussions. The same topic structure was used as in the focus group guide: questions on app experiences; magic box experiences; effects on attitude, awareness and behaviour; and suggestions for improvement. See Annex II for the full version of the questionnaire.

The questionnaire was programmed in EyeQuestion version 4.11. Too Good To Go emailed the invitation to participate with the link to the survey to all Dutch Too Good To Go users that had picked up at least one magic box since they installed the app. Respondents were invited to complete the 15-minute questionnaire within a period of two weeks.

3 Results

3.1 Focus group discussions

The full report of Rob Drent regarding the results of the focus group discussions is enclosed in Annex III. The most important findings are summarised here as well as the demographic characteristics.

3.1.1 Participant characteristics

A total of 21 new users and 24 long-term users subscribed and were scheduled for the focus group discussions. Due to a number of drop-outs (participants did not show up, were ill, or could not make the appointment due to traffic jams), the final sample consisted of 36 participants, with 15 new users and 21 long-term users. The new users had picked up on average 1.2 ± 0.4 magic boxes before participating in the study, whereas long-term had picked up 14.2 ± 11.3 magic boxes on average. The total sample consisted of 9 males (25%) and 27 females (75%) and was on average 37.8 ± 12.5 years old. Participant characteristics are displayed in table 1 (new users) and table 2 (long-term users).

Table 1. Characteristics of participants in 'new users' focus groups.

Focus group	Gender	Age	Living situation	Education
Group 1 5 participants	F	61	Alone	High-school degree
	F	27	Alone	High-school degree
	F	53	With partner and child(ren)	Secondary professional education
	F	51	Alone	Secondary professional education
	F	33	With roommates	Applied university degree
Group 2 4 participants	M	27	Alone	High-school degree
	M	32	With partner and child(ren)	Master's degree
	F	32	With partner and child(ren)	Applied university degree
	M	26	Alone	Master's degree
Group 3 6 participants	F	24	With roommates	Master's degree
	F	50	Alone	Master's degree
	F	59	With partner	Master's degree
	F	47	Single parent	Master's degree
	F	35	Alone	Applied university degree
	F	34	With partner	Applied university degree

Table 2. Characteristics of participants in 'long-term users' focus groups.

Focus group	Gender	Age	Living situation	Education
Group 4 6 participants	F	27	With roommates	Master's degree
	M	38	With partner	Applied university degree
	F	26	Alone	Master's degree
	F	53	With partner	Applied university degree
	F	41	With partner	Master's degree
	F	31	Alone	Applied university degree
Group 5 7 participants	M	28	Alone	High school degree
	F	30	Alone	Applied university degree
	F	76	With partner	Doctorate
	F	40	With partner and child(ren)	Master's degree
	F	30	Alone	Bachelor's degree
	F	24	With partner	Bachelor's degree
	F	24	With roommates	Applied university degree
Group 6 8 participants	M	30	With partner	Master's degree
	M	45	With partner and child(ren)	Applied university degree
	M	52	With partner and child(ren)	Secondary professional education
	F	36	With partner	Master's degree
	M	25	With parents	Applied university degree
	F	40	Single parent	Applied university degree
	F	33	With partner	Applied university degree
	F	43	With partner and child(ren)	Doctorate

3.1.2 App experiences

In general, both new users and long-term users find the Too Good To Go app very user-friendly: easy to use, clear and to the point. In a few easy steps, they are able to find a magic box and pay for it. The payment is easy, fast and the possibility to swipe at the store as a confirmation for picking up the box is appreciated. The majority of the respondents use the list function and some prefer the map, as it visually shows the availability of magic boxes within their proximity. Quite a few users have listed some shops as their favourite.

All users are united by their interest in saving food from being wasted. Given this interest, four different contexts or situations ('user-modes') were identified in which users order a magic box via the app:

1. Solution seeking: When users are looking for a meal, right here, right now, because they have been busy and do not feel like cooking or spending too much time on preparing it.
2. Exploring: When users see Too Good To Go as an opportunity to try out new shops/restaurants and new types of products. The surprise element offers them a challenge on what to cook.

-
3. Scoring: When users are engaging in the 'chance-element' of Too Good To Go. It is always an uncertainty whether boxes will be available. If they succeed to buy a box from a popular store, it feels like winning a game.
 4. Saving: When users are keen to save on groceries and see Too Good To Go as a solution. They are especially pleased when a magic box contains large quantities of products.

3.1.3 Magic box experiences

The long-term users picked up magic boxes between 10 to 40 times since they started using the app. The new users tried to pick up at least one box a week for one month as requested to participate in this study. However, for most new users, this proved to be challenging sometimes due the availability, restricted pick-up times and their own schedules. Long-term users also faced this issue from time to time, but some have developed their strategies to solve this. For example, they combine picking up a magic box with other daily activities in a region where the app is not that well-known yet and boxes are more widely available. Alternatively, they install warnings on their phone to check if stores put new magic boxes online.

Most participants could still recall their first magic box experience, indicating the concept has a *high impact*. In most cases, the users were positively surprised by the content, both in quality and quantity. And if in some cases the experience was not that positive, most users did not perceive this as a problem.

Most participants were very conscious about food waste, and indicated that very little food from the magic boxes is discarded. If participants received products that they do not like, these foods are often distributed to other people: friends, neighbours, or sometimes, a homeless person. Some give their waste to animals or use it as compost. In the scarce occasions that food from the magic box has been discarded, it was for one of the following reasons:

- Health risks - when the food does not smell right anymore or looks suspicious
- When the food is not the consumers' taste or liking
- When there is not enough storage space in fridge or freezer

3.1.4 Effects on awareness, attitude and behaviour

The majority of the participants in our focus groups perceive themselves as very conscious of not wasting food. Their attitude and behaviour were already established prior to the instalment of the Too Good To Go app. As such, many indicate that their behaviour regarding food waste has not altered significantly due to the app, simply because of their high level of consciousness beforehand. For them, the app is a great way to continue with their efforts to contribute to less food waste, and regularly using the app keeps the aspect of food waste top-of-mind. A few focus group participants however, did notice a change in knowledge/awareness, in attitude or in behaviour as a result of using the app. For example, they talk to others about the app and try to convince them that it is really easy to waste less food. Or they started to improvise with left-over cooking, making crostini's of bread. One participant even indicated becoming more relaxed about eating old bread. Some adapted their grocery shopping to what is inside the magic box. Additionally, due to the magic boxes, some participants became more aware of how much plastic we use in society.

From the above insights, it can be assumed that an even bigger positive change regarding food waste prevention will occur when consumers - who are not yet involved in food waste reduction - would get to know and use Too Good To Go.

3.1.5 Possible improvements

- The ability to choose for a specific box (e.g. lunch, dessert, snack or dinner)

The majority of respondents were not interested in this, because it takes away the surprise element and it becomes too 'customer-focused', taking attention away from the purpose: saving food.

- Wider pick-up times for the Magic Boxes

For most participants, this would be a good idea, as it allows them to fit pick-up moments better in their personal time schedule. But again, most realised that stores cannot have very broad pick-up times, since only by the end of the day, stores can tell which foods go to waste.

- Magic boxes tailored to personal preferences

Having a choice between vegetarian and non-vegetarian boxes would be a good idea. Any other specifications (such as gluten free or lactose free) are for most of the participants not necessary.

- Tips & Tricks in the Magic Box to waste less food at home

Participants think this might be useful for consumers who are not that aware of food waste. Adding information into the box is seen as an extra action to be taken in the store, which might not be convenient for the store personnel.

- Recipes in the Magic Box

For most participants, this would not be relevant, since they can already look up plenty of recipes online.

- Stimulating users to share food with others

For most participants, this is a natural activity when using Too Good To Go, so they do not see the added value in Too Good To Go pointing this out.

3.1.6 Differences between new users and long-term users

Except for the few mentioned differences above, there were no differences in perceptions, opinions, and experiences between new user and long-term user participants of the focus group discussions.

3.1.7 Key learnings focus groups

The most important learnings from the focus group discussions can be summarised as follows:

1. There is a synergy between three drivers for using Too Good To Go.

The three main drivers for users to join Too Good To Go and to continue using the app are:

- The desire to reduce food waste
- Saving money
- And having a surprising experience

These three drivers together create a synergy and they cannot be separated without devaluating the concept.

2. For these consumers - who are already aware and capable of reducing food waste - , using the app has relatively little additional effect on their knowledge, attitude and behaviour towards this topic. For this group of consumers, the app is a convenient and pleasant way to contribute to reducing the food waste problem. However, it does not lead to more awareness or a perceived change in behaviour, mainly because the participants indicated they were already aware of the food waste problem before they started using the app.

3. Very little food is wasted from the magic box.

As most users are very conscious of not wasting food at all, participants indicated that very little food from the magic boxes goes to waste.

4. Too Good To Go should beware of potentially diluting their clear and focussed purpose. Users are very critical on any features, ideas or suggestions that could possibly denigrate the core purpose of Too Good To Go. They think the app should not be tailored too much to the potential needs of the users. Its purpose is about saving food in a simple and exciting way, not about pleasing consumers. Also the Too Good To Go entrepreneurs should prevent a marketing connotation: participants were quite allergic to companies of whom they get the impression of exploiting Too Good To Go for promotional purposes.

3.2 Survey

In this chapter, the most important results of the survey are described. In Annex IV, additional figures and graphs can be found.

3.2.1 Sample characteristics

A total of 611 Too Good To Go users filled out the online survey. Of this sample, 85% was female, 13% male and 2% did not indicate their gender. The mean age was 49.5 ± 13.1 years old, ranging from 16 to 86 years old. The majority of the group was highly educated (44%), having an applied sciences or university degree, or had a medium education level (37%). A smaller part (16%) had a lower level of education. Most of the respondents lived in a multi-person household, either with a partner (34%), partner and children (34%), only children (6%) or housemates (5%). The remaining 21% lived alone. The majority of the sample (94%) was born in The Netherlands. Most respondents had a job, either part-time (37%) or full-time (28%). There were only a few students amongst the respondents (4%). The shops that were most frequently used for grocery shopping by these respondents were Albert Heijn (32%), Jumbo (19%) and Lidl (19%).

3.2.2 App usage

Most respondents indicated they installed the Too Good To Go app one to three months ago (49%), with a few weeks ago (22%) and 4-6 months ago (21%) as other frequently given answers. Respondents indicated that the main reason for using (installing) the app, was to waste less food (35%), followed by the surprise-effect of the magic boxes (26%) and to save money (20%). Being part of a movement was mentioned by 17% of the respondents.

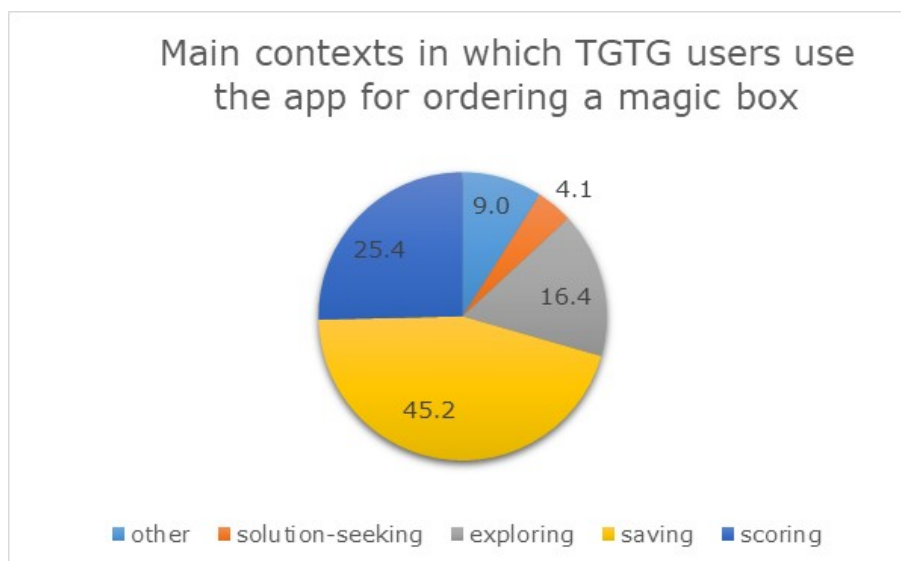


Figure 1. Percentage (%) of TGTG survey participants (N=611) for the different contexts (situations): solution-seeking, exploring, saving and scoring. Participants that did not recognize themselves in one of the four situations, could indicate 'other'.

The four contexts as described in chapter 3.1.2 of the focus group results, were translated into a question: 'In what type of situation do you mainly use the app?'. The answering categories were as follows: a) When I feel like eating, but I don't feel like spending time on the preparation (*solution-seeking*) b) When I feel like trying something new (a dish, or restaurant) (*exploring*) c) When I want to save money on my regular groceries (*saving*) or d) I make it into a sport to obtain a magic box, before it is sold out (*scoring*). Based on the responses to this question, the largest part of the respondents ordered a magic box most frequently in the *saving-context* (45%), followed by *scoring* (25%) and *exploring* (16%). Only 4% of the sample indicated the *solution-seeking* context as common situation for ordering a magic box, whereas 9% indicated that these four situations were not common contexts for them for ordering a magic box (see figure 1).

Most respondents (58%) visited new stores due to using the app and the majority of them (76%) came back to this store, either to pick up magic boxes (37%), for regular groceries (14%) or for a combination of the two (25%).

3.2.3 Magic boxes

A large part of the respondents (40%) picked up a magic box less than three times since they installed the app. About a quarter (26%) picked up a magic box 4-6 times, 16% picked up a magic box 7-10 times, 11% picked up a magic box 11-20 times and 7% over 20 times.

Figure 2 shows the amount of food that is usually eaten from the magic boxes as well as from the regular groceries. As a proxy for comparing the two distributions, a Chi-square analyses was performed, which indicated that the distributions were significantly different ($p < 0.001$). A similar percentage of almost 60% of the respondents indicated to usually eat 95-100% of the food coming from both the magic boxes (59%) or the regular groceries (57%). Almost 40% indicated to usually eat 75-95% from the regular groceries, whereas this was about a quarter (27%) for the magic box.

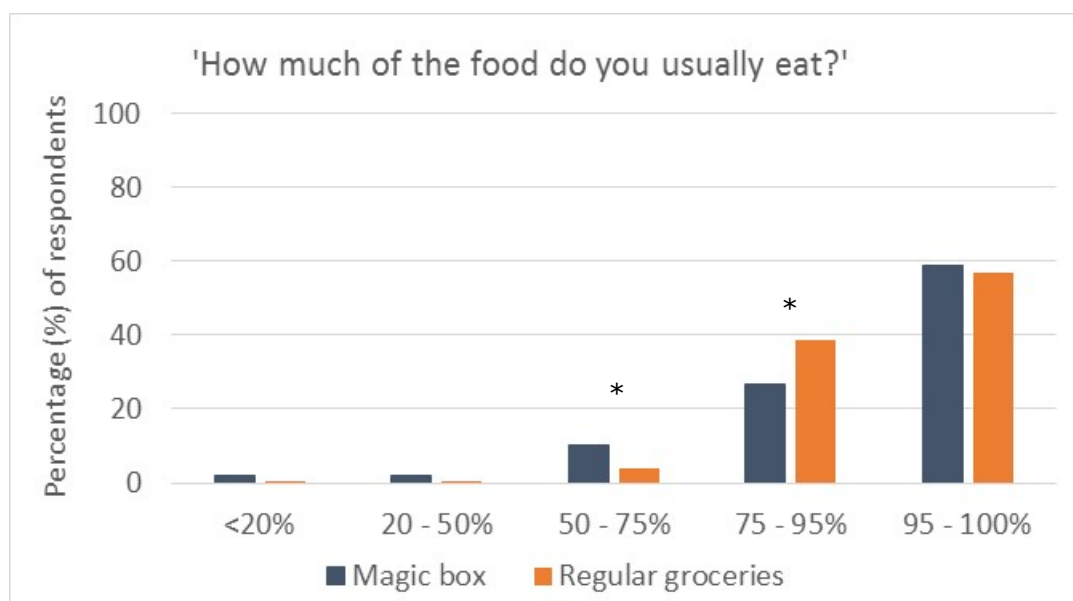


Figure 2. Amount of food that is eaten from the magic box and from the regular groceries.

* Indicates the location of the significant differences, as the two distributions were significantly different ($p < 0.001$; Chi-square analysis).

Subsequently, participants were asked what they do in case food from their magic box is left-over: 35% indicated that they store the food in their freezer, 23% to share it with others, 28% to use it the next day, 8% said to discard it, 3% to feed it to animals, 2% to ferment it and <1% said it never happened there were left-overs.

Figure 3 shows in how many occasions respondents discard food from the magic boxes. The majority of respondents (88%) indicated they throw away food from the magic box in only 0-10% of the cases. Seven percent throws food away in 10-40% of the magic box purchases, and 3% indicates they practically always throw away something from the magic box.

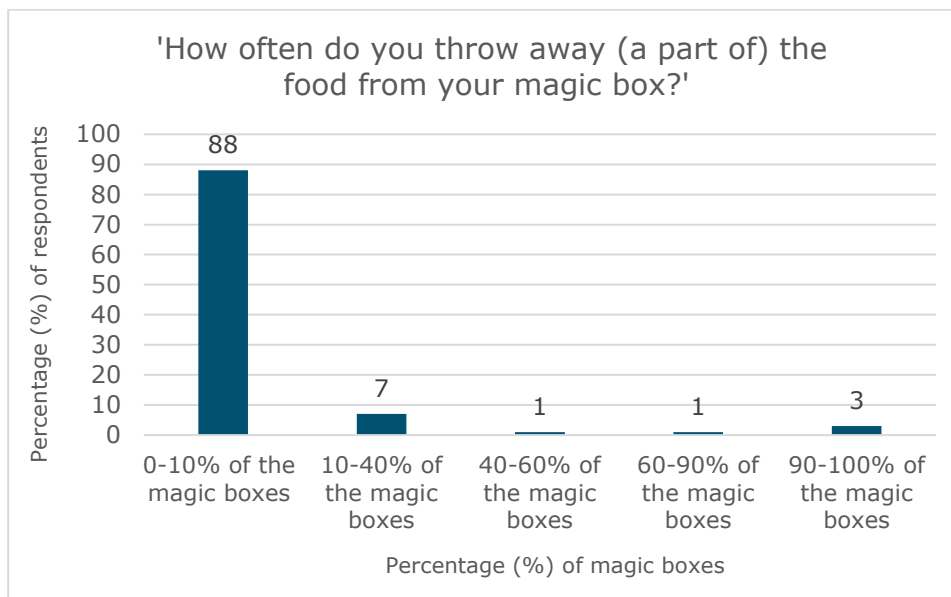


Figure 3. Reported frequency of discarding (part of the) food from the magic box.

Respondents were asked about the reasons for discarding food from the magic box. Respondents could select multiple options from a list. About one third of the respondents (255 respondents = 33%) selected that they have never discarded food from the magic boxes. Most of these respondents gave this as only reason, only in a few cases (maximum four respondents per reason), these 255 respondents marked also another reason.

The reasons for discarding food from the magic box are ordered below from most frequently marked to least frequently marked by the survey respondents:

1. The food was not fresh/spoiled (27%)
2. There was food in the box they disliked (16%)
3. There was too much unhealthy food in the box (5%)
4. The food did not fit their menu (4%)
5. There were food products in the box they do not eat (3%)
6. There was meat in the box, which they do not eat (3%)
7. They had too little storage room at home (3%)
8. Other reasons (3%), such as the magic box contained too much of the same product (milk was mentioned as example)
9. There was too much food in the box (2%)
10. There were unknown food products in the box (1%)
11. It was unknown how to prepare the food products in the box (1%)

So, the major reasons for discarding food from the magic box are: the food was spoiled, the food was disliked, or there were foods inside that they usually do not eat.

Even though consumers pay a reduced price for a magic box, about half of the consumers valued the food inside the magic box equally as regular groceries (48%). A comparable percentage (46%) valued the food even more, since they bought the magic box to save it from going to waste. Only 7% of the respondents valued the food less than regular groceries.

3.2.4 Effects on awareness, attitude and behaviour

Table 3 shows the average scores (mean and standard deviation [SD]) of the respondents on the statements about self-reported changes in awareness, attitude and behaviour regarding food waste. In addition, it is shown how many respondents agreed with the statement (score 5-6-7) or disagree with the statement (score 1-2-3), when they are categorized into three categories (agree-neutral-disagree).

Concerning the social aspects, respondents would recommend the app to their friends and family (83% agreed; mean score of 5.9 out of 7) and they talk with them about the app (83% agreed; mean score 5.8 out of 7). However, they were fairly neutral to the statement feeling part of a community (4.6 out of 7), about half (51%) of the respondents agreed slightly or completely with this statement.

Table 3. Mean scores of the 611 respondents for the effect of Too Good To Go (TGTG) on social aspects, attitude & awareness, and behaviour (reported on 7-point Likert-scales: 1=completely disagree, 2=disagree, 3=slightly disagree, 4=neutral, 5=slightly agree, 6=agree, 7=completely agree).

Questionnaire statements	Mean score	SD	% agree (score 5-6-7)	% disagree (score 1-2-3)
Social aspects				
'I recommend TGTG to friends and/or family'	5.9	1.5	82.5%	8.5%
'I talk with friends and/or family about TGTG'	5.8	1.5	83.3%	7.9%
'By using TGTG, I feel part of a community'	4.6	1.8	50.9%	20.1%
Awareness and attitude				
'By using TGTG, I became even more conscious about food waste'	5.1	1.7	67.4%	14.9%
'Using TGTG made me thinking about food waste'	4.8	1.8	58.9%	20%
'By using TGTG, my motivation to reduce food waste increased'	5.1	1.7	68.2%	14.7%
'Using TGTG led to conversations about food waste in our household'	4.6	1.8	53.8%	23.4%
Behaviour				
'By using TGTG, it is easier to plan my meals'	3.5	1.8	23.6%	46.2%
'By using TGTG, I handle left-overs more creative'	4.4	1.9	48.9%	26.4%
'By using TGTG, I eat different products or dishes'	5.0	1.7	67.1%	16.2%
'By using TGTG, I do groceries less often'	3.8	1.9	35.4%	40.8%
'By using TGTG, I throw away less food'	4.3	1.9	45.2%	28.6%
'By using TGTG, I also started taking other actions to reduce food waste'	3.7	1.6	21.8%	35.5%

Using the TGTG app raised users' awareness about food waste and their motivation to reduce it slightly, with average scores of 5.1 out of 7, and almost 70% of the respondents agreeing slightly or completely with this statement. For the questions about self-reported behaviour changes, the responses were mostly neutral (scores around 4), indicating no clear behavioural changes. The highest score was for the statement that they eat different products or dishes now due to using TGTG (5.0 out of 7), with two thirds of the respondents (67%) agreeing slightly or completely on this statement.

About a fifth of the respondents (22%) indicated they started taking other actions to reduce food waste, and were asked what kind of actions they did. They reported actions such as buying less groceries, cooking more creatively with left-over foods, freezing food or left-overs more often, doing groceries more consciously, cooking less food by basing amounts more on how much food is actually needed, and checking stock (for example in fridge) more frequently.

3.2.5 Possible improvements

Before the respondents were asked about possible improvements for the app or the magic boxes, they first scored the concept of Too Good To Go as it currently is, and were asked about the expectations they have from the role of Too Good To Go as movement against food waste. In general, respondents were positive about the concept of Too Good To Go, as they gave it an average grade of 7.9 (SD 1.6) out of 10. For the role of TGTG as movement against food waste, respondents could choose multiple answers from five options, or make another suggestion themselves.

The five answer options are ordered below from most frequently marked to least frequently marked, although all five options are relatively close to each other:

1. I do not expect any additional activities from TGTG in the area of food waste (24%)
2. Organise events about food waste (22%)
3. Offer lesson toolkits about food waste to schools (22%)
4. Spread information to users about food waste (22%)
5. Have an active role in politics regarding the topic of food waste (15%)

Other suggestions were given by 3% of the respondents. Examples that were mentioned: reducing plastic and other wrapping materials in magic boxes and focussing more on 'fair trade' products.

Table 4 shows the average scores with SD for the attractiveness of suggested improvements for the app and/or magic boxes, including the percentage of respondents that found the suggestion attractive (score 5-6-7) or not attractive (score 1-2-3).

According to the respondents, the most attractive suggestions for improvement were 'increasing the variety of participating stores' (6 out of 7) and 'the possibility to have someone else pick up their magic box' (5.6 out of 7). Widening pick-up times for magic boxes and the possibility to choose for specific eating moments boxes (both 5.2 out of 7) were rated as slightly attractive. The other suggestions (choice for a vegetarian box, meeting dietary requirements, tips and tricks to reduce food waste, recipes, one package to reduce plastic wrapping) were rated in between 4 and 5 out of 7, meaning that consumers rated them in between neutral and slightly attractive.

Table 4. Mean scores with SD on attractiveness of new suggestions to improve the app and/or magic boxes (reported on 7-point Likert-scales: 1=not at all attractive, 2=unattractive 3=slightly unattractive, 4=neutral, 5=slightly attractive, 6=attractive, 7=very attractive).

Suggestion	Mean score	SD	% agree (score 5-6-7)	% disagree (score 1-2-3)
Increase variety in participating stores	6.0	1.5	81.8%	6.1%
Possibility that someone else can pick up your magic box (with a code or ticket)	5.6	1.6	72.3%	9.5%
Widening the pick-up times for magic boxes	5.2	1.6	63.2%	10.8%
Possibility to choose boxes for specific eating moments, such as lunch, dinner, dessert and snacks	5.2	1.7	66.3%	12.4%
Possibility to choose a vegetarian box	4.9	1.9	54.8%	18.3%
Tips and tricks in the app or magic box to waste less food at home	4.8	1.7	58.3%	17.2%
Possibility to choose a magic box that meets specific dietary restrictions (for example, gluten-free)	4.7	1.8	49.4%	19.6%
Easy or extraordinary recipes with the ingredients from the magic box	4.7	1.8	53.2%	19.6%
All food from the magic box in one package, thereby reducing the amount of plastic packing material	4.4	2.0	47.6%	29.1%

4 Discussion and recommendations

The aim of this project was to explore the impact that can be made by users of the Too Good To Go app on food waste reduction and to explore if and which improvements are possible in the Too Good To Go concept to increase its impact on food waste reduction. One specific question was what happens with the food in the magic boxes when consumers have picked up the magic box. This chapter summarizes and compares the results of the focus group discussions and online survey, by interpreting the findings, giving the strengths and limitations of the study, and providing implications and recommendations.

4.1 Main outcomes

Concerning the main question about what happens with the food after consumers have picked up the magic boxes, the findings from both the focus group discussions and the online survey indicate that throwing away food from the magic box is an uncommon practice. The participants in the focus group discussions and survey are a very conscious group of Too Good To Go users who try to prevent food from being wasted. Eighty-eight percent of the survey respondents stated they discard (some) food from the magic box in less than 10% of the occasions. When there are left-overs from the magic box, - which is not uncommon - only 8% of the respondents indicated that they discard this food. In general, users tried to find solutions for left-overs of the magic box or when they receive foods they do not like. Storing food in the freezer (33%), using the food the other day (28%) or sharing food from their magic box with family, friends, housemates or neighbours (23%) are common practices.

If food is discarded, the two most important reasons from both the focus group discussions and the survey were that the food was spoiled (27%) or the food is disliked (16%) by the users. Whereas in the focus groups 'not enough storage place' was a third reason, this was mentioned by only 3% of the respondents in the survey. In the survey, the third reason for discarding food was that there were foods in the magic box that users usually do not eat (6-10%), followed by 'there was too much unhealthy food in the magic box' (5%). Too much food in general or unknown foods in the magic box were less common reasons.

In our survey, we found that almost half of the respondents (48%) value the food inside the magic box equally compared to regular groceries and approximately another half of the sample (46%) valued the food even more since they 'saved' it from going to waste. This could be one of the explanations why users make an effort to avoid discarding food from the magic boxes. Another reason is that Too Good To Go users seem to be a dedicated group of consumers who are very conscious about preventing food waste. The majority of users (58%) visited new stores due to the TGTG app, of which 76% became a recurring visitor.

Consumers have various reasons to make use of Too Good To Go and use the app in different situations. From the focus group discussions, it became clear that there are three main drivers (motivations) for using/ installing the app: saving money, reducing food waste and having a surprising experience. These three drivers create a synergy that cannot be separated without devaluating the concept. When users in our survey were forced to choose their main reason for using Too Good To Go, reducing food waste was most often chosen (35%), followed by the surprise experience (26%), saving money (20%), and being part of a movement (17%).

Whereas all users are united by their interest in saving food from being wasted, the focus group discussions revealed four different situations (contexts), in which consumers use the app for ordering a magic box. The subsequent survey indicated that about half (45%) of the respondents chose 'Saving' as the context in which they most frequently order a magic box, indicating that a magic box is often ordered when consumers want to save money on their groceries. A quarter (25%) chose 'Scoring', which means that the opportunity to be engaged in the 'chance-element' of Too Good To Go and trying to win a game by succeeding to buy a magic box from a popular store is also a common context in which the magic box is ordered.

Sixteen percent of the respondents indicated that the opportunity to try out new shops/restaurants and new types of products is a typical context when ordering a box (*'Exploring'*). Only 4% of the respondents indicated that the context of looking for a meal, right here, right now, because they have been busy and do not feel like cooking or spending too much time on preparing it, was most often applicable to them for ordering a magic box (*'Solution seeking'*).

Both the reasons for downloading the app and the contexts in which consumers order a magic box confirm the finding that the combination of reducing food waste, saving money, and having a surprise/game element are strong features of Too Good To Go. Previous research has also indicated that fun and gamification may be successful elements of apps for behaviour change (Hamari et al., 2014; Hoem, 2017). Whereas reducing food waste is the main reason for installing the app, this is a given principle (unconscious) when users describe concrete (conscious) contexts when using the app for ordering magic boxes.

In the focus group discussions, there were only minor differences between new users and long-term users. This may be due to the operationalisation of the two groups. We asked the new users to pick up one magic box per week in the four weeks prior to the focus group discussions, so they would get experience with the magic boxes which could be discussed. By doing so, the new users became more similar to the long-term users, and this may have explained that hardly any differences were found between the two groups. On the other hand, it is also possible that new users and longer-term users are relatively similar, and that subgroups are based on other characteristics, such as the situations in which consumers use the app or the way they use the magic boxes (for example sharing with friends).

Regarding changes in food waste attitude, motivation or behaviour due to using the app, only minor effects of Too Good To Go were found in this study. In the focus group discussions, a few participants indicated some changes in their attitude or behaviour since they started using the app. However, the majority did not alter their food waste attitude or behaviour significantly, because their consciousness about food waste was already established prior to using the app. For them, using the Too Good To Go app enforces this awareness and supports users in their efforts to reduce waste food. The survey showed a slightly positive effect on attitude: respondents indicated that they became a bit more conscious and motivated about reducing food waste due to using the app. The majority of behaviour change items in the survey did not change due to using the app. It seems that Too Good To Go users are already very conscious about food waste, and using the app has not changed their awareness or behaviour that much. Still, the item 'eating different products or different dishes due to using TGTG' was agreed on by quite some consumers (67% agreed slightly or completely; average score 5.0 out of 7). Additionally, 22% of the respondents indicated they started other actions to reduce food waste, such as buying less groceries, cooking more creatively with left-over foods, freezing food or left-overs more often, doing groceries more consciously, cooking less food by basing amounts more on how much food is actually needed, and checking stock (for example in fridge) more frequently. These reported actions have been linked to food waste behaviour and food waste prevention in the literature (Van Geffen et al., 2016).

In general, the Too Good To Go concept is well appreciated, with a 7.9 on a 10-point scale. The app is very user-friendly: easy to use, clear and to the point. In a few easy steps, users are able to find a magic box and pay for it in an easy manner. Users talk about the app and recommend Too Good To Go to their family and friends. User-friendliness has been identified in the literature as a key factor for apps (Farr-Wharton et al., 2014; Farr-Wharton et al., 2013; Hoem, 2017; Lim et al., 2017), as this influences whether and how long consumers use an app. Both new and more frequent users from the focus group discussions did not seem very interested in adding new features to the app or magic box. Users are especially critical on any suggestions or ideas to tailor the box to the consumer's need and suggestions that give the impression of marketing/ promotional activities, because the purpose should always be to save food in a simple and exciting way. Nevertheless, the option to pick a vegetarian box would be convenient for some focus group participants. When it comes to adding tips and tricks or information on wasting less food, most focus group participants felt like they are skilled enough. The survey results make the picture more comprehensive. Increasing the variety (number) of participating stores and the possibility to let someone else pick up your magic box would be two welcome improvements to the concept. Widening pick-up times for magic boxes and the possibility to choose for specific eating moments boxes were rated as slightly attractive in the survey and may appeal to a smaller group of users.

4.2 Strengths and limitations

This is the first study that investigates what happens with the food in the magic boxes after consumers have picked it up. The combination of a qualitative part and quantitative part is a strength of the current study. Together, the results give a more comprehensive picture of the perceptions, motivations, user experiences and attitude or behaviour effects of the Too Good To Go concept. The focus group discussions gave first insights in this novel topic, and the online survey tested and quantified the findings of the focus group discussions in a larger group of users. Another strength is the relatively large sample in the survey (>600 respondents), with various educational backgrounds, although lower educated participants are still underrepresented with 16% (versus 29% in The Netherlands; Rijksoverheid, 2018), and the sample consisted of relatively more females. Since Too Good To Go does not register the gender of their users, it is unknown whether this gender distribution is a proper reflection of Too Good To Go users.

It should be taken into account that attitude, motivation and behaviour measures were all self-reported in this study, which is less accurate than measuring behaviour objectively. For example, consumers may over (or under) estimate their actual behaviour, partly because behaviour and behaviour changes may occur unconsciously (Cohen & Babey, 2012). Another limitation to take into account is that participants might have given socially desirable answers during the group discussions or in the online survey. Even though the focus group moderator created an environment in which participants could speak freely and the survey was anonymous, some social desirability cannot be ruled out completely.

By asking various questions on this topic in the survey, we tried to get a comprehensive picture of this behaviour. About 60% of the users indicated in the survey that they practically eat everything from the magic box (95-100%), with a similar percentage for regular groceries. This implies that 40% does not eat everything from the magic box, and one could think that this means that quite some food is discarded. However, when looking at the subsequent questions, not eating everything does not mean automatically that this food is discarded. Some users habitually share the box with friends, so they never eat the whole box themselves. Others indicated to freeze food or use food the other day in order to prevent discarding food. So, the question about how much is eaten may have been interpreted as 'Do I/ my household eat all the food from the magic box?' or as 'Do I eat all the food on the day of picking up the magic box?'. For the regular groceries, the question may have been easier to answer, since groceries are commonly bought for more days and are usually only for your own household. In future projects, additional questions may be added for respondents to disentangle these interpretations.

In general, it seemed that this study attracted a highly food-waste conscious and motivated group of consumers. Probably, Too Good To Go users are already more food-waste conscious consumers than the general Dutch population and this effect may have been strengthened by the fact that users who signed up to participate in the focus group, or took the effort to fill out the online survey, are probably the most motivated or interested in the topic of food waste. Additionally, the focus group participants were relatively highly educated. These aspects should be taken into account when interpreting these results and it means that results may be different when asking a less conscious or motivated group of consumers.

It was intended to include the option 'Possibility of having the magic box delivered at home' as a suggestion for improvement in the survey. Unfortunately, this item was by mistake overlooked during programming the questionnaire as this option stood alone from the rest of the items. So, no results are available for this suggestion. It was not a suggestion that participants came up with themselves, but would be fruitful to explore in a further project.

4.3 Implications and recommendations

Users are positive about the concept of Too Good To Go. The app is user-friendly: easy to use, clear and to the point. There seems to be a strong desire to keep the concept as such: clear and focussed. The combination of saving food from being wasted, the surprise or game-like element, and the lower price are strong features of the concept that appeal to this group of consumers who are eager to prevent and/or reduce food waste. Previous research showed that finding ways to keep consumers interested and engaged seems to be difficult (Farr-Wharton et al., 2014; Zhao et al., 2016), but these three aspects may enhance retention rates. The surprise element and the reduced price may also appeal to consumers who are less food-waste-prevention oriented, and this needs to be confirmed in further projects.

The study showed that users like to have more entrepreneurs joining the Too Good To Go initiative, but it should be prevented that these entrepreneurs use the concept for promotional and marketing activities only. The main aim should be food waste reduction in a simple and exciting way. Having the possibility to have someone else picking up your magic box may be an interesting feature to include in the concept, to make it even easier for users. Widening pick up times, the possibility to choose for specific eating moments and the option to pick up a vegetarian box, are three suggestions that appeal to a smaller group of consumers, where the second option is sometimes already clear due to the type of store where the magic box is ordered.

The results show that most food from the magic boxes is consumed; discarding food from the magic boxes seems to occur at a rate of about 10% (8-12%). This implies that Too Good To Go makes impact on food waste reduction, as the saved food of the magic boxes is usually eaten. It is good to keep in mind that if this food was not sold in a magic box, it would per definition have been discarded by the retailer. It is estimated that about 13% of the regular groceries are discarded in Dutch households (CREM, 2017), which seems to be in the same range as the magic boxes. Still, some care is needed in comparing these numbers, as the 13% is based on actual food weight, whereas our data are collected via self-report. Furthermore, magic boxes refer to an occasional buying of unknown food products often for one or a few days, which is different from more intentional regular groceries which may encompass a whole week.

From the abovementioned finding, three research recommendations can be distracted. First, the number of 10% is an estimation based on the questions of the survey. To get insight into the actual percentage of discarding food, it would be very interesting to objectively measure the amount of food that is discarded per magic box as well as the frequency of occurrence that food from the magic box is discarded. Secondly, it would be interesting to follow users in a longitudinal study in order to investigate any changes in app-use frequency and in magic box food waste behaviour over time. Thirdly, finding and testing solutions to reduce this percentage of food waste even more will be a challenging but interesting avenue for future projects.

The fact that Too Good To Go users were already highly conscious and motivated about food waste reduction, in combination with the fact that research participants are usually also more interested and/or motivated in the topic, may explain why only minor effects were found on users' attitude, motivation, and behaviour. Still, some small changes were seen, sometimes in a small group. So, Too Good To Go may help, encourage and motivate users to keep on going with their efforts on preventing and reducing food waste, and - for a small group - encourage them to start additional actions for food waste reduction. Nevertheless, to have a larger impact on food waste reduction, additional actions are needed to also convince and motivate the less food waste conscious consumers to engage in food waste prevention activities.

5 Conclusion

In conclusion, this explorative study shows that the Too Good To Go concept and its users positively contribute to food waste reduction at the level between food service and consumers, as most of the food saved via magic boxes is actually consumed. The impact of using the Too Good To Go app on attitude, motivation or behaviour change is small, because the users are already highly aware, motivated and dedicated to prevent and reduce food waste. The app enforces this awareness and supports the food waste preventive actions which these consumers already take. Therefore, an even bigger effect will most likely be reached when Too Good To Go is able to get consumers on board who are currently less aware and less actively engaged in the food waste problem and its possible solutions. The most attractive suggestions for improvement of the Too Good To Go concept are increasing the variety (number) of participating stores and having the possibility to let someone else pick up your magic box.

6 Literature references

- Aschemann-Witzel, J. H., I.E. de; Amani, P.; Bech-Larsen, T.; Oostindjer, M. (2015). Consumer-Related Food Waste: Causes and Potential for Action. *Sustainability*, 7(6), 6457 - 6477.
- Aktas, E., Sahin, H., Topaloglu, Z., Oledinma, A., Huda, A. K. S., Irani, Z., Sharif, A. M., van't Wout, T., Kamrava, M. (2018). A consumer behavioural approach to food waste. *Journal of Enterprise Information Management* 31(5): 658-673.
- Cohen, D. A., Babey, S. H. (2012). Contextual influences on eating behaviours: heuristic processing and dietary choices. *Obesity Reviews*, 13 (9).
- CREM Waste Management (2017). *Bepaling voedselverspilling in huishoudelijk afval Nederland 2016*.
- Falcone, P. M., Imbert, E. (2017). Bringing a sharing economy approach into the food sector: The potential of food sharing for reducing food waste. *Food Waste Reduction and Valorisation: Sustainability Assessment and Policy Analysis*, Springer International Publishing: 197-214.
- Farr-Wharton, G., Choi, J. H. J., & Foth, M. (2014). Food talks back: Exploring the role of mobile applications in reducing domestic food wastage. Paper presented at the 26th Australian Computer-Human Interaction Conference on Designing Futures: the Future of Design, Sydney, Australia.
- Farr-Wharton, G., Foth, M., & Choi, J. H. J. (2013). EatChaFood: challenging technology design to slice food waste production. Paper presented at the Proceedings of the 2013 ACM conference on Pervasive and ubiquitous computing adjunct publication, Zurich, Switzerland.
- Hamari, J., Koivisto, J., & Sarsa, H. (2014). Does Gamification Work? -- A Literature Review of Empirical Studies on Gamification. Paper presented at the 47th Hawaii International Conference on System Sciences.
- Hoem, H. (2017). The potential of a smart phone app to support consumers in preventing household food waste. Norwegian University of Life Sciences.
- Lim, V., Funk, M., Marcenaro, L., Regazzoni, C., & Rauterberg, M. (2017). Designing for action: An evaluation of Social Recipes in reducing food waste. *International Journal of Human Computer Studies*, 100, 18-32. doi:10.1016/j.ijhcs.2016.12.005
- Martindale, W. (2017). Conference on 'Sustainable food consumption' the potential of food preservation to reduce food waste. *Proceedings of the Nutrition Society* 76(1): 28-33.
- Mummah, S., Robinson, T. N., Mathur, M., Farzinkhou, S., Sutton, S., & Gardner, C. D. (2017). Effect of a mobile app intervention on vegetable consumption in overweight adults: A randomized controlled trial. *The International Journal of Behavioral Nutrition and Physical Activity*, 14. doi:10.1186/s12966-017-0563-2.
- Parfitt, J., Barthel, M., MacNaughton, S. (2010). Food waste within food supply chains: Quantification and potential for change to 2050. *Philosophical Transactions of the Royal Society B: Biological Sciences* 365(1554): 3065-3081.
- Porat, R., Lichter, A., Terry, L. A., Harker, R., Buzby, J. (2018). Postharvest losses of fruit and vegetables during retail and in consumers' homes: Quantifications, causes, and means of prevention. *Postharvest Biology and Technology* 139: 135-149.
- Quested, T.E., Marsh, E., Stunell, D., Parry, A.D. (2013). Spaghetti Soup: The Complex World of Food Waste Behaviours. *Resources, Conservation and Recycling* 79: 43-51.
- Reynolds, C., Goucher, L., Quested, T., Bromley, S., Gillick, S., Wells, V.K., Evans, D., Koh, L., Carlsson Kanyama, A., Katzeff, C., Svenfelt, Å., Jackson, P. (2019) Review: Consumption-stage food waste reduction interventions – What works and how to design better interventions. *Food Policy*, 83, 7-27.
- Rijksoverheid, 20182. <https://www.onderwijsincijfers.nl/kengetallen/internationaal/opleidingsniveau-bevolking>. Retrieved 14-8-2019
- Rohm, H., Oostindjer, M., Aschemann-Witzel, J., Symmank, C., Almli, V.L., De Hooge, I., Normann, A., Karantininis, K. (2017). Consumers in a Sustainable Food Supply Chain (COSUS): Understanding Consumer Behavior to Encourage Food Waste Reduction. *Food Science Journal*, 6 (12). Doi: <https://doi.org/10.3390/foods6120104>.
- Schanes, K., Dobernig, K., Gozet, B. (2018). Food waste matters - A systematic review of household food waste practices and their policy implications. *Journal of Cleaner Production* 182: 978-991.

-
- Schmidt, K., E. Matthies (2018). Where to start fighting the food waste problem? Identifying most promising entry points for intervention programs to reduce household food waste and overconsumption of food. *Resources, Conservation and Recycling* 139: 1-14.
- Stenmarck, A., Jensen, C., Quested, T., & Moates, G. (2016). Estimates of European food waste levels.
- Van Geffen, L.E.J., van Herpen, E., van Trijp, J.C.M. (2016). Causes & Determinants of Consumers Food Waste. REFRESH Deliverable 1.1.
- Zhao, J., Freeman, B., & Li, M. (2016). Can mobile phone apps influence people's health behavior change? An evidence review. *Journal of Medical Internet Research*, 18(11). doi:10.2196/jmir.5692

Annexes

Annex I Focus group guide (in Dutch)

Focusgroepen onderzoek TGTG

Hoofddoel van de focus groepen:

'To explore the impact of the Too Good To Go app on consumer's food waste behaviour in new and long-term users and to investigate which improvements are possible to increase the impact/ save more food from being wasted

Verkennen welke effecten het gebruik van de TGTG app heeft op voedselverspillingsgedrag van nieuwe en vaste app-gebruikers en onderzoeken welke verbeteringen er mogelijk zijn om meer voedsel te redden van verspilling.

Operationalisatie doelgroepen

New users: gebruikers die de afgelopen maanden slechts 1x (2x) een magic box hebben opgehaald

Long-term users: gebruikers die de afgelopen maanden 3x of vaker een magic box hebben opgehaald

Doel in de uitnodiging: Verkennen wat jij van Too Good To Go vindt en wat er na aankoop van de magic box bij jou thuis gebeurt met het geredde eten.

Subvragen (uit Business Case):

1. How much of the food inside the Too Good To Go 'magic box' is actually eaten by the consumer?
2. If the food is not (entirely) eaten, what is the reason?
3. In which situations is the 'saved' food actually eaten/not eaten?
4. In which food consuming moments/situations (occasion/timing, context and with whom) do consumers use the app? (info can be provided by Too Good To Go)
5. Do consumers who use the app think differently about food waste by using the app, so does the app increase self-reported awareness? (how much were they aware of the food waste problem before using the app and how much afterwards?)
6. Do consumers who use the app change their behaviour regarding food waste (self-reported)?
7. What possible improvements are mentioned by users of the app?

Concepten en opbouw in de guide:

1. Gebruik van de app: (voorstel: in guide beperkt, omdat TGTG zelf daar cijfers over heeft)
2. Ervaringen met de magic box: wat gebeurt er met het gekochte eten?
3. Houding en gedragsverandering door TGTG gebruik (deze bewust na de andere topics i.v.m. sociaal wenselijkheid)
4. Verbeteringen t.a.v. a) de app en b) de magic box

Praktisch

Data: maandag 13, woensdag 15 en donderdag 16 mei

Tijdstippen: 16:30 – 18:00 en 19:00 – 20:30

Locatie: Instock restaurant, Utrecht

Organisatie: Sandra van der Haar en Gertrude Zeinstra

Discussieleider: Rob Drent

Focus groep guide TGTG (totaal 90 minuten)

Voorstellen en uitleggen interviewsituatie. (10 min 10/90)

New users: Leuk dat jullie er zijn. Vanuit het onderzoek hebben we jullie gevraagd de afgelopen maand wekelijks een magic box op te halen. We zijn benieuwd naar jullie ervaringen en gaan hier vandaag over in gesprek.

Long-term users: Leuk dat jullie er zijn, als gebruikers van de TGTG app. Jullie hebben de app gedownload en sinds die tijd een aantal keren een magic box opgehaald. We zijn benieuwd naar jullie ervaringen en gaan hier vandaag over in gesprek.

- Hoeft het niet met elkaar eens te zijn.
- Geen foute antwoorden, zolang het je eigen mening is.
- Ik ben onafhankelijk, niet van TGTG: positief/negatief: alles mag je zeggen.
- Kort voorstelrondje
 - naam
 - leeftijd
 - dagelijkse activiteiten

Algemeen/spontane reacties (10 min 20/90)

- 1) Schrijf eerst allemaal eens 3-5 steekwoorden op die jouw ervaringen/gevoel als gebruiker van TGTG weergeven. Positief/neutraal/negatief, maakt niet uit.
 - Kort laten noemen om indruk te krijgen van oordeel/sentiment in de groep.

App gebruik (15 min 25/90)

- 2) Wat zijn jouw redenen om TGTG (en dus de app) te gebruiken en wat vind je ervan?
 - **Long-term users:** wat was je aanleiding om hieraan mee te doen? Hoe ben je hiertoe gekomen?
- 3) Wat zijn de plussen en minnen van de app?
- 4) ***Alleen voor new users: Hoe was het om de app wekelijks te gebruiken?***
 - *Hoe heb je dat ingepast in je dagelijkse ritme/activiteiten*
- 5) Op welke momenten gebruik je (normaalgesproken) de app/ bestel je een magic box via de app? Leg uit, waarom...
 - tijdstip dag/dag van de week
 - context: heb tijd op die dag, geen geld, geen eten in huis, etc.?

Magic box ervaringen (20 min 45/90)

- 6) Vertel eens: de eerste keer dat je een magic box bestelde en ophaalde, hoe heb je dat ervaren?
 - plussen/minnen
 - drijfveren/drempels
- 7) Was dit bij een winkel die je al kende of een nieuwe winkel?
 - Bewust gedaan of niet? Waarom?
 - Wat vond je ervan?
 - Kocht je daarna vaker bij deze winkel?
 - Indien ja, is dit voor magic boxen of voor reguliere aankopen?
 - Heb je door het gebruik van de app nieuwe winkels bezocht? Vertel daar eens over?
- 8) Wat vind je van de magic boxen?
 - Hoe is het om niet te weten wat er in de box zat?
 - Verschilt dat nog per moment/winkel/situatie?
 - Wanneer is het meer/minder belangrijk dat je niet weet wat erin zit?
 - Wat voor gevolgen heeft dit?
- 9) Wat vind je van de hoeveelheid eten die in de Magic Box zit? Leg eens uit...

10) Hoe waardeer je het eten dat in de magic box zit: Wat voor waarde geef je eraan?

- Hoe komt dat? Leg eens uit...
- Wanneer ben je er positiever/negatiever over? Waar heeft dat mee te maken?
 - soort producten
 - hoeveelheid
 - variatie
 - gebruiksmogelijkheden
 - winkel
 - je eigen situatie op dat moment

11) Als je een magic box ophaalt, wat doe je dan vervolgens met het eten dat erin zit? (eerst open stellen)

- Gaat al het eten op of niet?
- Wanneer gaat het wel op?
 - In welke situatie (dag, tijd, personen, gelegenheid, productgroep etc)
 - Hoe komt dat? Wat zijn redenen dat het op gaat?
 - Hoe vaak gebeurt dat?
- Wanneer gaat het niet op?
 - In welke situatie (dag, tijd, personen, gelegenheid, productgroep etc)
 - Hoe komt dat? Wat zijn redenen dat het niet op gaat?
 - Hoe vaak gebeurt dat?
 - Als het niet op gaat, wat doe je er dan mee? Waarom?

Houding en gedragsverandering door gebruik TGTG (20 min, 65/90)

Opm: Met verwijzing naar TGTG bedoelen we het gebruik van de app en de magic boxen

12) In hoeverre heeft het gebruik van TGTG (app en magic boxen) een effect op jou gehad? Waarom wel/niet? En zo ja: wat is dat effect?

- In wat je doet (gedrag)?
- In hoe je er mee bezig bent (houding)?
- In bewustwording (kennis)?

13) In hoeverre heb je het idee dat je door het gebruik van TGTG anders tegen eten weggooien bent gaan aankijken?

- Zo ja:
 - Hoe?
 - Waar kwam dat door?
 - Maak eens concreet: wat, hoe, waarom, wanneer, hoe vaak?
- Zo nee:
 - Waarom niet?
 - Wat zou er nog nodig zijn om jou te helpen om minder eten te hoeven weggooien?
- Zou het überhaupt een goed idee zijn dat TGTG je daar verder bij helpt of niet?

-
- Waarom wel/niet?
 - Hoe zie je dat voor je?

14) In hoeverre heb je het met anderen over TGTG gehad?

- Wie? Hoeveel mensen?
- Hoe vaak?
- Wat vertel/zeg je dan?
- Hoe reageren zij, en wat vind jij daar dan weer van?

15) In hoeverre heb je het idee dat je door het gebruik van TGTG nu onderdeel van een 'community' bent?

- Waarom wel/niet?
- Zou dat iets zijn wat TGTG (meer) kan doen: een community(-gevoel) creëren?
 - i. Interessant, relevant voor jou persoonlijk? Waarom wel/niet?
 - ii. Wat hebben mensen in deze community dan gemeenschappelijk?
- Hoe zouden ze dat kunnen doen zodat jou het aanspreekt?

Verbeteringen van 1) de app en 2) de magix boxen (20 min, 85/90)

16) In hoeverre zou de app verbeterd kunnen/moeten worden? Wat zie jij als verbeterpunten van de app?

- noodzakelijke dingen? Need-to-have
- extra dingen? Nice-to-have

17) Wanneer zou de app perfect zijn voor jou? Wat zou erbij, eraf of anders moeten?

- Wat vind je van de volgende ideeën?
 - i. Je kunt specifiekere keuzes aangeven voor het type box, bijvoorbeeld lunch box, dessert box, snack box, avondmaaltijd box.
 - ii. De tijden om de box op te halen worden verruimd of je hebt keuze uit een aantal tijdstippen of...
 - iii. Je kunt een magic box kiezen die helemaal afgestemd is op je eigen voorkeuren (bijv. geen vlees bij vegetarisch)
- Per idee:
 - i. aansprekend?
 - ii. relevant?
 - iii. effect (op jou)?

18) In hoeverre zijn er nog verbeterpunten aan de magic boxen zelf (inhoud)?

- Indien er eten weggegooid wordt: Hoe kunnen de magic boxen aangepast worden, zodat er minder eten uit de box weg gegooid wordt?
- Zijn er nog andere manieren waarop de magic boxen nog meer bijdragen aan het verminderen van voedselverspilling?

-
- Stel:
 - In de box zitten tips en tricks om thuis minder voedsel te verspillen?
 - Er zitten eenvoudige recepten in zitten om alles uit de box te gebruiken?
 - Er zitten (nieuwe/verrassende) recepten bij om alles uit de box te gebruiken
 - Je wordt gestimuleerd/uitgedaagd om producten te proeven op de houdbaarheidsdatum of te gebruiken na de houdbaarheidsdatum?
 - Jij als gebruiker wordt gemotiveerd/geïnspireerd om eten uit de magic box te delen met familie en vrienden.
 - Per item:
 - relevant/wenselijk?
 - ga je het doen en blijven doen?
 - Helpt het tegen verspilling?

Afronding (5 min. 90/90)

- Nog aanvullingen of dingen die we niet besproken hebben?
- Bedankt

Annex II Questionnaire (in Dutch)

Hi Waste Warrior,

Heel erg fijn dat je een bijdrage wilt leveren aan ons onderzoek. Het invullen van deze vragenlijst duurt ongeveer 15 minuten.

Alvast veel dank!

De verzamelde gegevens worden anoniem verwerkt en alleen gebruikt ten behoeve van dit onderzoek.

Onderstaande vragen gaan over het gebruik van de app

1. Sinds wanneer gebruik je de app?

- ☐ Een paar weken
- ☐ 1-3 maanden
- ☐ 4-6 maanden
- ☐ 7-12 maanden
- ☐ Langer dan een jaar

2. In welke situatie gebruik jij de app vooral?

- ☐ Als ik wil eten, maar geen zin heb om veel tijd te besteden aan het klaarmaken ervan
- ☐ Als ik zin heb om iets nieuws uit te proberen (nieuw gerecht of nieuw restaurant)
- ☐ Als ik wil besparen op mijn gewone (reguliere) boodschappen
- ☐ Ik maak er een sport van om een magic box te 'bemachtigen' voordat hij is uitverkocht
- ☐ Andere situatie, namelijk:

3. Wat is voor jou de belangrijkste reden om de app te gebruiken?

- ☐ Ik wil graag minder voedsel verspillen
- ☐ Ik vind het fijn om geld te besparen
- ☐ Het verrassingseffect van de magic boxen spreekt me aan
- ☐ Onderdeel zijn van een beweging tegen voedselverspilling
- ☐ Een andere reden, namelijk

4. Heb je door het gebruik van de app nieuwe winkels bezocht?

- ☐ Ja
- ☐ Nee

Indien 4=ja

5. Kwam je later nog eens terug in die winkel?

- ☐ Ja, om magic boxen op te halen
- ☐ Ja, voor gewone (reguliere) boodschappen
- ☐ Ja, voor gewone (reguliere) boodschappen én om magic boxen op te halen
- ☐ Nee

De volgende vragen gaan over de Magic Box

6. Hoe vaak heb je een Magic Box opgehaald sinds je de app gedownload hebt?

- ☐ 1-3 x
- ☐ 4-6 x
- ☐ 7-10 x
- ☐ 11-20 x
- ☐ > 20 x

7. Hoeveel van het eten uit de opgehaalde Magic Box eet je meestal op?

- ☐ < 20 %
- ☐ 20 tot 50 %
- ☐ 50 tot 75 %
- ☐ 75 tot 95 %
- ☐ 95 tot 100%

8. Wat doe je als er eten uit de Magic Box overblijft? (meerdere antwoorden mogelijk)

Invriezen	Uitdelen aan buren/familie/vrienden/huisgenoten	De volgende dag gebruiken	Aan dieren voeren	Inmaken of fermenteren	Weggoaien	Anders, namelijk:
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. Hoe vaak komt het voor dat je (een deel van het) eten uit de Magic Box alsnog weggooit?

- ☐ Bij 0 tot 10% van de magic boxen
- ☐ Bij 10 tot 40% van de magic boxen
- ☐ Bij 40 tot 60% van de magic boxen
- ☐ Bij 60 tot 90% van de magic boxen
- ☐ Bij 90 tot 100% van de magic boxen

10. Als je eten uit de magic box hebt weggegooid, wat was de reden daarvoor?
(meerdere antwoorden mogelijk)

Het eten was bedorven/niet vers meer	Er zat teveel eten in de magic box	Er zat teveel ongezond eten in de magic box	Het waren producten die ik niet lekker vond	De producten pasten niet in mijn menu	Ik wist niet hoe ik de producten klaar moest maken	Het waren onbekende producten voor mij	Ik had onvoldoende opslagruimte (bijv. in de vriezer)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Er zat vlees in de magic box en dat eet ik niet	Het waren andere voedingsmiddelen die ik niet eet	Ik heb nog nooit eten uit de magic box weggegooid	Anders, namelijk
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. Hoe ervaar je de waarde van het eten in de magic box?

- ☐ Het eten in de box is voor mij net zoveel waard als dat ik het eten zelf gekocht zou hebben
- ☐ Ik heb er minder voor betaald, dus het eten in de box heeft minder waarde voor mij
- ☐ Ik kocht de magic box in het kader van het tegengaan van voedselverspilling, dus het eten heeft voor mij meer waarde

12. Onderstaande stellingen gaan over Too Good To Go (TGTG). Hiermee wordt het gebruik van de app en de magic boxen bedoeld.

	Helemaal mee oneens				Neutraal				Helemaal mee eens
Ik raad vrienden en/of familie TGTG aan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik praat met vrienden en/of familie over TGTG	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Door het gebruik van TGTG, voel ik me onderdeel van een beweging ('community')	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Door het gebruik van TGTG, ben ik	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

me nog bewuster van voedselverspilling							
Door het gebruik van TGTG ben ik aan het denken gezet over voedselverspilling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Door het gebruik van TGTG, is mijn motivatie rondom het terugdringen van voedselverspilling verhoogd	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Door het gebruik van TGTG, hebben we gesprekken over voedselverspilling in ons huishouden	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Door het gebruik van TGTG, is het makkelijker om maaltijden te plannen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Door het gebruik van TGTG, ga ik creatiever om met restjes eten	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Door het gebruik van TGTG, eet ik andere producten/ gerechten	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Door het gebruik van TGTG, doe ik minder vaak boodschappen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Door het gebruik van TGTG, gooi ik minder eten weg	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Door het gebruik van TGTG, ben ik ook andere dingen gaan doen om	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

voedselverspilling te verminderen

Indien mee eens:

Wat voor andere dingen ben je gaan doen om voedselverspilling te verminderen?

De volgende vragen gaan over suggesties ter verbetering van Too Good To Go

13. Welk rapportcijfer (1-10) geef je het concept van de app en magic boxen van Too Good To Go?

14. Wat verwacht je van Too Good To Go als beweging tegen voedselverspilling?
(meerdere antwoorden mogelijk)

Actief zijn in de politiek op het thema voedselverspilling	Organiseren van events over voedselverspilling	Lespakketten aanbieden voor scholen	Informatie verstrekken naar TGTG gebruikers over voedselverspilling	Ik verwacht geen aanvullende activiteiten op het gebied van voedselverspilling vanuit TGTG	Anders, namelijk
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

15. Geef hieronder aan hoe aantrekkelijk je deze nieuwe suggesties voor in de app of Magic boxen vindt:

	Helemaal niet aantrekkelijk				Neutraal				Heel erg aantrekkelijk
Verruimen van de ophaaltijden voor de magic box	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Meer variatie in het aanbod van winkels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mogelijkheid dat iemand anders de magic box op kan halen voor jou (met een code/ticket)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mogelijkheid om te kiezen voor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

specifieke
eetmoment-
boxen, zoals
lunch, diner,
dessert, snacks
Mogelijkheid om
vegetarische box
te kunnen kiezen
Mogelijkheid om
een magic box te
kiezen die
voldoet aan
dieetbeperkingen
(bijv. glutenvrij)



Tips en tricks in
de app of in de
magic box om
thuis minder
voedsel te
verspillen



Gemakkelijke of
bijzondere
recepten met de
ingrediënten uit
de magic box



Al het eten in
één verpakking
waardoor je
minder plastic
verpakkingen in
de magic box
hebt (zie foto
onderaan deze
pagina)



16. Heb je nog andere suggesties om de app of de magic boxen te verbeteren?

Tot slot nog een paar algemene vragen over jou:

17. Wat is je leeftijd?

18. Wat is je geslacht?

- ☐ Man
- ☐ Vrouw
- ☐ Wil ik niet zeggen

19. Wat is je hoogst afgeronde opleiding?

- ☐ Lagere school
- ☐ LBO / MAVO / VMBO
- ☐ HAVO / VWO / MBO
- ☐ HBO / Universiteit
- ☐ Anders
- ☐ Wil ik niet zeggen

20. In welk land ben je geboren?

- ☐ Nederland
- ☐ Marokko
- ☐ Turkije
- ☐ Nederlandse Antillen en Aruba
- ☐ Suriname
- ☐ Anders, namelijk:
- ☐ Wil ik niet zeggen

21. Wat is je woonsituatie?

- ☐ Alleen
- ☐ Met partner
- ☐ Met partner en kinderen

-
- ☐ Met huisgenoten
 - ☐ Bij mijn ouders
 - ☐ Anders, namelijk

22. Uit hoeveel personen bestaat je huishouden? (inclusief jezelf)

23. Aantal kinderen (jonger dan 18 jaar) in je huishouden:

24. Aantal volwassenen (18 jaar en ouder) in je huishouden:

25. Wat is je werksituatie?

- ☐ Student
- ☐ Full-time werkend (36 uur of meer)
- ☐ Part-time werkend
- ☐ Huismoeder of -vader
- ☐ Gepensioneerd
- ☐ Vrijwilligerswerk
- ☐ Anders, namelijk

26. Waar doe je meestal je gewone (reguliere) boodschappen?

- ☐ Jumbo
- ☐ Albert Heijn
- ☐ Aldi
- ☐ Coop
- ☐ Plus
- ☐ LIDL
- ☐ Dirk
- ☐ Op de markt
- ☐ Anders, namelijk

27. Hoeveel van je gewone (reguliere) boodschappen eet je meestal op?

- ☐ <20%
- ☐ 20-50%
- ☐ 50-75%

-
- ☐ 75-95%
 - ☐ 95-100%

28. We weten dat het aanbod van magic box aanbieders soms ontoereikend is. Wat zou jij kunnen doen om meer ondernemers aan te laten sluiten bij TGTG?

29. Heb je nog andere opmerkingen over TGTG?

Dit is het einde van de vragenlijst. Bedankt dat je de tijd hebt genomen om deze in te vullen.

Annex III Focus group results

RESULTS QUALITATIVE RESEARCH TOO GOOD TO GO



Wageningen Food & Biobased Research



June 2019
Attn: Sandra van der Haar/Gertrude Zeinstra

Objective

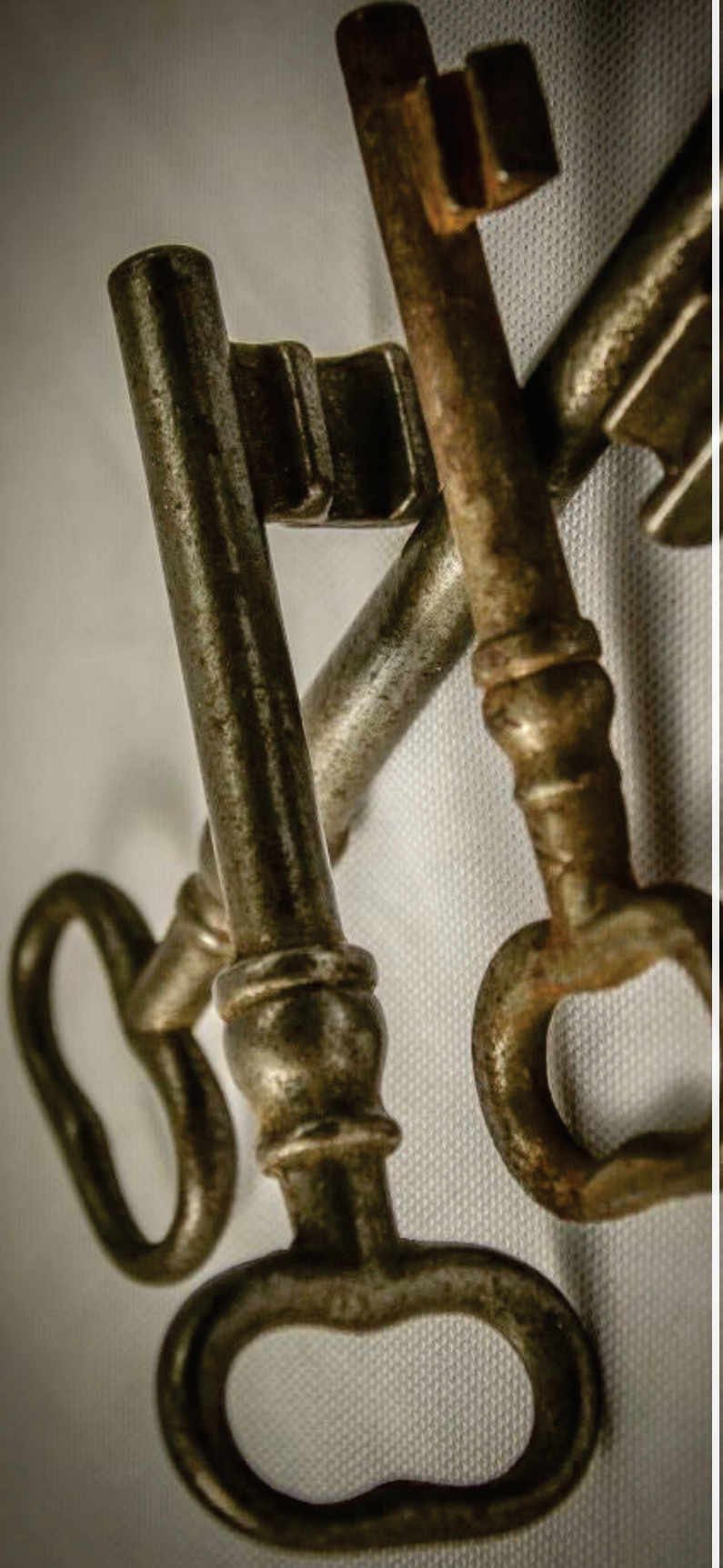
- To explore the impact of the Too Good To Go app on consumer's food waste behaviours in new and long-term users and to investigate which improvements are possible to increase the impact/save more food from being wasted.



Set Up

- 6 groups with appr. 6-8 respondents each
 - 3 groups with new users of TGTG: have bought in the past months 1 or 2 magic boxes
 - New users who participated were asked to buy one magic box per week
 - 3 groups with long term users of TGTG: have bought in the past months 3 or more magic boxes.
- Dates of fieldwork: 13, 15, 16 May 2019
- Group length: 1,5 hrs
- Location: Utrecht
- Respondents have been recruited by WUR

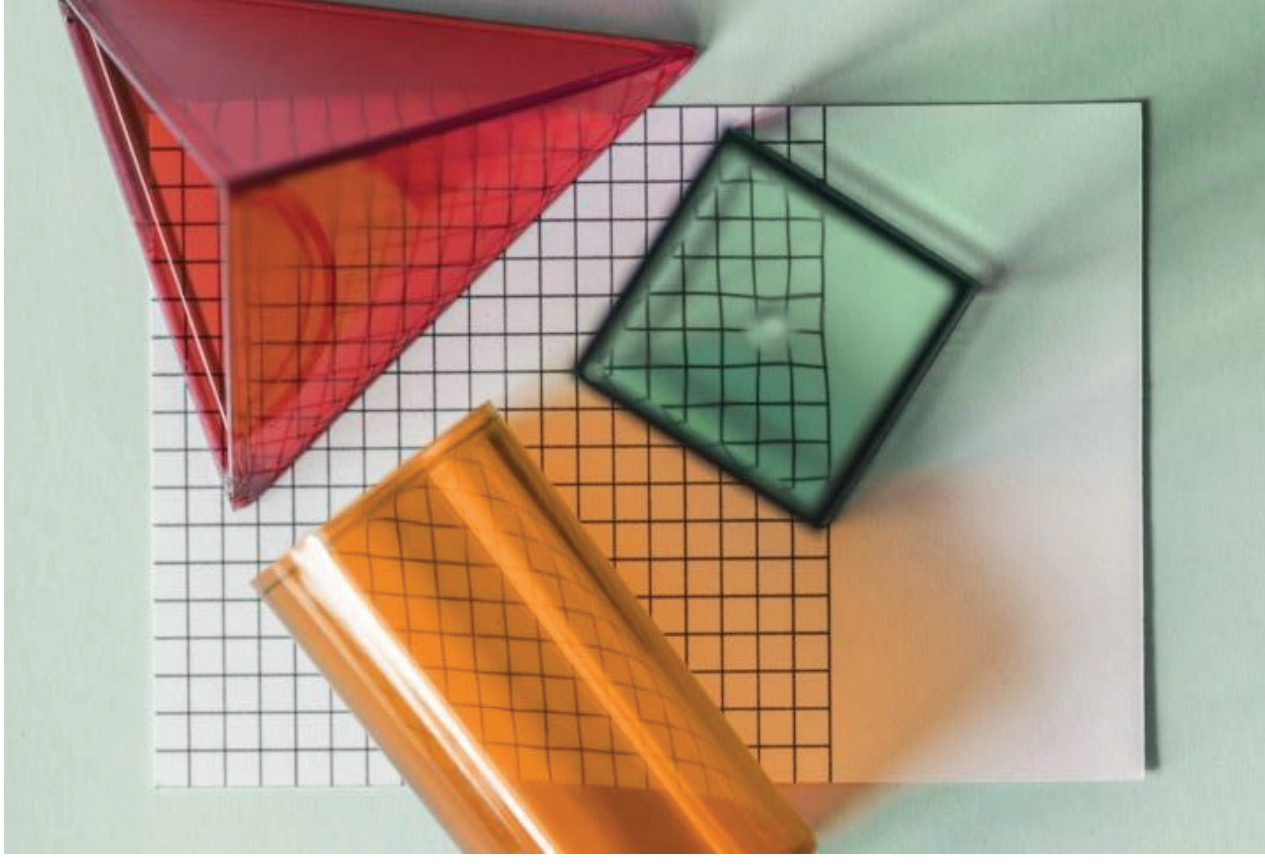




3 Key Learnings

Key Learning 1: Synergy between 3 drivers

- Too Good To Go has three main drivers for users to join and continue to use the app:
 - desire to reduce food waste
 - saving money
 - and having a surprising experience.
- The three drivers together create a synergy. They cannot be separated without devaluating the concept.



Key Learning 2:

Among users who are already aware of and capable to reduce food waste, the app has relatively little additional effect on their knowledge, behaviour and attitude towards this topic.

- For people who are already conscious of food waste, the app is a convenient and pleasant way to contribute to solving this societal problem.
- Among most users however, it does not lead to more awareness or a perceived change in behaviour because of this app. The users are already aware and capable of dealing with the problem.
- The biggest effect will most likely be reached when TGTG is able to get consumers onboard who are currently less aware of the food waste problems and its possible solutions. TGTG would be a good enabling platform for those type of consumers to start contributing to reducing food waste.



Key Learning 3: Beware of diluting the clear and focussed purpose

- Users are very critical on any features, ideas or suggestions that could possibly dilute the core purpose of TGTG.
- This has some consequences:
 - Participating stores who are suspected to use TGTG as a promotional or marketing tool should be scrutinised.
 - Unnecessary use of plastic is a real pain point for a lot of users, so participating stores should be encouraged to limit this as much as possible.
 - Keep the app simple and user friendly as it is right now, but don't tailor it too much to the potential needs of the users. Its purpose is about saving food in a simple and exciting way, not about pleasing customers.





User Perception, Positives and Negatives

Getting introduced to Too Good To Go

- Users have learned about TGTG via:
 - News on TV/Newspaper/Social media
 - *'I saw an item on the NOS new about food waste and they mentioned TGTG, so I got curious to see what's happening in my neighbourhood.'* (new user)
 - *'Saw it on the news. For a few euro's, you sure are willing to try it out.'* (new user)
 - Friends/families/colleagues/roommates
 - *'A friend told me about it and showed me what is in the magic box.'* (new user)
 - *'A colleague told me about it at lunch and I downloaded the app and loved it. You involve people who are part of the problem (the store owners) to be part of the solution.'* (long term user)

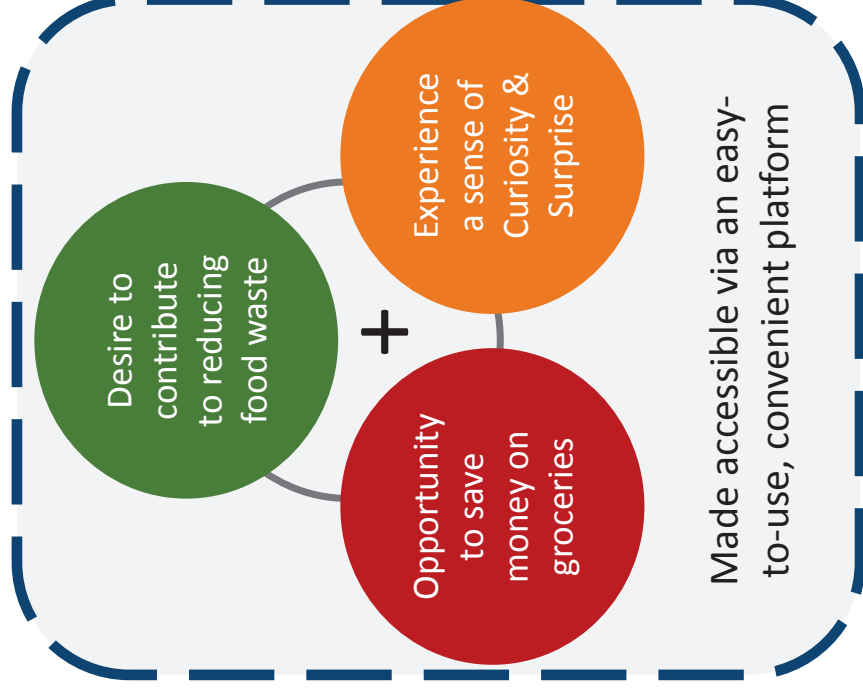


Knowing about it, doesn't automatically lead to directly downloading and using the app.

- For some, hearing about TGTG, downloading the app and actually using it are different touchpoints that can be separated by time.
- This may lead to forgetting about the app if there's no external trigger that reminds them again to actually download and start using it.
- *'I had the app for a while, but didn't use it. Until a friend of mine talked about it enthusiastically. She thought it would be great for me since we have a cooking club.'* (long term user)
- *'A colleague told me about it a long time ago. And then much later it popped up again.'* (new user)
- *'A friend of mine deleted the app as it's always sold out.'* (new user)
- *'I have colleagues at work who are very much into food saving and they talk about it. So eventually I decided to download the app too.'* (new user)
- *'I used it long ago but you had to use Paypal which I found a hassle.'* (long term user)



Three key drivers to participate in Too Good To Go, where the sum is bigger than the three individual parts



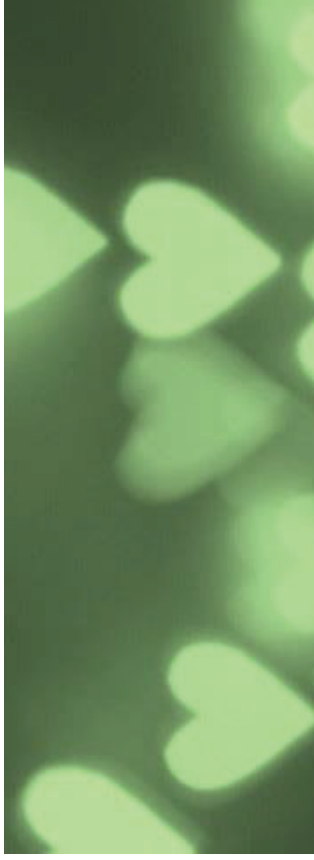
- TGTG makes it easy, financially beneficial and fun to participate in reducing food waste.

- *'The topic of food waste is lingering in my head. That's why I like the app as it gives me a concrete way to contribute to less food wasting.' It's a win-win-win: for the environment, for me and for the stores.' (new user)*

- It is important to realise that users are involved in TGTG for the synergetic combination of the three pillars. Each of them is an essential component of the concept.

- *'I wouldn't go all the way into town for this.' (new user)*
- *'It's in my folder of online shops, cause it is kind of webshopping.' (new user)*
- *'A lot of food, for a little money, and always different.' (new user)*
- *'I am just above social welfare level, but poor enough to be interested in this. It's great for people on a very tight budget.' (long term user).*

Top of Mind: Positive aspects of TGTG



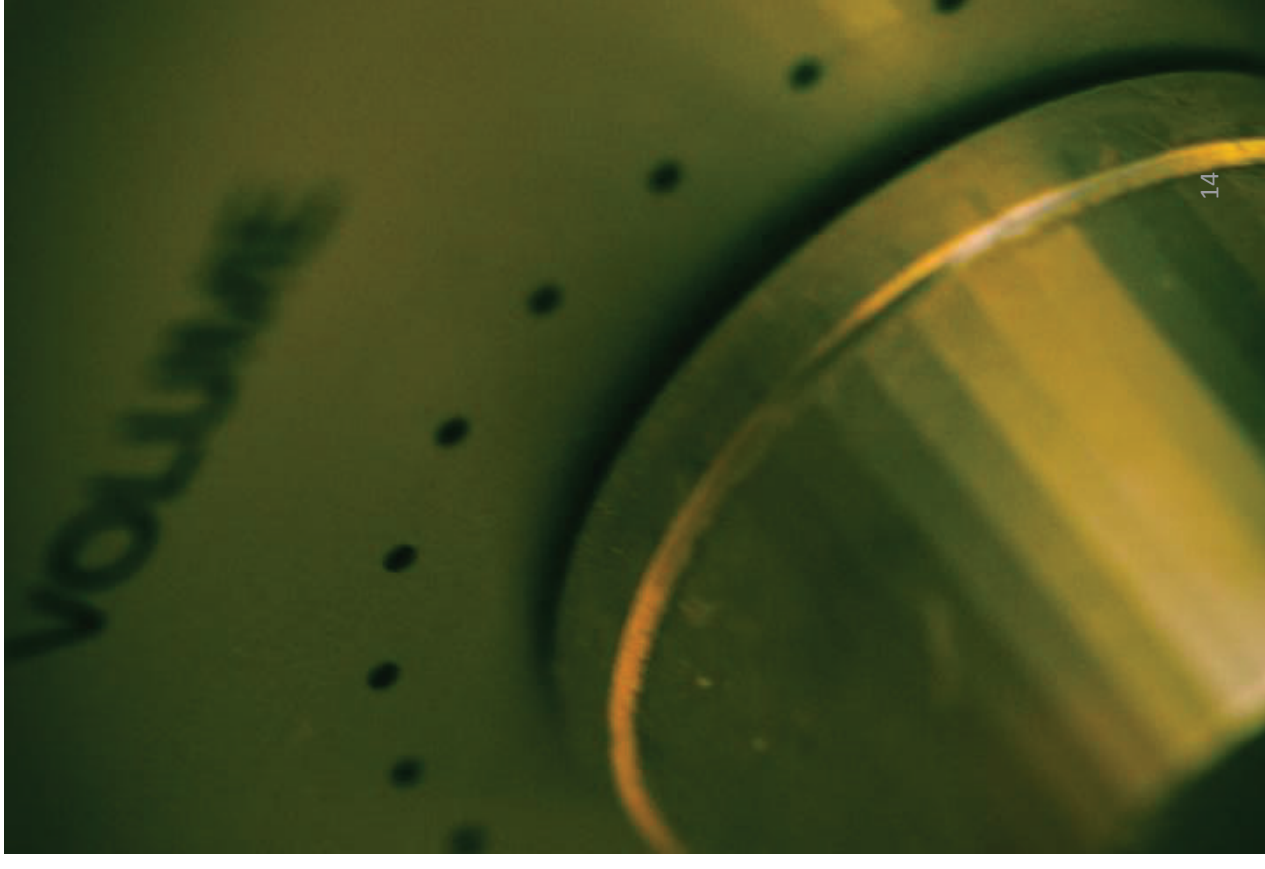
	New Users	Long Term Users
Motivating	'I like it when the app tells me: 'you rescued food'.	'I really get angry if people throw away food.'
Concept as such	'A great idea to reduce food waste.' 'AH isn't allowed to sell past the date, but it's still perfectly fit for consumption.'	'It's a relief to be able to help reduce food waste.' 'A lot of food ends up in the bin. I wanted to be part of changing this.'
Surprise element	'It's just like present.' 'It's the anticipating of not knowing what you get.'	'Always a surprise to see what you get.'
Convenience	'When I don't want to cook, I look in the app.'	'If I'm in a hurry, I check the app if there's something to pick up on my route.'
Source of inspiration & creativity	'It's nice to try out things you would normally not buy.' 'It's great to have to create a meal with the products you are given.'	'It let's you make improvisation dinners.'
Saving money	'I can get a lot of bread for very little money.' 'It's great if you want something which you normally find too expensive to buy.'	'They offer really cheap sushi, so that's a reason for me to use the app.' 'I once have eaten an entire week from one AH box, for only €4,-!' 'If you want to be sustainable, but don't have much money, TGTG is great.'
Userfriendly app	'Very easy to use.'	'It's very simple.'
Easy way to get to know new stores/restaurants	'I find it a bit scary to try out new places, but with TGTG I can discover what a restaurant has to offer in a very simple way.' 'Winkelmann, that's a place I normally would not go.'	'I got to know Stach. I found it always too expensive, but now it's accessible.'

Top of Mind: Negative aspects of TGTG

	New Users	Long Term Users
Limited participating shops	'Ermelo has only a few shops.'	'In Utrecht there is quite a lot, but what I do miss are all those supermarkets.'
Pick-up time too limited, too early or too late.	'Most of the times are too early for me. I have to work.' 'It has interesting offers, but you have build your whole schedule around it.'	'For people who work, it's not easy to meet the pick-up time.' 'Late in the evening is a problem for me.'
Many inactive participants	'There's a long list, but a lot of them never offer anything.'	'There's this hotdogspecialist listed, but he never has anything to pick up.'
Uncomfortable feeling of 'freeloading'	'I once could select so much extra food that they had to throw away otherwise, I made me feel a bit uncomfortable, because it's so much cheaper than normal.'	'If you can pick up food at a hotel buffet as much as you want, it makes you look greedy'
Too little variation	'It's very often only bakeries.' 'Sometimes it's only sushi, which I don't like.' 'I simply ate too much bread because of this app.'	'There's a lot of bakeries in the app.'
Doubt about the true purpose	'I sometimes doubt if companies are in it for the sustainability reasons or just see it as a new marketing channel for their business.'	'At a shell station, I once got a bag of candy and a can of coke....?'
Limited availability	'I haven't been able to pick up a box for a month now. It's always sold out.'	'I haven't used it in a while, simply there was almost no offer.'
Receiving bad products	'Normally the quality is good, but every now and then it's disappointing.'	'I once got minced meat that was beyond the date, at Ekoplaza. I didn't trust it, so I gave it to my dog. TGTG said that shouldn't be the case, so they gave me my money back.'
Unclearly about pricing	'The app shows the actual value, that's something that needs to match with what you get.'	'If I recalculate the value, I never got to the original amount.'
Too much products	'I got so much bread, I had no idea how to keep that fresh long enough.'	'Sometimes when I pick up a box I think: help! This is way too much!' 'I would want to buy more often, but my fridge isn't big enough!'
Feelings of guilt or embarrassment	'Going to a hotel buffet, while the guests are still eating. Makes you feel uncomfortable.'	'I sometimes feel that I take food away that otherwise would have gone to the food distribution (voedselbank). 'I've read that some people feel like they're stealing from the 'voedselbank'. 13

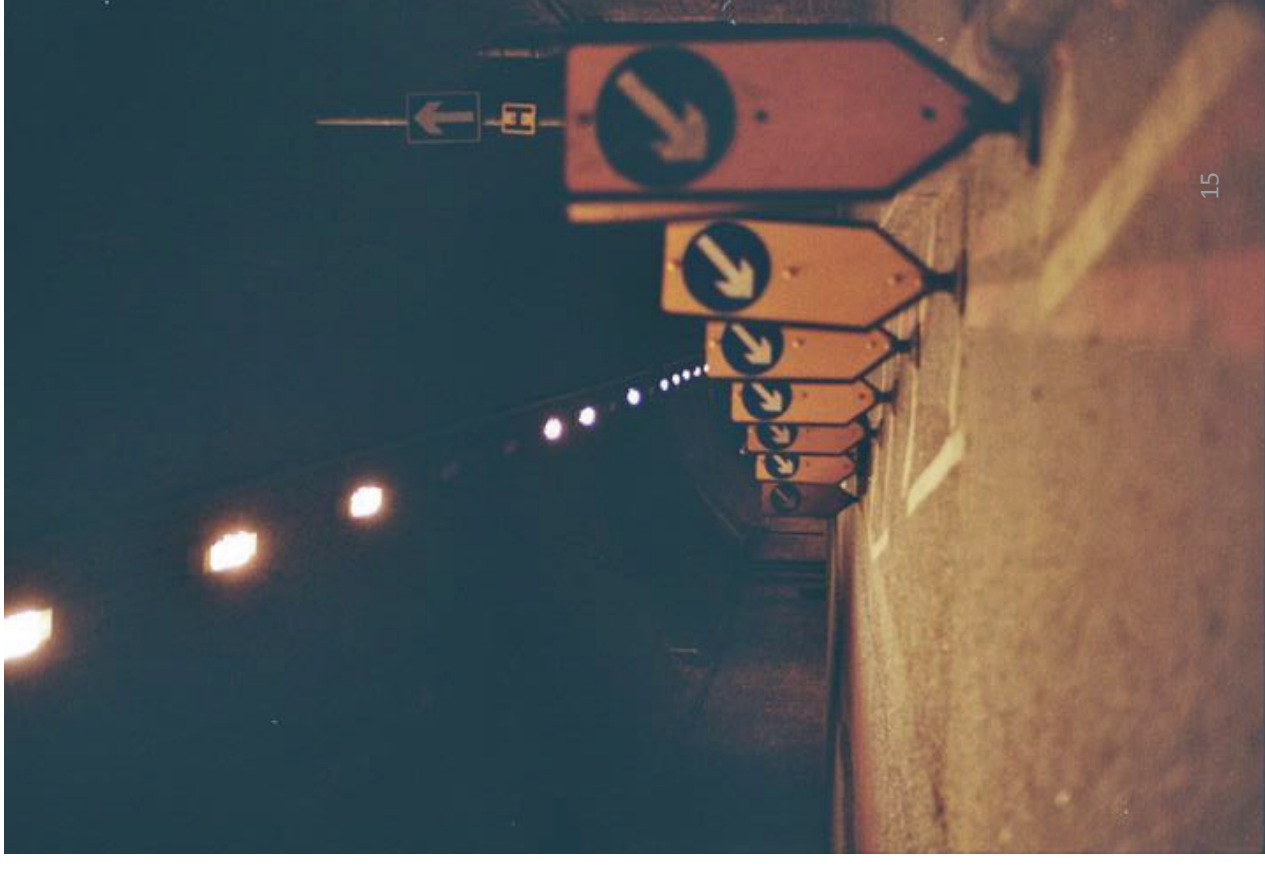
Active usage of the app varies

- Long term users indicate to have picked up magic boxes between 10 to 40 times.
- New users have tried to pick up at least one box a week (as requested as part of this research), but for most this proved to be challenging at times due to availability and personal agenda's.
- Some have developed a pattern in checking and buying boxes (if supply allows), others use the app irregularly, whenever the need occurs.
 - *'I always do my grocery shopping in Zeewolde, not many people use TGTG there, so I always order a box at the local supermarket.'*
 - *'When I don't feel like cooking, that's when I check the app.'* (new user)



Users develop strategies to increase their success rate of 'scoring a box'.

- The instruction for new users to buy at least one magic box per week, proved for some to be challenging:
 - Availability and pick-up time did not always match their schedule.
- As long-term users also face this issue from time to time, some of them have developed strategies to solve this:
 - Have partner/housemate also use the app
 - Combine it with other daily activities in another region where the app isn't that well-known yet and boxes are more widely available
 - Install warnings on phone for when stores put on their new offers.
 - Check constantly during the day.



Four different 'user-modes' have come forward

- **What unites all users is their interest in saving food from being wasted.**
- Underneath this, there are different user-modes:

- **'Solution-seeking':**

- When people are looking for a meal, right here, right now, because they have been busy, don't feel like cooking or spending too much time on it.
- Typical behaviour:
 - Not very picky on the type of store, as long as it's a convenient meal.
 - Pay extra attention to restaurants, ready-to-eat offers.
 - *'I don't like to cook when I'm on my own, so for that the app is brilliant to get an evening meal.'*
(long term user)

- **'Exploring':**

- When people see TGTG as an opportunity to try out new shops/restaurants and new types of products. The surprise element offers them a challenge on what to cook.
- Typical behaviour:
 - Extra interested in new, different shops
 - Open to unknown products.
 - *'I like to look for restaurants that I've never been to before' (new user)*



Four different 'user-modes' have come forward

- **What unites all users is their interest in saving food from being wasted.**
- Underneath this, there are different user-modes:
- **'Scoring':**
 - When people are engaging in the 'chance-element' of TGTG: it is always uncertain if boxes are available and when being able to have bought a box, especially from a popular store, it feels like winning in a game.
 - Typical behaviour:
 - Checking the app regularly, up to multiple times a day
 - Setting reminders when new offers will be posted, in order to increase the success rate
 - *'It's addictive, to check the app and to see if there's anything to score.'* (new user)
- **'Saving':**
 - When people are keen to save on groceries and see TGTG as solution. They are especially pleased when they can get boxes with large quantities of products.
 - Typical behaviour:
 - Focus on products that are daily necessities: bread, normal groceries
 - *'I have a small budget, so I use it to save money.'* (new user)



Limited availability: a double edged sword

- Quite a lot of users have experiences with the limited availability of boxes.
- On the one hand, it reassures them that the food has been saved so waste has been reduced, which is seen as positive.
 - *'If it's sold out, it means a lot of people are involved in wasting less food.'* (long term user)
- For some, the limited availability can even add an extra emotional dimension to the concept
 - *'It's almost a competition. The boxes at AH are always quickly sold out, so me and my friends have a kind of battle going on who can score the box.'* (long term user)
- On the other hand, if one isn't able to 'score a magic box' with a certain frequency, it can lead to a drop-out of using the app altogether.
 - *'It's so often sold out.'* (long term user)
 - *'You need to check the app at certain time, which I forget, so I often get disappointed. And then I forget about it to check the next day again.'* (long term user)
 - *'If I look a couple of times and there's nothing to buy, I don't feel like looking any longer. It takes too much time.'* (long term user)
 - *'I get demotivated if there's nothing available nearby. Then I think: why bother.'* (long term user)
 - *'A friend of mine deleted the app, because everything was always sold out.'* (new user)
 - *'I have to put in the effort to check the app regularly. If things are constantly sold out, I lose interest.'* (long term user)





Effect of TGTG on changes in awareness, attitude and behaviour

Regularly using TGTG keeps the aspect of food waste top-of-mind and helps to re-enforce the already conscious routine of reducing waste.

- The majority of the users perceive themselves already as (very) conscious of not wasting food. Their attitude and behaviour were already established, prior to the app.
- As such, many indicate that their behaviour regarding food waste has not altered significantly because of the app.
 - They already hardly threw any food away.
- Some admit that they still do throw out food occasionally.
 - *'I rather not throw food away, but it happens. Something that sits in my fridge too long and I forgot about. Or I buy too much.'* (long term user)
 - *'If something is past the date, I do throw it away.'* (long term user)



For the majority of users the app is a great way to contribute to less food waste, but they don't feel the app has led to a personal change, simply because of this high level of consciousness.

- For them, the app is a way to continue with their efforts.
 - *'I've always been involved in not wasting food, so that has not changed.'* (long term user)
 - *'It's a great concept, but it hasn't changed anything for me in how I deal with reducing food waste.'* (long term user)
 - *'I'm aware of food waste, but it's not a constant topic. It's impossible to never throw anything away.'* (long term user)
 - *'I didn't change my view on wasting food.'* (new user)
 - *'I was already involved in wasting as little as possible.'* (new user)
 - *'I think we were already involved in it before using the app and that this is the reason we started using the app.'* (new user)
- It may be assumed that the biggest positive change will occur when people who are not involved in food waste reduction yet would know and use TGTG.



In a few cases, some users do have noticed a change as a result of using the app.

- **In knowledge/awareness**

- *'I talk about it to others and tell them it's really easy to waste less food, the app is a great way to convince them'* (long term user)

A negative side effect is finding a lot of plastic in the magic boxes. This has made them more aware about plastic.

- *'I realised that we use a lot of plastic!'* (new user)
- *'I noticed you get a lot of extra plastic via these magic boxes. This would be a reason for me to stop with it. Sustainability and food waste should go hand in hand.'* (new user)

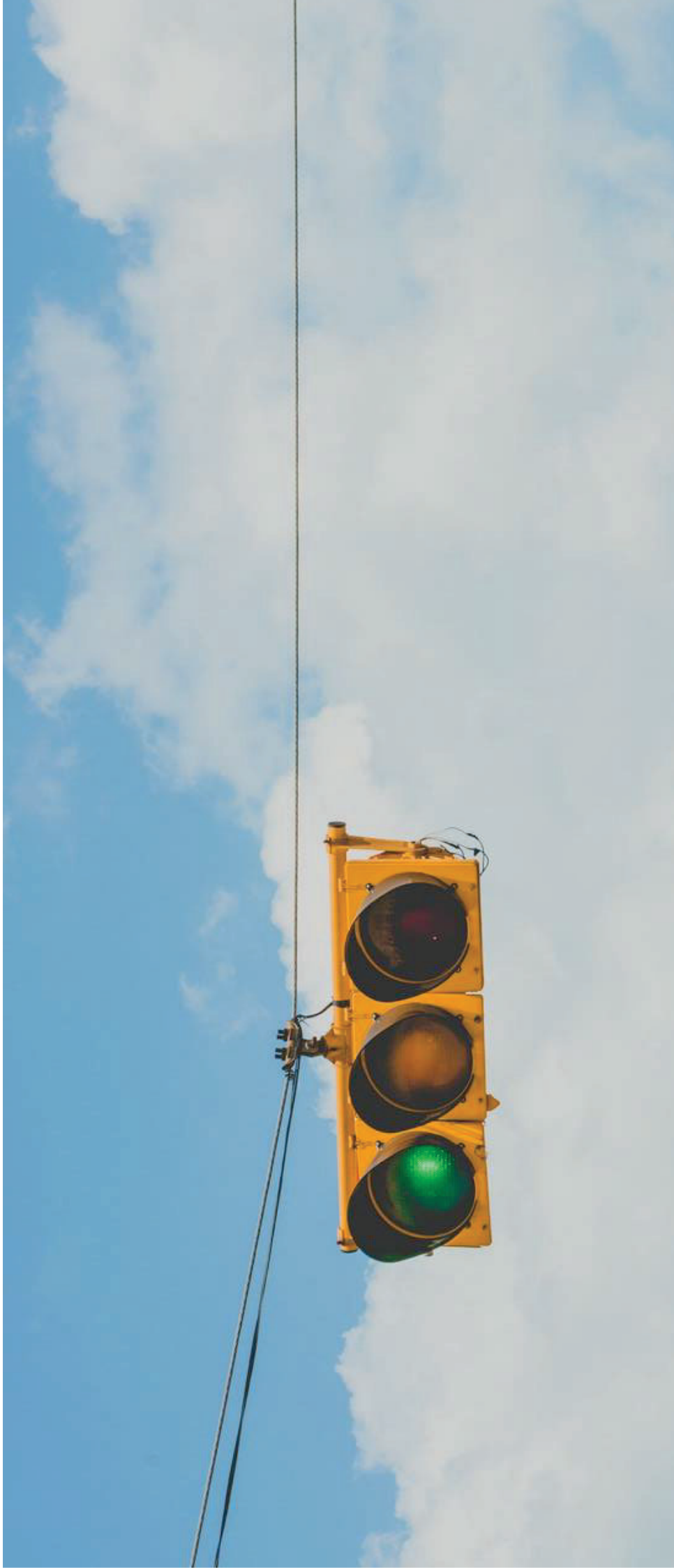
- **In attitude**

- *'I have become more relaxed about eating day-old bread. Normally it would not be my first choice, but now I'm okay with it.'* (long term user)

- **In behaviour**

- *'I started to improvise more with the way I cook. I know make crostini's of the bread.'* (long term user)
- *'I only buy meat via the magic box or in the supermarket with a 35% sticker. (long term user)*
- *'I've adapted my other grocery shopping on the magic box. I check what's in there and then I buy other groceries to make a complete meal.'* (long term user)





Strengths and Watch-outs of the TGTG Concept

The Magic Box is just that: Magic!

- Most respondents can still recall their first magic box, indicating the concept has high impact.
- Their stories are a mixture of anticipation and surprise: not knowing what to expect and what you will get and in most cases being positively surprised by the content, both in quality and quantity.
 - *'Our first box was awesome. It had like 3 kilo of potatoes, sushi and some other stuff.'* (long term user)
 - *'It was at Broodje Gerry. I got food for 3 days for 4 euro. Three large sandwiches, pieces of pizza. I gave half to a homeless along the way. That was a really good experience.'* (long term user)
 - *'At district I didn't only get bread, but also pastry. Super products!'* (long term user)
 - *'At Wagamama I got a portion rice, vegetables and meat that I had to stirfry myself at home. I really liked that!'* (new user)
- And if in some cases, the experience was not that positive, most users are very relaxed about it.
 - *'I got like 6 cartons of milk, because other people didn't want the milk. But you shouldn't complain.'* (long term user)
 - *'I went to a caterer and I got a lot of fish products and I don't like fish. So I went to my mother and gave it to her and kept the salad for myself.'* (new user)



From the Magic Box, very little food is wasted

- As most users are very conscious of not to waste food at all, very little food from the Magic Boxes gets thrown away.
- If one receives products one doesn't like, they are often distributed to other people: friends, neighbours, or at times a homeless person. Some give their waste to animals (chicken, sheep, goats) or use it as compost.
- When food does get thrown out, it is for the following reasons:
 - Health risk: doesn't smell right anymore, suspicious
 - *'I got wraps from AH with fish, which I don't eat, but if they're already a day old, you can't really hand them to your colleagues, can you?'* (long term user)
 - *'The pack of chocolate milk didn't look ok, so I threw that away. (new user)*
 - *'I got mushrooms that didn't smell ok anymore, so I tossed them.'* (new user)
 - Not your taste/liking
 - *'I once threw away a kilo chicory. I don't eat that.'* (long term user)
 - Not enough storage space (fridge/freezer)
 - *'I sometimes get so much bread that I can't freeze it all. And you can't really hand out day-old bread to anyone, so yes, that get's thrown away sometimes.'* (long term user)
 - *'I once got two kilo of meat, so I was frying meat all night. But you do need a big freezer, otherwise you still have to throw it out.'* (long term user)



Positive user experience of the app

- In general, the way the app is set up is very much appreciated: easy to use, clear and to-the-point.
 - *'It's just perfect as it is. In a few easy steps you're done.'* (long term user)
 - *'It's easy to select and categorize.'* (long term user)
 - *Payment is easy and fast. Swiping at the store is handy too.'* (new user)
- The majority of the respondents use the list function. Some prefer the map as it visually shows availability within their proximity.
- Quite a few have listed some shops as favourites:
 - Shops they visit frequently, like bakeries, supermarkets or restaurants
 - Or shops that do add extra value through their assortment but don't always have boxes on offer.
- A wish frequently mentioned would be to send your ticket code to somebody else so this person can collect the magic box.



Strong desire to keep the concept clear and focussed.

- Being such a strong, simple concept, there is a strong desire to keep it that way:
- Only offer food when it is going to waste. In that case, it would be better to have an order cancelled, than arriving at a store and being given food that clearly wasn't going to waste.
- Absolutely no products that are not perishable or not yet on their due date.
- *'At a shell-station, this lady had no idea what I came to collect. So she gave me a bag of candy and a can of coke. Sure it was higher in value than what I paid for it, but this is not what TGTG is about.'* (long term user)
- *'I once went to pick up a box and they had nothing vegetarian, so they offered to make me a veggie sandwich. But I thought: that's not what this is about. It undermines the whole concept.'* (new user)



Story behind Too Good To Go: important to have, but not so important to actively push.

- For many, the originating story behind TGTG is not known.
- Through personal experience, some know the concept is also available abroad.
- If asked, most would say it would be interesting to hear a bit more about it. But at the same time, it shouldn't be too prominent and take away the attention of the functionality of the app.
 - *'I get the idea behind it, but haven't read about it anywhere. I'm not that interested in it. If it works, it works.'* (long term user)
 - *'I may have gotten some mails? But I throw them away without reading.'* (long term user)
 - *'Personally, more information about food waste would not interest me. But communication with their service desk, that might become relevant.'* (long term user)

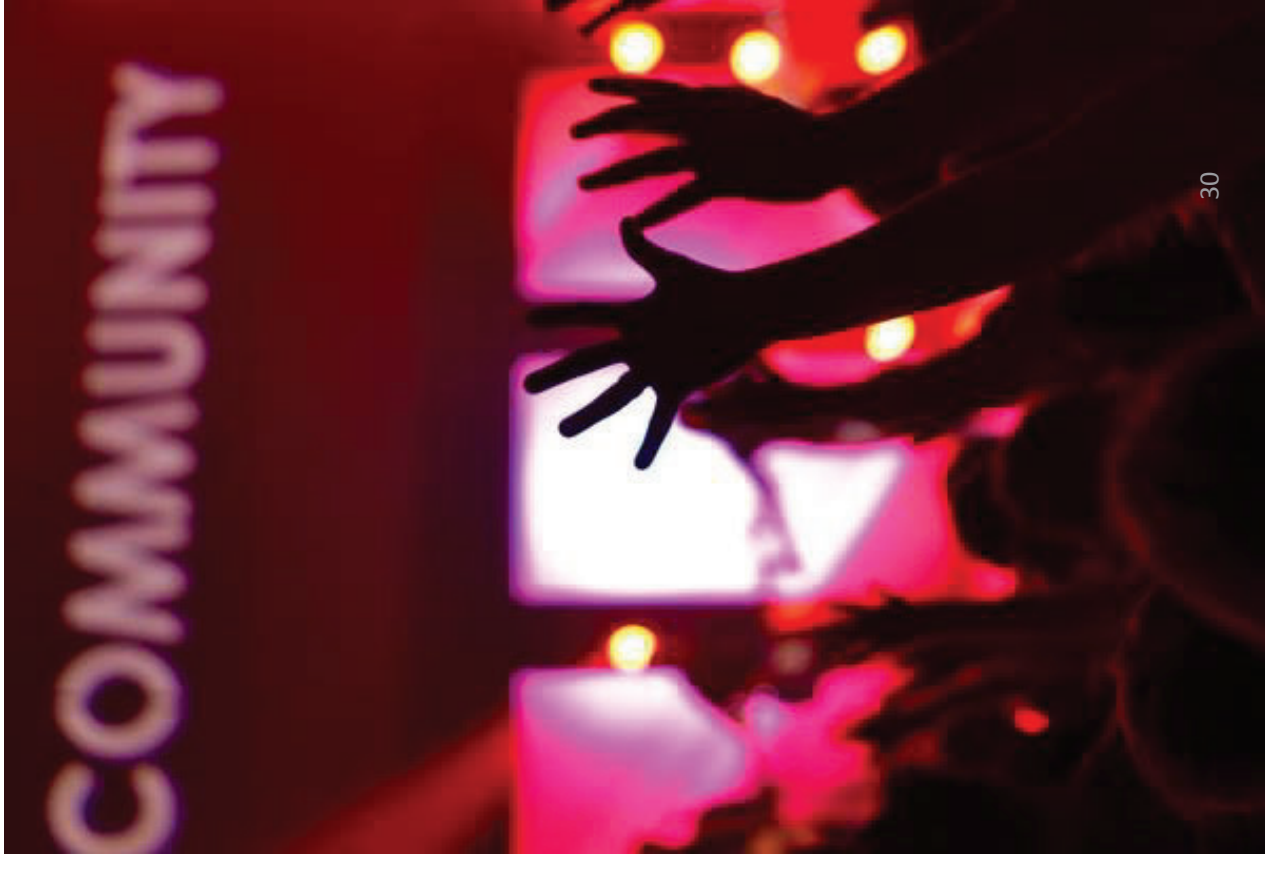


Users make a clear distinction between being a user and being a customer.

- TGTG is by most seen as an initiative, a platform to reduce foodwaste.
- Many see themselves as a user or a member of TGTG, not as a customer, which is a nuanced difference:
 - A customer has certain rights. Most feel that within the concept of TGTG it's not solely about them, but about the food that is not wasted.
 - The built-in idea of not knowing what to get, lowers expectations and makes it acceptable that it can or cannot be to their liking.
 - *'As soon as I get a lot of food for €3,- I can't really complain can I? (new user)*

An anonymous community of like-minded people

- The majority of the users indicate that through using TGTG they contribute to reducing food waste and as such feel part of a bigger movement.
- And for most that is a sufficient level of community feeling.
 - *'It's not a real community, but it kind of gives you a positive feeling about yourself. That you're doing something good.'* (new user)
 - *'It can be fun to see other TGTG users in the store, but that's enough.'* (long term user)
- There is no desire to really interact or engage with other (unknown) users within or via the app.
 - *'It would be a community if you would know the other people, but I don't feel the need to.'* (new user)
 - *'It feels that I'm part of something bigger, of a group of people who are conscious about food waste. I like that thought but that's it. I don't have to see profile pictures of others. It's first and foremost about the food.'* (new user)
 - *'I like TGTG a lot, but I don't have to belong to yet another group. If I want to share, I'll do that within my own circle of friends.'* (long term user)



Heed the marketing connotation

- Some users get the impression that some participants are in it for the awareness and advertising of their shop.
 - *'I sometimes wonder if it's not just a way for them promote their business.'* (new user)
 - *'At Sushitime they had heaps of boxes lined up of which I got one, it felt like a trial sample.'* (new user)
 - *'At Wagamama they wrap everything in plastic, so that makes me think: they're in it for the marketing.'* (new user)
- Although it allows consumers to experience new and different shops, they are quite 'allergic' to companies of whom they get the impression of exploiting the TGTG principle for promotional purposes.
 - *'It feels they try to make money on the back of the app. I once got a banana which was still green! I told them that this was not the purpose and they gave me my money back.'* (new user)
 - *'At a restaurant I once get an employee's meal. How can that be waste? You know exactly how many people work in your restaurant on a given day. That didn't feel right to me.'* (new user)
 - *'If there's some marketing behind it, I really don't want to know. I want to only get the idea that I'm helping reduce food waste.'* (new user)



Extra production due to TGTG???

- Some respondents wonder whether TGTG is a way for stores to make extra products, as they can be sold at the end of the day anyway.
- In that case, it would be counterproductive they argue.
 - *'Sometimes I get a meal that doesn't look as 'left-overs' at all. I came to save food, but it looks like it was especially made for this purpose.'* (long term user)
 - *'I fear that some stores see this as a reason to produce extra.'* (long term user)
- Although it is an hypothesis or assumption on the user's side, it is important to be reassured by TGTG and its participants on this matter.



Reviews are useful when they help to improve the concept

- Quite some respondents are aware of the possibility to give reviews, many of them are not sure what happens with this information.
 - *'I never give reviews. No clue what is done with this information.'* (long term user)
- Most assume it is used by TGTG as feedback to their participating stores. In that case, it is considered relevant as it helps to improve the concept.
 - *'If you got two rotten banana's, you should be able to give feedback on that.'* (new user)
 - *'An open field would be nice, so you can tell them that they are using extreme quantities of plastic.'* (new user)
 - *'It's a great way to show appreciation for stores contributing in reducing food waste.'* (new user)



But reviews are seen less relevant for the users themselves.

- Some indicate that reviews would be nice, but overall it is not considered that important or relevant for them personally:
 - Reviews are often biased: only very dissatisfied or very satisfied people will post
 - There's a general distrust in the providers of reviews (bought?)
 - And each box will be different per day, so that makes it difficult to assess the value of a past review.
- And most importantly: it would dilute the core purpose of the concept.
 - *'I hope TGTG uses these reviews to talk to their participants. For me it's about saving food, not about scoring a cheap meal.' (long term user)*
 - *'Those reviews are often all about marketing.' (new user)*
 - *'It's not a part of what TGTG is about. It's about food waste, not likes on products or stores.' (new user)*





Evaluation of suggested improvements

Idea suggestions

- Ability to choose for a specific box (e.g. lunch, dessert, snack, dinner).
 - The majority of respondents are not interested in this for several reasons:
 - It takes away the surprise element a bit
 - By selecting a specific store, it is often already clear what kind of products you will get.
 - It becomes to 'customer-focused' and takes attention away from the purpose: saving food. It shouldn't become: addressing the needs of consumers and creating products that match.
- Wider pick-up times.
 - For most, this would be a good idea, as it allows them to fit pick-up better in their personal schedule. But again, most realise that to determine what is waste at the end of the day and definitely will not be sold anymore, stores cannot have very broad pick-up times.
- Magix Box tailored to personal preferences
 - For most having a choice between vegetarian and non-vegetarian would be a good idea (either indicated already in the app or the possibility to choose during pick-up).
 - Any other specifications (e.g. gluten, lactose, etc.) is for most not a necessary item.



Ideas to Support in wasting less food

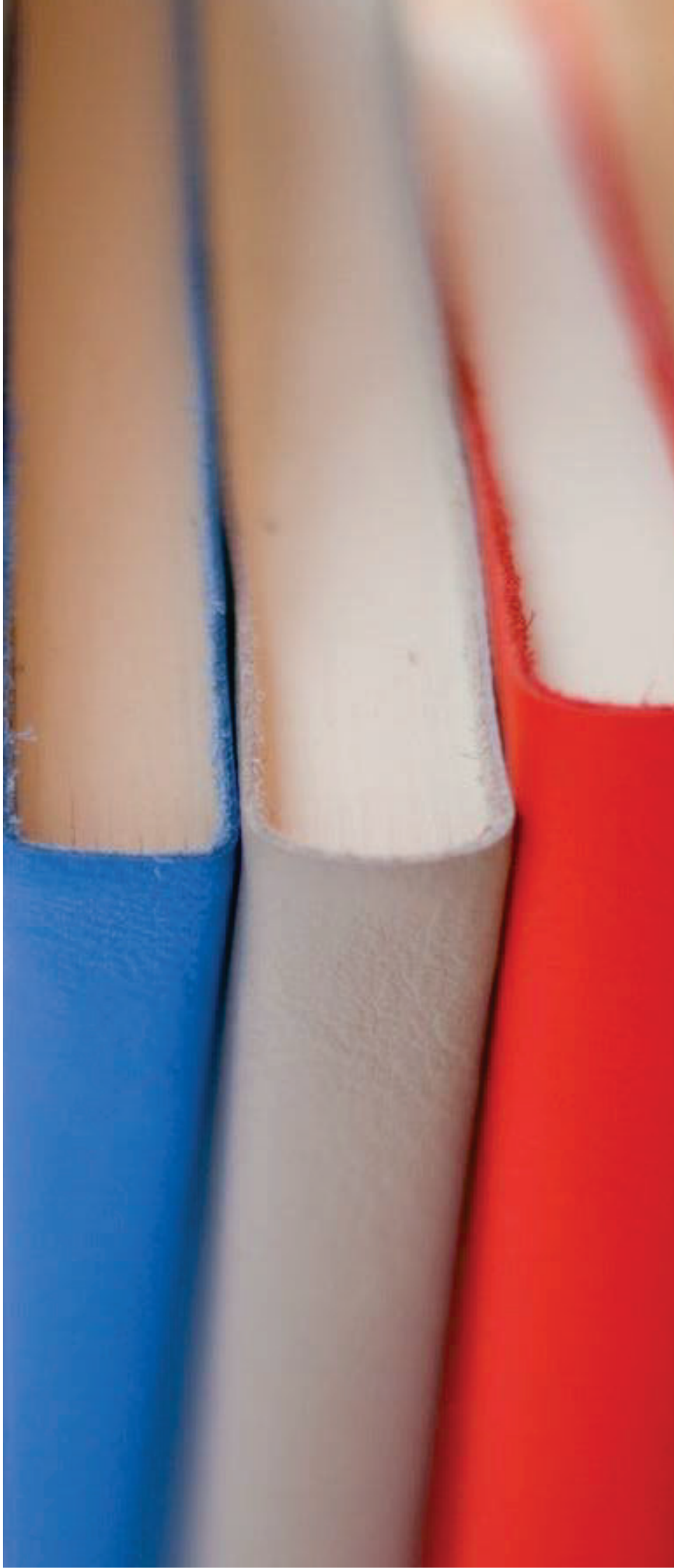
- Tips & Tricks in the Magic Box to waste less food at home
 - For the majority this is a nice-to-have as they consider themselves already quite knowledgeable on this topic.
 - This might serve people who are not that aware of food waste.
 - Also, adding information into the box is seen as an extra action to be done in store, which might not be convenient for the store personnel. And it would also be extra waste
 - Most would appreciate a section in the app that has tips&tricks. But most do not really have a strong, manifest need for it either.
- Recipes in the Magic Box
 - For most this is not relevant:
 - There are already plenty of (better) sources online that provide recipes
 - It takes away some of the creative process.
 - And it is also seen quite difficult:
 - As left over food can vary from one day to another, how does a store-owner (or TGTG) find a suitable recipe for the products?
- Stimulating users to share foods with others
 - For most, participating in TGTG this is a natural activity, so the users do not see any added value in TGTG pointing this out.
 - If you don't want to waste food, but you can't eat yourself for whatever reason, it is logical to find someone who would like to have it.



In Conclusion

- **Keep:**
 - Core focus on saving food, in a cost-efficient and surprising way
 - Simplicity & functionality of the app
 - Surprise element of the Magic Box
 - Lean & mean: no recipes, not too many tips/emails/push messages, etc (but ok to have in the app where users can look at their own convenience)
- **Heed:**
 - Too many shops that don't offer enough
 - Too many inactive shops
 - Too little opportunities to buy: if this happens too often, users loose their interest
 - Shops that appear to be in it for their own promotion
 - Unnecessary packaging material used by shops
- **Explore:**
 - Ways to engage new consumers who are not yet aware of (how to) save food: use the enthusiasm of the users.
 - Balance the quantity of products better: more magic boxes per store instead only a few people very large quantities?
 - Ways to offer more variety in participants
 - Wider/more pick-up times where possible.





Appendix

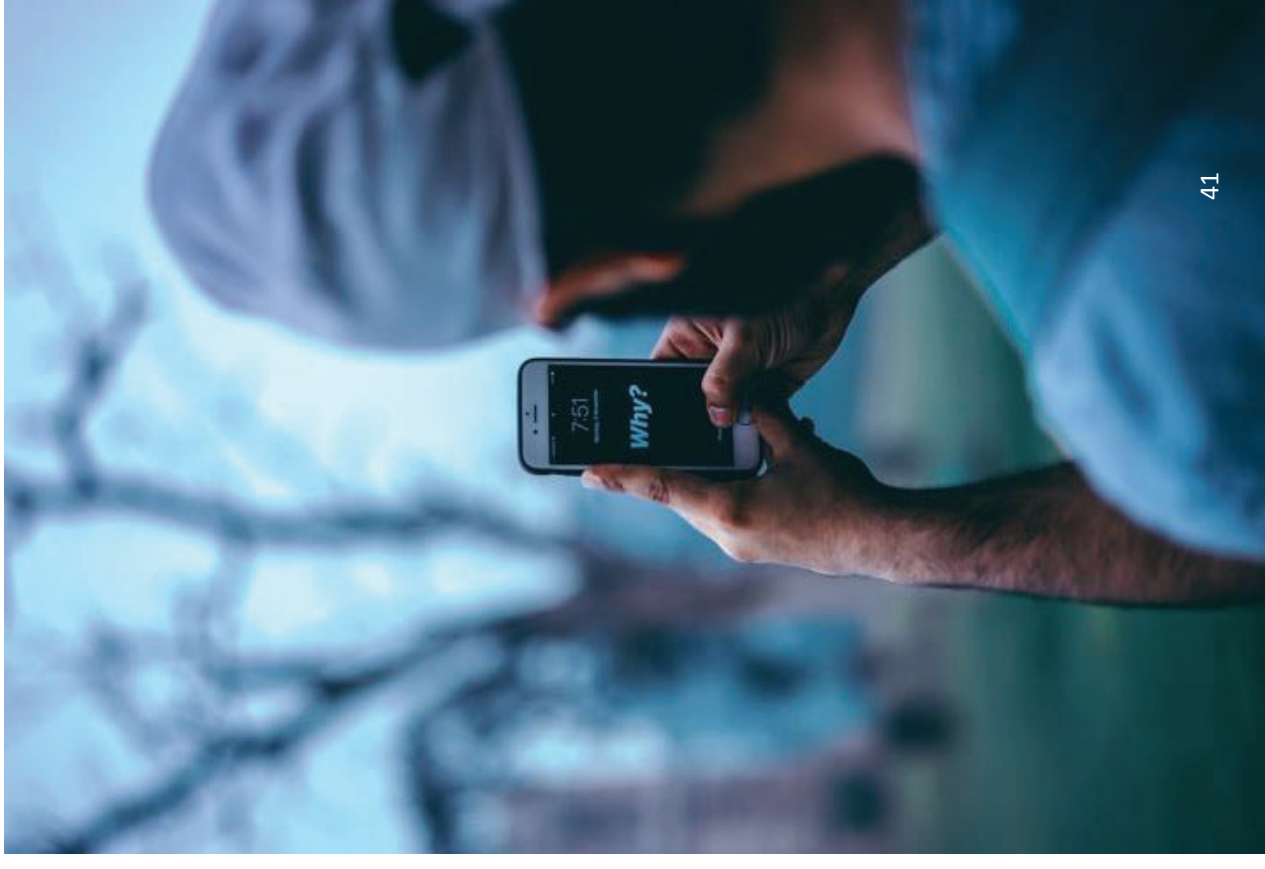
Objective

- To explore the impact of the Too Good To Go app on consumer's food waste behaviours in new and long-term users and to investigate which improvements are possible to increase the impact/save more food from being wasted.



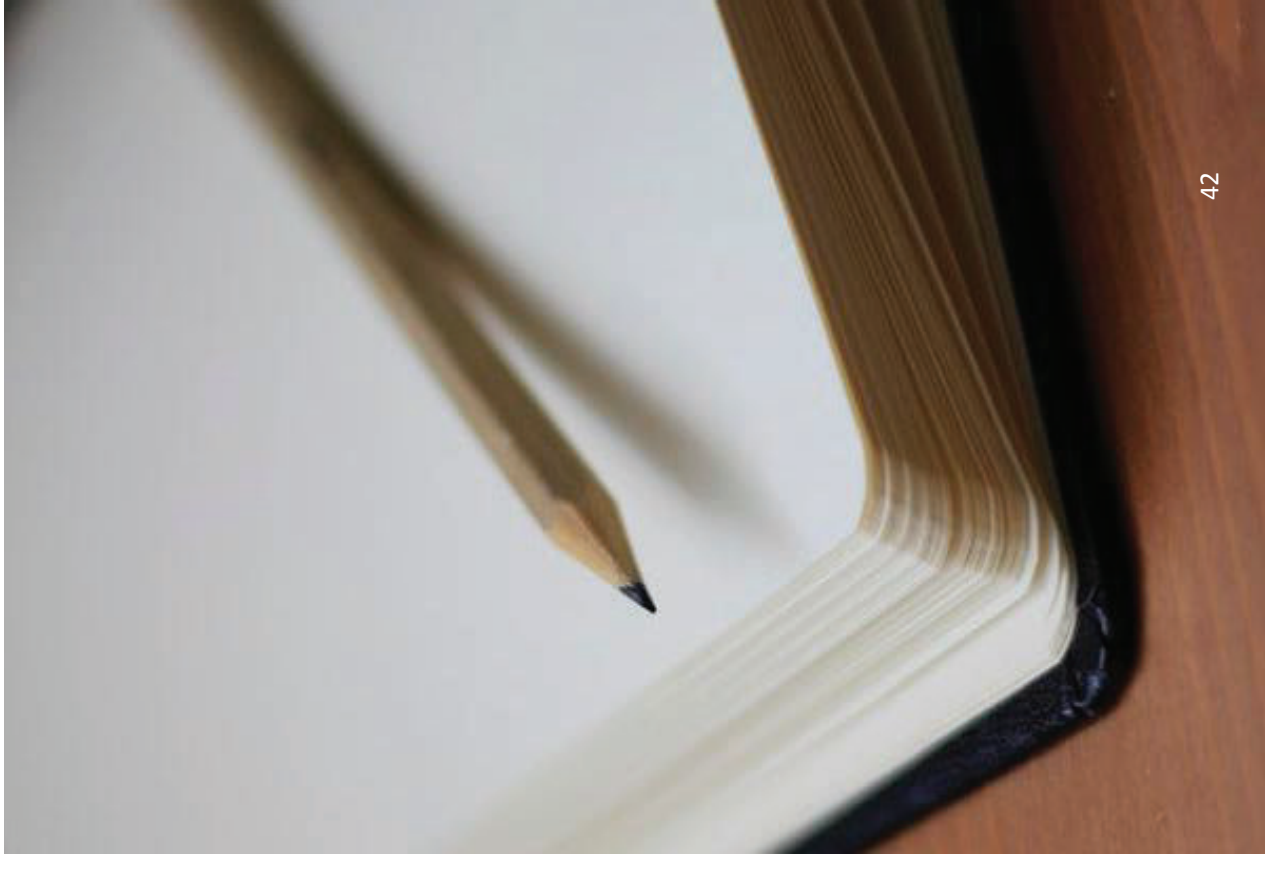
Sub Questions

- How much of the food inside the Too Good To Go 'magic box' is actually eaten by the consumer?
- If the food is not (entirely) eaten, what is the reason?
- In which situations is the 'saved' food actually eaten/not eaten?
- In which food consuming moments/situations (occasion/timing, context and with whom) do consumers use the app? (info can be provided by Too Good To Go)
- Do consumers who use the app think differently about food waste by using the app, so does the app increase self-reported awareness? (how much were they aware of the food waste problem before using the app and how much afterwards?)
- Do consumers who use the app change their behaviour regarding food waste (self-reported)?
- What possible improvements are mentioned by users of the app?



Set Up

- 6 groups with appr. 6-8 respondents each
 - 3 groups with new users of TGTG: have bought in the past months 1 or 2 magic boxes
 - New users who participated were asked to buy one magic box per week
 - 3 groups with long term users of TGTG: have bought in the past months 3 or more magic boxes.
- Dates of fieldwork: 13, 15, 16 May 2019
- Location: Utrecht
- Respondents have been recruited by WUR





Rob Drent
Balfortstraat 76a
4811 RV Breda

+31 (0)6-51 95 77 42

B.T.W. NL1587.56.873.B01

KvK 20133164

NL25 INGB 0004 9836 24

www.canvasconceiving.nl
rob@canvasconceiving.nl
blog: robdrent.com



Annex IV Additional graphs and figures from survey

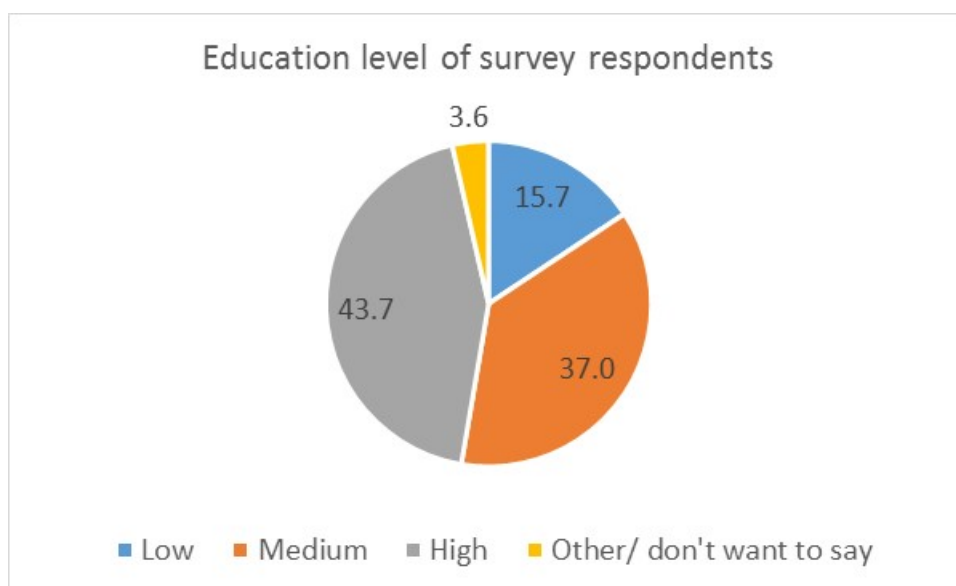


Figure 1. Overview of education level of the respondents in the survey

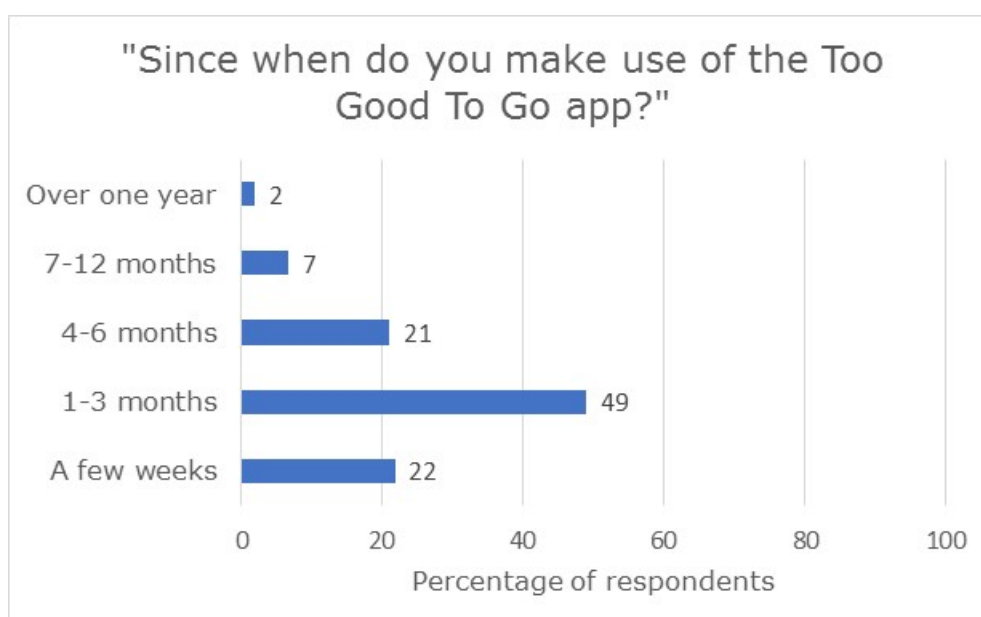


Figure 2. Reported frequency of how long ago survey participants installed the Too Good To Go app

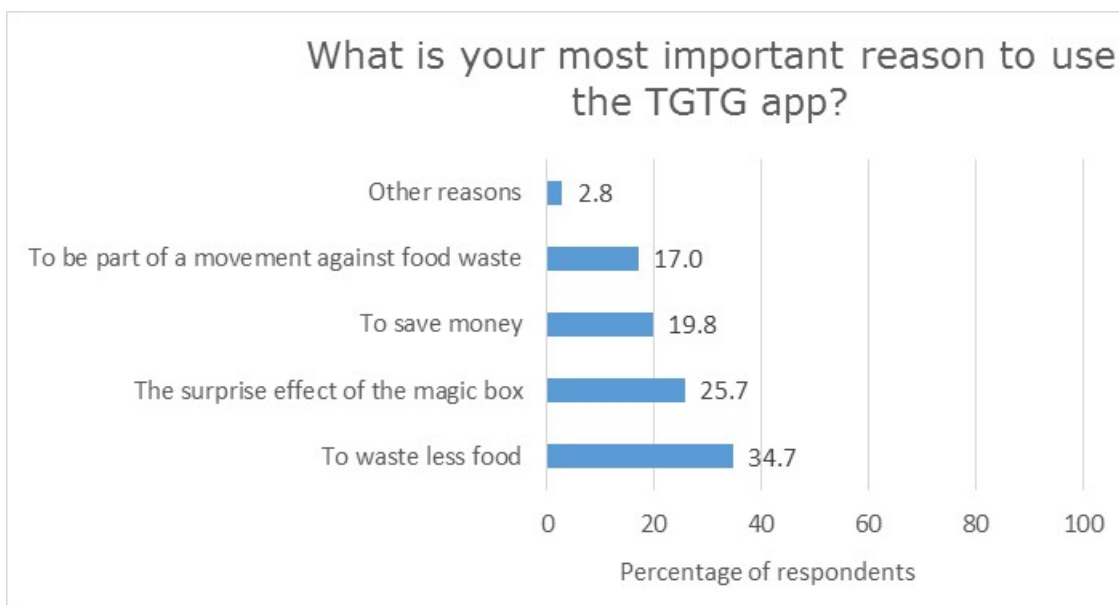


Figure 3. Overview of most important reasons for using the Too Good To Go app (forced choice)

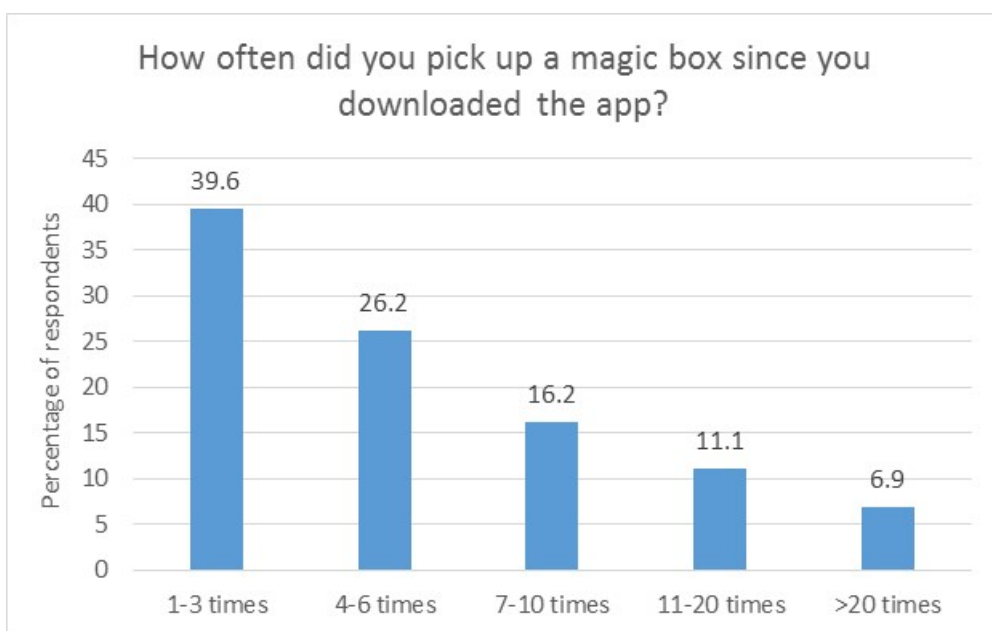


Figure 4. Overview of the number of times that survey respondents picked up a magic box

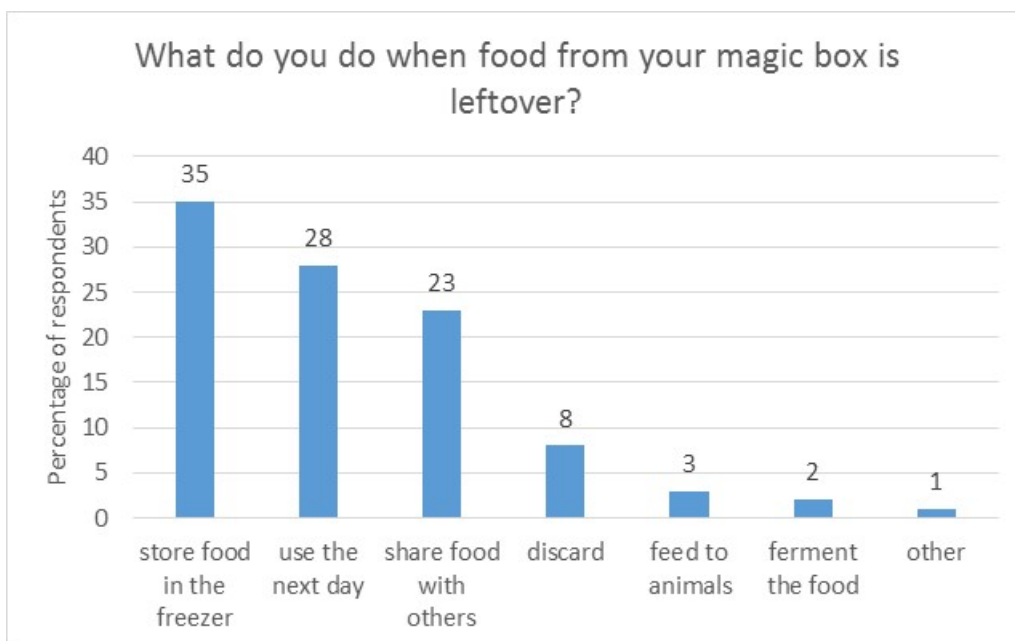


Figure 5. Overview of practices that survey respondents undertake when food from the magic box is leftover (multiple answers could be marked)

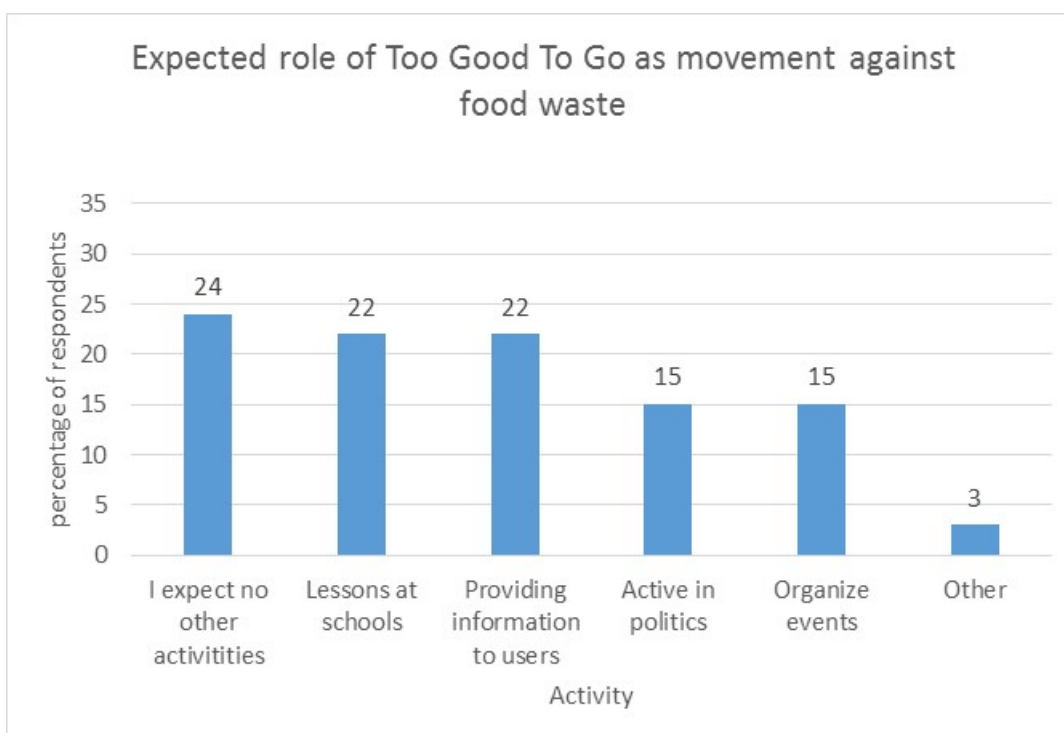


Figure 6. Overview of additional activities that survey respondents expect from Too Good To Go (multiple answers could be marked)

To explore
the potential
of nature to
improve the
quality of life



Wageningen Food & Biobased Research
Bornse Weilanden 9
6708 WG Wageningen
The Netherlands
www.wur.eu/wfbr
E info.wfbr@wur.nl

Report 1975
ISBN 978-94-6395-149-4

The mission of Wageningen University and Research is "To explore the potential of nature to improve the quality of life". Under the banner Wageningen University & Research, Wageningen University and the specialised research institutes of the Wageningen Research Foundation have joined forces in contributing to finding solutions to important questions in the domain of healthy food and living environment. With its roughly 30 branches, 5,000 employees and 10,000 students, Wageningen University & Research is one of the leading organisations in its domain. The unique Wageningen approach lies in its integrated approach to issues and the collaboration between different disciplines.

