

# Good to Go Estimating the impact of a formal take-home service on restaurant food waste

Exodus Research Ltd and Techview Consultancy  
July 2014



## Contents

<b>Acknowledgements</b>	<b>4</b>
<b>Glossary</b>	<b>5</b>
<b>1 Executive summary</b>	<b>6</b>
1.1 Background to the pilot	6
1.2 Food waste diverted	6
1.3 Carbon savings	6
1.4 Costs	6
1.5 Perceptions of the take-home scheme	7
1.6 Additional benefits ( <i>changes to processes and menus in the restaurants</i> )	7
1.7 Potential benefits of a national scheme	7
<b>2 Overview of the pilot study</b>	<b>8</b>
2.1 Pilot results	8
2.2 The benefits of a national scheme	9
2.3 Situations when a take-home service may not be appropriate	10
2.4 Food for thought: the impact of the pilot	10
<b>3 Introduction</b>	<b>13</b>
3.1 Food waste in the hospitality sector	13
3.2 Approach taken for the pilot	13
3.3 Objectives of the pilot	14
3.4 Report layout	14
<b>4 Approach to the pilot</b>	<b>14</b>
4.1 Development of pilot materials	14
4.2 Recruitment of pilot restaurants	16
4.3 Training and briefing of restaurant staff	18
4.4 Types of pilot research activities undertaken	19
<b>5 Pilot Results – Estimating the impact on food waste</b>	<b>20</b>
5.1 Take-home container use	20
5.2 Weight of restaurant plate waste	24
5.3 Carbon impacts	29
5.4 Cost impacts	32
5.5 Implications for a national take-home service	39

<b>6</b>	<b>Pilot results - Restaurant feedback</b>	<b>40</b>
6.1	Obtaining restaurant feedback	40
6.2	Impact of a take-home service offering on normal business operations	40
6.3	Types of customers receptive to a take-home service	40
6.4	Menu management, portion control and business activities	41
6.5	Packing food up to take-home	41
6.6	Perceived take-up of the Good to Go service	43
6.7	Promoting the Good to Go service to customers	43
6.8	Perceptions of a national roll-out of the Good to Go service	45
6.9	Implications for a national take-home service	46
<b>7</b>	<b>Pilot results - Consumer feedback</b>	<b>51</b>
7.1	Obtaining consumer feedback	51
7.2	Experience of eating out in restaurants (pre-pilot research)	51
7.3	Perceptions of the Good to Go service	52
7.4	Perceptions of the Good to Go promotional activities	52
7.5	Implications for a national take-home service	66
<b>8</b>	<b>Lessons learned</b>	<b>68</b>
8.1	Lessons learned for any future pilot study	68
8.2	Lessons learned for any further roll-out of a take home service	69
	Table 4-1 Carbon impact and disposal routes for container options .....	15
	Table 4-2 Recruited restaurants .....	18
	Table 4-3 Profile of recruited restaurants .....	18
	Table 5-1 Restaurants participation and business as usual practice on take-home containers .....	21
	Table 5-2 Number of take-home containers issued during pilot .....	22
	Table 5-3 Weight of food distributed in take-home containers .....	23
	Table 5-4 Pre and post plate waste kg/wk.....	27
	Table 5-5 Pre and post plate waste (kg/cover) – combined restaurant data .....	28
	Table 5-6 Reduction in plate waste at restaurants due to food being taken home in containers .....	29
	Table 5-7 Assessment of carbon savings as a result of take-home container pilot.....	31
	Table 5-8 Sensitivity analysis: end destination food waste .....	31
	Table 5-9 Sensitivity analysis: end destination containers and paper bags .....	32
	Table 5-10 Container and material costs (excluding VAT) .....	33
	Table 5-11 Comparison of container and disposal costs (excluding VAT) .....	35
	Table 5-12 Avoided waste as a percentage of the food waste recycling bin.....	39
	Table 5-13 Estimated impact of national Good to Go scheme .....	39
	Table 6-1 Restaurants' views on implementing a national take-home service .....	48
	Table 7-1 Comments on the Good to Go service .....	62
	Table 7-2 Consumer views in relation to a national take-home service .....	66
	Figure 4-1 Image of Good to Go food box and carrier bag.....	15
	Figure 4-2 Image of Good to Go table topper card and staff poster.....	16

Figure 4-3 Different placements of the table topper cards.....	16
Figure 5-1 Containers issued by week .....	24
Figure 5-2 Pre and post plate waste (kg/wk) by restaurant.....	27
Figure 5-3 Reduction in plate waste at restaurants due to food being taken home in containers (average %).....	29
Figure 7-1 Understanding of the Good to Go service .....	52
Figure 7-2 Type of comment made on the table topper card.....	53
Figure 7-3 Type of further information needed (base 20) .....	54
Figure 7-4 Type of uneaten food left (base 115) .....	54
Figure 7-5 Was the Good to Go service discussed when food had been left at the end of the meal? (base 126) ..	55
Figure 7-6 Influence of promotions on customers requesting the Good to Go service.....	55
Figure 7-7 Reasons for not taking up the Good to Go service .....	58
Figure 7-8 Reasons for taking up the Good to Go service .....	58
Figure 7-9 Containers used to take food home other than the Good to Go box and sticker (base 9) .....	59
Figure 7-10 Perceptions of the Good to Go box and sticker.....	60
Figure 7-11 Perceptions of the Good to Go carrier bag.....	60
Figure 7-12 How food was consumed or thrown away.....	61
Figure 7-13 How the Good to Go box and carrier were disposed of .....	62
Figure 7-14 Likelihood of using a take-home service in future (base 197) .....	65
Figure 7-15 Requirements for a carrier bag to take food home (base 197).....	65
Figure 7-16 Perceptions of possible carrier bag levy (base 154) .....	66
Figure 7-1: Good to Go food box .....	84
Figure 7-2: Good to Go carrier bag.....	84

## Acknowledgements

Zero Waste Scotland and the project team would like to take this opportunity to express our gratitude to all of the restaurants that helped with the development of the Good to Go pilot approach. In particular, we thank the following restaurants for taking the time to participate in the pilot and research activities.

<b>Ad Lib</b>	33 Ingram Street, Glasgow G1 1HA
<b>Black Sheep Bistro</b>	10 Clarendon Street, Glasgow G20 7QD
<b>Café Gandolfi</b>	64 Albion Street Glasgow G1 1NY
<b>Charlie Rocks</b>	337 Byres Road, Glasgow G12 8UQ
<b>Epicures</b>	159 Hyndland Road, Glasgow G12 9HZ
<b>Mister Singh's India</b>	149 Elderslie St, Glasgow G3 7JR
<b>Mother India</b>	28 Westminster Terrace, Glasgow G3 7RU
<b>Mother India's Cafe</b>	1355 Argyle Street, Glasgow G3 8AD
<b>Nicks</b>	168 Hyndland Road, Glasgow G12 9HZ
<b>Nur</b>	22 Bridge Street, Glasgow G5 9HR
<b>Old Salty's</b>	1126 Argyle Street, Glasgow G3 8TD
<b>The Bridge Inn</b>	27 Baird Road, Ratho EH28 8RA
<b>The Carrick -</b>	112-114 High Street, Irvine KA12 8AH
<b>The Edinburgh Larder Bistro</b>	1a Alva Street, Edinburgh EH2 4PH
<b>The Tower</b>	31 Princes Square East Kilbride G74 1LJ
<b>Two Fat Ladies at the Buttery</b>	652-654 Argyle Street, Glasgow G3 8UF

---



# Inspiring change for Scotland's resource economy.

Find out more at [zerowastescotland.org.uk](https://zerowastescotland.org.uk)

## Glossary

**Carbon dioxide equivalent:** a measure used to compare the emissions from various greenhouse gases based upon their global warming potential. For example, the global warming potential for methane over 100 years is 21.

**Carbon Metric:** the Carbon Metric was designed by the Scottish Government and Zero Waste Scotland with support from SEPA, CoSLA and other stakeholders to measure the carbon impact of Scottish waste.

**Food waste:** Discarded food and drink that arises from catering activities. This includes food preparation wastes, food left on plates, disposal of unopened packaged items, food spoilt during preparation and discarded ingredients.

**Good to Go:** Branding used for pilot materials.

**Restaurant:** the participants in the pilot excluded hotels serving food and quick serve restaurants. The restaurants participating in the pilot were loosely categorised as follows:

- **British restaurant:** casual restaurants serving mainly British food
  - **Pub restaurant:** a drinking establishment also serving food
  - **International restaurant:** a restaurant serving food typical to other countries outside of the UK (e.g. Indian)
  - **Other restaurant:** any establishment not fitting under the other categories (e.g. fine dining).
-

## 1 Executive summary

### 1.1 Background to the pilot

Food waste is one of the issues being addressed by the Scottish Government and this study was implemented to identify opportunities to reduce restaurant plate waste through a formal take home (doggy bag) service.

11 restaurants located in Glasgow and Edinburgh took part in the 8-week pilot which commenced 31 March 2014 and a further five joined during the fourth week. The restaurants represented a range of cuisines including British, American, Indian, Italian, Egyptian, pub and fine dining. Some of these restaurants already offered a service whereby diners could take home any uneaten served food at the end of the meal, although this facility was not actively promoted and tended to be provided at the customer's request.

The main objective of the pilot was to identify whether the availability of a formal branded and promoted take-home container scheme would encourage diners to take uneaten food home and the circumstances of take-up. It also sought to measure the amount of waste that could be diverted from landfill by weighing restaurant plate waste pre- and post-trial and identifying the extent to which the food taken home was actually consumed.

### 1.2 Food waste diverted

Over the 8 week period of the pilot, 240kg of food was diverted from the participating restaurants and an estimated 92% of this food was consumed, with the rest being recycled or sent to landfill. 9 out of 10 restaurants saw a reduction in their plate waste between the period before the pilot and the end of the pilot. On average 24.3% of the estimated reduction in plate waste could be attributed to the food diverted in the containers. This is based on the weight of food estimated to have been taken home by customers, relative to the reduction in plate waste observed on the premises. The remainder of the reduction is assumed to come from changed levels of service, menu variation, portion management and/or staff behaviour change brought about by a heightened awareness of food waste (i.e. due to both involvement in the pilot implementation and the plate waste monitoring process).

Over 1,400 containers were given to customers by the restaurants, an average of 16 per restaurant per week. Compared to before the pilot, the majority of restaurants increased the customer uptake of take-home containers. In some cases this was only a small increase, but for around half of the restaurants, the increase was substantial.

The vast majority (98%) of the containers were used for food served, with 2% used for 'additional' food items that customers would not have ordered had the container option not been available. The food types most commonly taken were main meals and desserts.

### 1.3 Carbon savings

The pilot resulted in an overall carbon saving of 0.58 tonnes of carbon dioxide equivalent (t CO<sub>2</sub> eq) for the pilot period compared to the baseline situation. These carbon savings are equivalent to the carbon emissions from making 8,169 cups of tea or from ironing 23,200 shirts. The calculated saving includes the manufacturing and disposal impact of the containers and paper bags used during the pilot.

### 1.4 Costs

The cost per Good to Go container given out, including a paper bag and sticker was £0.36. The pilot demonstrated that this type of initiative is unlikely to reduce disposal costs for the majority of

---

restaurants participating; while food waste volumes on site decrease, this is generally too small to reduce the frequency of waste collections required (most waste uplifts are of 140l or 240l containers), which is the basis on which most establishments are charged for collections.

## 1.5 Perceptions of the take-home scheme

Both staff and consumers at the participating restaurants were overwhelmingly supportive of the formal take-home service and the materials used in the pilot. Restaurants found participating in the pilot a highly positive experience which had enhanced their operation in respect of staff morale and consumer outlook/loyalty. Staff and consumers were no longer embarrassed to offer or request that food is packed up and the promotional materials and verbal discussions regarding the service meant it became a 'normal' thing to do.

It was found that the service is not always appropriate; for example, when there is unsuitable food left (such as plate scrapings) or if the diner is not returning straight home after eating. However, it was unanimously agreed by both restaurants and customers that the service can only have a positive impact on dining behaviour and cultural perceptions of food waste.

Although there was some concern regarding the potential costs associated with a proactive, formal initiative, restaurants agreed that the benefits associated with goodwill and waste reduction could counteract these. That said, it was generally felt, particularly by the smaller businesses, that any national scheme should be subsidised or attract tax rebates/deductions and be supported by a government-funded campaign to help change consumer behaviour.

## 1.6 Additional benefits of the pilot

The pilot activities helped the participating restaurants to identify the types and amounts of served food that was being wasted, enabling them to change current practices to minimise this. Changes included reducing portion sizes of side dishes and not automatically serving garnishes with main meals unless required by the customer. The benefits of these changes are not counted into the pilot benefits reported here – they are an effect of the restaurants' increased awareness, rather than of the scheme itself. However, other restaurants following a similar path might be expected to benefit in a similar way.

A positive business side-effect of the pilot was the opportunity for the businesses to upsell; with customers purchasing additional food items, such as desserts, to take home to eat at another time. This also enabled consumers to order a range of dishes when they found it difficult to choose, in the knowledge that they would be able to take home any food left over at the end of the meal.

Although a separate activity to measure likely impacts of the Good to Go pilot and not an integral part of the take-home facility, the plate waste weighing exercise that was conducted pre- and post-pilot proved to be particularly enlightening for the restaurants, and at least two agreed that they would continue the exercise to further monitor their food waste.

## 1.7 Potential benefits of a national scheme

The results of the pilot estimated that each year 395 tonnes of Scottish restaurant plate waste could potentially be diverted from recycling or landfill. The carbon savings from diverting this food waste from landfill would be 1,374 t CO<sub>2</sub> (953 t CO<sub>2</sub> if diverting from the recycling stream). The availability of a national take-home service could encourage consumers to change behaviour and taking uneaten food home could become more socially-acceptable. Some of the pilot restaurants saw the Good to Go service as a professional and holistic customer offering and a catalyst for staff to pro-actively offer the service to customers.

---

Additional benefits to a further roll-out could include the opportunity for restaurants to upsell and to potentially improve customer goodwill/footfall.

## 2 Overview of the pilot study

Current culture and consumer behaviour mean that taking home uneaten food left at the end of a meal in a restaurant is seldom considered in the UK. This contrasts to consumer attitudes in other countries like the USA and Canada, where it is socially acceptable to ask for or to be offered a 'doggy bag'. For this to become 'normal' behaviour in Scotland there are barriers that must be overcome; not only for consumers but business attitudes need to change as well.

To assess the extent to which a formal take-home (or doggy bag) service would have an impact on consumer behaviour and the amount of uneaten food served in restaurants that would normally be thrown away, a pilot study was implemented for Zero Waste Scotland. The Good to Go pilot was conducted in 11 restaurants in Glasgow and Edinburgh (31 March to 25 May 2014); a further five restaurants took part in the pilot, but not for the full 8 weeks.

### 2.1 Pilot results

#### 2.1.1 *Take home container use by participating restaurants:*

- Over the 8-week period of the pilot over 1,400 containers were recorded as being given out across the participating restaurants, representing a diversion of over 240kg of food (excluding container weights) from disposal or recycling at the restaurants.
- On average 16 containers were issued per week per restaurant; this represented an increase for all the participating restaurants compared to their baseline situation (where a previous take-home service had been made available to customers).
- 98% of containers issued were used for food left on the plate, with the type of food taken home including all meal courses. The balance was used in 'upselling' when consumers took home additional food items such as desserts.
- The average amount of food taken home was 168g per container.
- An estimated 92% of food taken home in containers was consumed with the rest being recycled or sent to landfill.

#### 2.1.2 *Restaurant plate waste:*

- Results from the monitoring of plate waste weight in the participating restaurants before the pilot and at the end of the pilot indicate a reduction in food waste over the period of the pilot.
  - 9 out of 10 of the restaurants saw a reduction in their average plate waste; the average percentage reduction across all the restaurants was 41.8%.
  - The average plate waste per cover across all restaurants combined was 0.067 kg in the pre-pilot monitoring period. This average is similar to the 0.075 kg/cover found to be attributed to plate waste in WRAP's previous hospitality sector study ['Where food waste arises within the UK hospitality and food service sector: spoilage, preparation and plate waste', (WRAP, 2013)]. The average pre-pilot plate waste reduced to 0.024 kg/cover in the post-monitoring period.
  - The proportion of the reduction in plate waste that can potentially be attributed to food waste diversion in containers varied greatly, with an average of 24.3% and a median of 10.0% across the nine restaurants showing a reduction.
-



### 2.1.3 Carbon impacts:

- The carbon saving as a result of the pilot was 0.58 tonnes of carbon dioxide equivalent (t CO<sub>2</sub> eq), assuming the food waste diversion replaced food waste recycling, or 0.86 t CO<sub>2</sub> eq, assuming the food waste diversion avoided food waste being landfilled.
- These carbon savings are equivalent to the carbon emissions from making 8,169 cups of tea or from ironing 23,200 shirts if the food waste would have otherwise have been recycled.
- The scaled up carbon savings per tonne of food waste diverted in take-home containers would be 2.37 t CO<sub>2</sub> eq for diversion from recycling, or 3.48 t CO<sub>2</sub> eq for diversion from landfill, based on the results of the eight week trial.
- These figures include the carbon impact of the containers used.

### 2.1.4 Cost impacts:

- The cost per Good to Go container given out, including the paper bag and sticker, was £0.36.
- Taking into account container costs and disposal costs the net average cost per restaurant per week is estimated to be £5.54 or £288.30 per annum (if open 52 weeks).
- The net cost per tonne of food waste given out in the scheme (based on a mid-estimate of food waste uplift costs) is estimated to be in the region of £2,063.
- The popularity of the service (see part 2.4.1 for further detail) amongst both restaurant staff and consumers suggests that businesses may be prepared to accept the costs associated with running a formal take home service.

**The results of the pilot highlighted the following issues and opportunities for a possible national formal take-home service:**

## 2.2 The benefits of a national scheme

- It is estimated that each year, 395 tonnes of plate waste could be potentially diverted from landfill if all Scottish restaurants offered a service, and it was taken up on a similar scale to that seen in the pilot. This represents carbon savings (t CO<sub>2</sub> eq) of 1,374 (if waste is diverted from landfill) or 935 (if waste is diverted from recycling) and the diversion of c.2% (395 tonnes) of all avoidable restaurant and pub food waste.
  - Subject to there being a suitably strong campaign in place to support the initiative, the use of a take-home service could encourage consumers to change behaviour similar to that experienced by the national recycling and bags for life campaigns. Adoption of a nationally recognisable symbol (suitable for printing on menus and stickers on doors/windows) could be a key aspect of any promotional activity – it was suggested a public competition to create a design could be considered. Moreover, the promotional materials help to remove any embarrassment associated with taking food home and customers are more comfortable in asking for served, uneaten food to be packed.
  - Upselling is an added incentive to get restaurants on board and was proven by some of the smaller restaurants participating in the pilot, who successfully encouraged customers to purchase extra courses or meal options and take home what they couldn't eat.
  - There is a potential improvement in customer goodwill/footfall which reasonably may be expected to accrue with the availability of a take-home service protocol as “...*the Good to Go materials make it look like it is a normal thing to do.*” During the pilot, at least one restaurant further promoted its customer service with ‘Facebook’/ ‘Twitter’ exposure. Some restaurants saw the service as a formalised version of their unstructured doggy bag facility, and the professional and holistic offering is a catalyst for staff to offer the service to customers when they previously may have waited for the customer to request it.
-

## 2.3 Situations when a take-home service may not be appropriate

- *Amount of uneaten food left:* Clearly, a take-home service is only applicable when a customer has any uneaten food left after the meal. The Good to Go pilot shows that this is most likely to occur in establishments where portion sizes are large. Restaurants serving manageable or smaller portions and tapas-style menus are less likely to experience significant levels of served food waste.
- *Suitability of uneaten food left:* Although customers may not eat everything on their plate, it is not always the case that what remains is suitable for taking home. This is particularly the case for plates left by younger diners (messed up) or where only random ingredients or sauces remain (although one pilot restaurant did encourage customers to take such items home to use as ingredients for a new meal). Indications are that side food items such as vegetables and salads are more likely to be taken home if served (and left) in a separate dish than on the main plate.
- *Non-suitability of the service to the customer's sense of occasion:* Although the Good to Go concept was unanimously well thought of by customers, they will only take up the service if it is appropriate. For example, notwithstanding that there is uneaten food, they have deemed that these occasions may not be suitable to make use of a take-home service. i.e., Customers who are:
  - going out for the evening (Show, theatre or other function)
  - attending the restaurant for business or formal networking
  - celebratory reasons and/or a 'fine dining' experience
- *Non-suitability to a restaurant's normal activities:* There are some types of or foods offered by restaurants that do not readily avail themselves to offering a formal take-home service and these are likely to include the following:
  - Where food is pre-cooked and therefore not suitable for reheating for a third time; although this may not apply to all items on the menu, restaurants may be reluctant to tell their customers why they can't take certain foods home.
  - High end restaurants whose customers tend to waste little (the sense of occasion means they tend to ensure they are hungry and portions are not normally generous). Furthermore, the idea of taking food home is unlikely to align with the more formal dining experience offered by these restaurants.
  - Fast food and low-end restaurants were excluded from the pilot study as these normally have their own (branded) schemes in place and realistically they are unlikely to participate in a national initiative.

## 2.4 Food for thought: the impact of the pilot

### 2.4.1 Staff and customer 'buy-in'

Restaurant staff are a key factor in the success of any national take-home service, and it is critical that they are comfortable in offering the facility to their diners. During the pilot, it was evident that some staff were very reluctant to approach customers to ask if they wanted to take food home and managerial leadership and training were required to overcome this. Where the owners and managers encouraged the Good to Go pilot activities, it was apparent that the staff embraced it as well. Indeed, on completion of the 8-week pilot, 13 restaurants confirmed that they would continue to promote the service, using the branded Good to Go materials (and alternatively sourced containers when these were no longer available).

Within the UK, it has sometimes been viewed as unusual to ask for food to be packed up to take home – not only should one eat up everything on one's plate, but there may also be perceived to be shame

---

in being seen walking out of a restaurant with a doggy bag in hand. However, the Good to Go pilot showed that consumers were 'empowered' by the promotional materials, with more than a third (36%) of responding diners who had uneaten food left on their plate requesting that it be packed up without prompting from the restaurant staff. Few consumers did not endorse the concept of a take-home service with the majority agreeing that it is a valuable service. This could be seen to indicate that any potential embarrassment at asking for or accepting an offer for uneaten food to be packed will diminish as diners become more motivated through appropriate promotion and shifts in culture.

By association, a potential knock on effect of a national take-home service is that it may encourage consumers to waste less food at home. For example, if a diner is encouraged to take home leftover sauce or vegetables to make a new meal tomorrow, that diner may be inspired to use leftovers at home in the same way rather than immediately disposing of them. Any effect of this nature would need further investigation.

Not providing a doggy bag service is not necessarily going to dissuade consumers from using a restaurant but it may become a good reason for selecting one. Today's consumers buy in to perceived 'green' practices- they want to have confidence in the food chain / providence and environment issues are becoming increasingly important.

#### 2.4.2 *Take-home containers*

Many of the pilot restaurants already had an informal take-home service in place, and these generally used foil or cling film wrappings or purpose made containers. The style and branding of the Good to Go containers was most welcomed by staff as an improvement on their existing containers. Due to budgetary constraints it was not possible to offer a range of size options, however, the cardboard box was shown to be appropriate for most occasions; indeed, the research feedback showed that both customers and restaurant staff liked both the size and style of cardboard container used during the pilot. Although there were some initial concerns regarding potential leakage, these were unfounded. The research also indicated that any take home container(s) endorsed in a national scheme should be recyclable or compostable and end-users should be encouraged not to dispose of the materials in the residual waste bin.

Two initiatives that have been adopted overseas were highlighted in the pilot research; in Canada it was said to be normal practice for diners to take their own Tupperware box or similar to a restaurant, whilst in America, they make use of a 'baggy', a re-useable food bag that can be placed directly into the fridge or freezer.

The sticker to seal the box that was used in the Good to Go pilot was also well received and was said to contain appropriate and clear information for the consumer regarding storage and reheating. The sticker could be enhanced by allowing a space for restaurant staff to write in any other information specific to the food being packed (for example it should not be stored in the fridge or must be consumed within 24 hours).

The consumer research confirmed that carrier bags should be made available, particularly if the food box does not contain integral handles or if there are multiple boxes to be taken away. Again, to further support the 'green credentials' of the initiative to minimise food waste, the bag should be compostable. Views are split on whether the bag should be branded – some of the view that it should carry the livery of the incentive, others feeling that a plain carrier would minimise any embarrassment at being seen taking food home (although this is subject to any shift in culture).

Overall, there is acceptance of a possible bag levy in the context of the Good to Go service, with consumers generally agreeing that the concept is a positive way in encouraging people to waste less,

particularly if consumers realise that they can make alternative choices – either take the food box as it is or bring their own re-useable bag.

### *2.4.3 Promotional support*

It was unanimously agreed that the success of a take-home service is dependent upon the promotional support in place; both within the restaurant setting and in the public arena. This is necessary to change the behaviour of both restaurant and staff to ensure that both are comfortable in asking for and accepting an offer to have uneaten food packed up to take home. The development of branding and icons to encourage consumers to recycle and to use bags for life has proven successful and (subject to any over-claiming) consumers generally don't think twice about these positive behaviours.

Endorsements by celebrities or suitable role models can have a significant impact on consumer behaviour. It is reported that, during a visit to a restaurant in Rome during the G8 summit, the American First Lady Michelle Obama asked waiters to wrap up portions of the meal left over. Similarly, the take up of take-home food boxes in Sweden significantly increased following a widespread public awareness campaign in 2011, in which a member of Sweden's successful hip hop music group, The Latin Kings, participated. In the promotional film, the singer overhears a couple rowing about something which the man finds embarrassing; he assumes they are quarrelling because the woman wants to ask for his autograph – when in fact she's after a doggy bag.

### *2.4.4 Proving the need*

The Good to Go pilot incorporated a plate waste weighing exercise in which all uneaten food from served plates and dishes was separated and weighed over a two week period before and at the end of the pilot. Normally plate waste is mixed with prep waste prior to disposal and so the detail is not necessarily seen. This weighing activity highlighted to the restaurant owners/managers exactly what was coming back to the kitchen as uneaten food waste. Although participating restaurants were asked not to alter their behaviour during the pilot duration, a number confirmed that they would definitely evaluate their portion sizes and plate composition (for example, one restaurant is going to stop serving cucumber on a certain starter as it always came back uneaten) on conclusion of the pilot using the evidence gleaned from the exercise.

It was suggested that restaurants throughout Scotland should be encouraged to undertake a similar exercise and use a plate waste diary to record the information that could lead to better practice and cost savings from food purchase and disposal costs.

### *2.4.5 Cost of take-home containers*

Although many of the pilot restaurants already had an informal take-home service in place, this tended to be provided at the customer's request rather than proactively offered. Participating in a national initiative will inevitably mean that the cost of formally providing the service will impact the restaurant's costs, and none of the pilot restaurants felt it appropriate to separately charge their diners for the facility. It was suggested that either the containers should be available at a subsidised cost or financial help provided through a tax allowance.

### *2.4.6 Food safety issues*

The 'risk culture' society is an issue that restaurants are very aware of and one restaurant in particular had concerns which delayed their participation, until the manager had assurance from their Head Office. Any national initiative must consider concerns regarding food safety and responsibility for it.

---

Most participating restaurants believed that it is the consumer who must ensure that food is properly stored and reheated. Once a restaurant has served the food to a customer, it is relieved of responsibility for it, although the customer should be provided with guidelines to follow. However, it was suggested by some restaurants that a disclaimer should be available to protect the restaurant once the food has left its premises.

The issue of food safety could be further addressed by developing simple ABC guide to taking home one's food and/or websites that provide clear information for the storage and reheating of different food types.

### 3 Introduction

#### 3.1 Food waste in the hospitality sector

Over 53,000 tonnes of food is thrown away in restaurants in Scotland each year, which is the equivalent of one in six meals<sup>1</sup>. This is not only a waste of money for business (and potentially diners); it is also a waste of good food – with all the unnecessary environmental impacts this implies, including the impact of disposal and the energy, materials, water and associated carbon dioxide used to grow, harvest, process and transport it. Not all of this results from plate waste of course. Research by WRAP<sup>1</sup> showed that three quarters of diners would like to see doggy bags offered in restaurants, but around half admitted to being too embarrassed to ask for them.

To investigate opportunities to address these issues, Zero Waste Scotland commissioned an 8-week pilot on the use of take-home food containers ('doggy bags') in Scottish restaurants in Glasgow and Edinburgh – chosen as both cities have many restaurants, whilst their proximity made the management of the pilot more feasible. The pilot took place between 31 March to 25 May 2014, whilst the accompanying research fieldwork activities were undertaken between 17 March and 16 June 2014.

#### 3.2 Approach taken for the pilot

The pilot consisted of three core phases of work which are further explored in following chapters and summarised below:

- Participating restaurants: this activity involved the identification, shortlisting and recruitment of at least 10 restaurants in Glasgow and Edinburgh which represented a range of cuisines and dining styles.
- Branding and materials: the pilot used the new Good to Go brand to promote the availability of take-home containers, in a bid to make taking leftovers home more socially acceptable. Materials included the containers for the food items to be taken home and resources to promote the scheme to both staff and customers.
- Research: feedback from restaurant staff was obtained to evaluate the impact of the take-home service on reducing plate waste and on normal restaurant activities. This comprised of plate waste weight monitoring, Good to Go container weight measuring and staff interviews. Consumers' views were also sought regarding the extent to which the materials encouraged people to waste less food. We also asked to what extent food taken home was consumed or disposed (either by recycling or landfill), as it is only if the food is consumed that environmental benefits from the service would be realised.

---

<sup>1</sup> <http://www.wrap.org.uk/sites/files/wrap/OOH%20Report.pdf>  
and Scottish specific findings: [http://www.wrap.org.uk/sites/files/wrap/Appendix%20-%20Scotland\\_1.pdf](http://www.wrap.org.uk/sites/files/wrap/Appendix%20-%20Scotland_1.pdf)

### 3.3 Objectives of the pilot

The pilot objective was to establish if the availability of a national formal take-home service would reduce food waste and associated carbon emissions. The pilot was also designed to provide information in the following areas:

- Barriers or practical considerations affecting restaurants offering doggy bags;
- The effectiveness of a range of support materials and training in promoting doggy bags within different restaurant environments;
- The extent to which doggy bags are taken up by customers, and the impact this has on plated food waste arising in the restaurant; and
- An understanding of the extent to which food taken away actually represents food waste avoided (rather than displacement into the household waste stream).

### 3.4 Report layout

This report provides information on the approach to and implementation of the pilot and the impact on consumer perceptions, restaurant activities and the amount of waste from served food arising. The content of subsequent chapters is as follows:

- Chapter 4: Provides an overview of the approach taken, including the development of the pilot materials, the recruitment and training of staff and the research activities undertaken.
- Chapter 5: The results of the weight of food taken home and potentially diverted from landfill. Carbon offsets, cost implications and the impact of a national roll-out of a take-home service are also considered.
- Chapter 6: Feedback from the restaurants on their experience of offering a take-away service and implications for restaurants if the scheme were available nationwide.
- Chapter 7: Feedback from consumers on their perceptions of the take-away service and the implications for a national take-home service.
- Chapter 8: Lessons learned from the pilot study and issues that should be considered for any similar projects in the future.

All data is rounded to the nearest 1%, unless otherwise indicated and as such, rounding errors may occur. There are also Appendices which provide more detail on the methodology defining the pilot and research documentation at the end of this document.

## 4 Approach to the pilot

### 4.1 Development of pilot materials

Two brand original concepts were developed by the marketing specialists Corporate Culture using the straplines 'Good to Go' and 'Goody Bag' and these were tested and discussed with both shortlisted restaurants and members of the public. The results of this consultation<sup>2</sup> led to the development of the following container materials (**Figure 4-1**) using the Good to Go branding:

- Cardboard food box.
- Adhesive label to seal the box and to provide information on storage and reheating.
- Paper carrier bag.

---

<sup>2</sup> Research results are reported in a separate document submitted to Zero Waste Scotland in February 2014

---

Consideration was given to the type of containers that should be made available to participating restaurants for the pilot duration. The carbon impact and disposal options for a variety of container types were explored based on the locations of the participating restaurants (see **Table 4-1**). The waxed cardboard 'hot food box' was chosen due to the restaurants' requirements for the container to be leak proof and available in sizes suitable for most food types. Due to minimum order requirements it was only possible to supply restaurants with one size of box (170x155x65mm, volume 1400ml).

**Figure 4-1 Image of Good to Go food box and carrier bag**



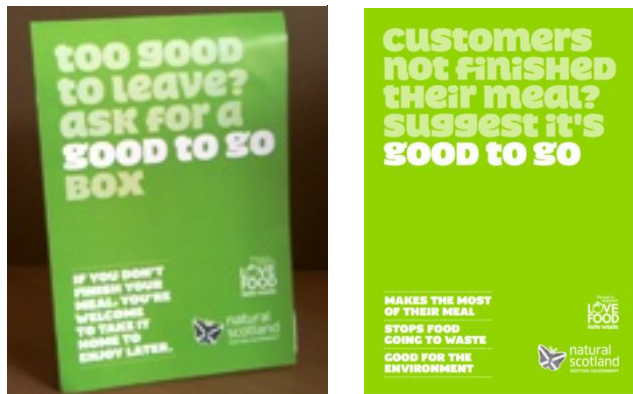
**Table 4-1 Carbon impact and disposal routes for container options**

Container attribute	Container type			
	Cardboard 'hot food box'	Sugarcane box / bagasse	Rigid plastic	Foil
Home compostable	Yes	Yes	No	No
Accepted in Edinburgh City Council householder brown bin (garden waste)	No	No	No	No
Accepted in Glasgow City Council householder brown bin (garden waste)	No	No	No	No
Accepted in Edinburgh City Council householder recycling	If clean & not contaminated with grease	If clean & not contaminated with grease	No	Yes if clean
Accepted in Glasgow City Council householder recycling	Possibly - if clean & not contaminated with grease	Possibly - if clean & not contaminated with grease	No	No
Accepted in Edinburgh City Council householder food waste collection	Not specifically excluded but not on list of accepted items	Not specifically excluded but not on list of accepted items	No	No
Accepted in Glasgow City Council householder food waste collection	No	No	No	No
Carbon (kg CO <sub>2</sub> eq per tonne landfilled) (manufacture and disposal) <sup>1</sup>	1568	1568	3224	10553
Carbon (kg CO <sub>2</sub> eq per tonne recycled) (manufacture and disposal) <sup>1</sup>	684	684	2640	1831

<sup>1</sup> Carbon factors are from Zero Waste Scotland's Carbon Metric and were correct in February 2014. Updated carbon factors were used for the carbon analysis presented in Section 5.3.

To promote the availability of the take-home service to customers visiting the pilot restaurants, table topper cards were produced. Posters were also designed to act as prompts to restaurant staff to remember to offer the new service to their diners. **Figure 4-2** show images for the table topper card and staff poster used in the pilot.

**Figure 4-2 Image of Good to Go table topper card and staff poster**



All except one of the participating restaurants used the table topper cards to promote the formal take-home service to customers. **Figure 4-3** shows restaurants placed these cards on dining tables, bar areas and counters, and in menu folders. Due to the limited number of posters available (due to budgetary constraints), some restaurants additionally used them as posters on walls and doors.

**Figure 4-3 Different placements of the table topper cards**



Further detail on the development of the pilot materials can be found at Appendix B.

## 4.2 Recruitment of pilot restaurants

The pilot required the recruitment of 10 restaurants in Edinburgh and Glasgow covering a variety of restaurant types. A database of contacts was created with restaurants categorised in the following ways:

- Restaurant style (as per the WRAP report 2013a):



*Basic dining:* these restaurants do not provide a table service. The vast majority of food is pre-prepared with minimal preparation on-site.

*Casual dining:* these restaurants provide a table service and serve moderately priced food. Food preparation is both on and off site.

*Fine dining:* these are full service restaurants. Food preparation is mainly on-site.

- Restaurant cuisine: Pub; British; international; and other (fine dining and specialist e.g. cake).
- Ownership: independent; independent chain; and national chain.

Sources of contacts were the Glasgow Restaurant Association, Zero Waste Scotland and online directories. The initial recruitment phase was conducted in December 2013 and early January 2014. During the initial recruitment phase certain exclusions were put in place based on the applicability of the establishment to a take-home container scheme:

- Quick serve: falling under 'basic dining', restaurants with quick serve were excluded because food is frequently served in packaging that already enables customers to take food away if wanted.
- Hotels: as these establishments primarily provide dining for guests, it was determined that the take-home container service was not a good fit, when the food safety information required fridge storage and reheating.
- Restaurants with both an established and branded takeaway container system: restaurants with a branded takeaway service which can be extended to fulfil take-home requirements were excluded as it was felt that the results from the pilot would not reflect the full potential of a take-home scheme. It should be noted however that many restaurants offer an informal take-home service for leftover food and these were not excluded.

Over 250 restaurants located in and around Edinburgh and Glasgow were contacted directly, or via their parent organisation, to determine interest in participating in the pilot. Restaurants were contacted initially by telephone; and those indicating an interest were sent a follow up email giving further details of the pilot and asked to confirm their willingness to continue in the recruitment process. At this stage it was made clear to restaurants that registering interest did not obligate them to take part in the full pilot. Out of the restaurants contacted, 30 expressed an interest in the recruitment process.

After completion of the initial branding and communication message testing, 11 preferred restaurants for participation were agreed based on level of engagement and likely level of food waste generation (size of restaurant, number of covers per day and self-reported levels of food waste). The restaurants were also selected to provide a good spread in terms of restaurant style, cuisine and ownership.

**Table 4-2** summarises the restaurants by category and status in the pilot. Reserve restaurants were identified in case of drop-outs. Following the initial concept/brand testing stage, some restaurants expressed that they did not want to take any further part in the pilot.

During weeks 4 and 5 of the pilot, five additional restaurants were added to the pilot: one of these asked to participate as a result of press coverage, the remaining four were identified to expand the research sample of restaurant customers providing feedback. These 'second wave' participants received the same briefing as the first wave of recruits. These sites were selected over the reserve participants as they added greater depth in terms of size and style of restaurant.

**Table 4-2 Recruited restaurants**

Status in pilot	International	British	Pub	Other	Total
First wave participant	5	3	2	1	11
Reserve participant	7	2	2	2	13
No further involvement	1	3	2	1	7
Second wave participant	1	3	1	0	5

The profiles of the recruited restaurants are shown in

**Table 4-3.** Restaurant B was not able to start the pilot until week 5 due to initial internal concerns over health and safety. The second wave participants joined for the last 1.75 weeks of the pilot.

**Table 4-3 Profile of recruited restaurants**

Restaurant ID	Restaurant type	Location	Covers per week	Scale of operation	Weeks in pilot
A	Pub	Edinburgh	1,200	Independent	1.75
B	Pub	Irvine	1,250	National chain	4
C	Pub	East Kilbride	900	National chain	8
D	British	Glasgow	200	Independent	8
E	British	Glasgow	1,050	Local chain	8
F	British	Edinburgh	300	Local chain	8
G	British	Glasgow	800	Local chain	1.75
H	British	Glasgow	700	Local chain	1.75
I	International - American	Glasgow	930	Local chain	8
J	International - American	Glasgow	2,100	Local chain	1.75
K	International - Indian	Glasgow	800	Local chain	8
L	International - Indian	Glasgow	1,000	Local chain	8
M	International - Indian	Glasgow	1,500	Local chain	8
N	International - Italian	Glasgow	2,100	Local chain	1.75
O	International – Egyptian	Glasgow	170	Independent	8
P	Other - Fine dining	Glasgow	450	Independent	8

### 4.3 Training and briefing of restaurant staff

The participation of the selected restaurants was formalised through a letter from the Zero Waste Scotland project manager setting out clearly what was expected of each restaurant during the pilot and what support the project team and Zero Waste Scotland would provide in return. Subsequent to each restaurant confirming their willingness to participate, a site-visit was organised and a briefing document (see Appendix B) and presentation prepared. Restaurants were encouraged to ensure that as many front and back of house staff were present for the site-visit briefing as possible. The time of

the site-visit was agreed in discussion with the restaurant and was timed to take place outside of the main service periods.

The containers and support materials were delivered at the time of the site-visit. The site-visit took between 30 minutes and an hour depending on staff availability and covered:

- An explanation of Zero Waste Scotland, the problem with hospitality sector food waste and the objectives of the pilot.
- The final container, other materials (paper bag, table topper, staff poster) and how each should be used.
- Food health and safety advice.
- Details of the research requirements and research materials.
- Details of the timeline of the pilot.
- Details of what each member of staff was required to do during the pilot.
- FAQs.
- Project team contacts.

There was an option for restaurants to pull out at this stage if they were uncomfortable with the final pilot proposals. All restaurants had access to support through-out the duration of the pilot to ensure they had adequate containers and support materials and to help resolve any issues arising.

Throughout the project, participating restaurants were contacted at least on a weekly basis and could contact the research team at any time.

## 4.4 Types of pilot research activities undertaken

There were four key areas of research that accompanied the pilot, which were designed to evaluate the impact of the Good to Go service; these are explained below.

### 4.4.1 *Weight of plate waste*

In order to help understand the extent to which the take-home service reduced the amount of served but uneaten food going to waste, measurements of food waste (post preparation and plate scrapings) were separated and weighed (see Appendix C for a copy of the record form used). The measurements took place within the participating restaurants two weeks before the pilot commencement and again during the weeks 7 and 8 of the pilot.

### 4.4.2 *Number and weight of Good to Go containers*

It was considered desirable to capture information on the number, individual weights and composition of packed Good to Go food boxes handed out during the pilot. However, due to it being an unrealistic burden on the pilot sites' staff to record the weight for every individual container, particularly during busy periods, restaurant staff were asked to provide information where they could and forms were provided for completion (please see Appendix D).

### 4.4.3 *Restaurant staff feedback*

Interviews were held with different levels of restaurant staff to understand the impact of the pilot activities on normal restaurant activities and to identify which aspects of the scheme worked well and those that would need to be modified in the event of a national roll-out. The research took place at the beginning (21 April to 25 April 2014) and end (12 May to 21 May 2014) of the pilot, comprising interviews on an individual or group basis, depending on the requirements of the restaurant.

---

This formal research was supplemented with anecdotal feedback gathered during the regular telephone and email contact that researchers had with the restaurant management during the pilot duration.

#### 4.4.4 *Customer feedback*

In order to assess the extent to which the take-home service was embraced by consumers a programme of research was designed to obtain feedback from visitors to the participating restaurants, regardless of whether or not they had taken up the offer. A questionnaire (see Appendix E) was designed to obtain consumers' reaction to the scheme and their views of the promotional materials. Those that had taken uneaten food home were also asked to provide information on the end-disposal route of the food and containers.

Originally it was anticipated that researchers would interview consumers on-site; however, this was considered to be potentially detrimental to the dining experience. To overcome this, alternative methods of consumer participation were developed to maximise the rate of participation without a physical presence of a research team on site; these comprised:

- Online survey: The questionnaire was set up as an online document that consumers could access at any time throughout the project duration. To promote the survey, small cards were provided to each restaurant to hand to customers; either by placing on tables, in menus or bill folders or to put into each Good to Go carrier bag handed out. The cards gave details of the online survey address and the Freephone support line for further information.
- Postal survey: A hard copy version of the questionnaire with a freepost envelope for its return was provided for restaurant staff to hand out to diners visiting their restaurant throughout the pilot duration.
- Telephone interview: Restaurant staff were provided with a supply of printed record cards on which customers could leave their contact details (name and email and/or telephone number). Completed cards were forwarded by the restaurant staff to the research team to follow up.

A total of 201 diners in the participating restaurants participated in the survey.

## **5 Pilot Results – Estimating the impact on food waste**

### **5.1 Take-home container use**

- Over the 8-week period of the pilot over 1,400 containers were recorded as being given out across the participating restaurants representing diversion of over 240kg of food from disposal or recycling at the restaurants.
- On average 16 containers were issued per week per restaurant; this represented an increase for the majority of participating restaurants compared to their baseline situation.
- 98% of containers issued were used for food left on the plate with the type of food taken home including all meal courses.
- The average amount of food taken home was 168g per container.
- 92% of food taken home in containers was consumed with the rest being recycled or sent to landfill.

Participating restaurants were provided with sheets to record each time a container was given out to a customer. They were also provided with scales to weigh the container including food where this was possible. The monitoring sheet provided also asked for information about the type of food taken and any other comments.

---

The quality of the data recorded by the restaurants was variable and most restaurants struggled to record container weight during busy service periods. Only two of the restaurants were able to record full information, on both the number of containers issued and their weight, for the full period they participated in the pilot. The analysis has taken account of the variability in data and is highlighted in the discussion where applicable.

Information on usual practice in relation to customers taking home food was established for all the participant restaurants and is summarised in **Table 5-1**. Many of the restaurants offered an informal take-home service for leftover food prior to the pilot; however, these services were provided on direct requests from customers, they were not promoted by staff and were little used.

**Table 5-1** Restaurants participation and business as usual practice on take-home containers

ID	Estimated no. of 'doggy bags' / wk	Take-home container activity prior to pilot
A	0	None
B	2	Informal
C	<5	Informal. Polystyrene burger box.
D	12-18	Foil or microwave take-away container.
E	2	Informal. Blank cardboard container with branded paper bag.
F	2	Informal. Vegware containers used for take-away cake.
G	1-5	Informal. Brown paper takeaway bag.
H	1-5	Informal. Cardboard takeaway boxes.
I	1	Informal. Polystyrene burger box.
J	1-5	Informal. Foil.
K	2	Informal. Microwave take-away container.
L	2	Informal. Microwave take-away container and foil.
M	2	Informal. Microwave take-away container and foil.
N	1-5	Informal. Plastic microwaveable containers.
O	3-4 <sup>1</sup>	Informal. Silver foil containers.
P	2	Informal

<sup>1</sup> These containers are understood to contain more leftovers than those issued during the pilot as all customers were invited to use the Good to Go scheme whereas only those with lots of leftovers were asked prior to the pilot.

**Table 5-2** below summarises the number of take-home containers issued by participant restaurants. In total 1,408 containers were recorded as being given to customers over the pilot; adjusted, where possible, for non-data returns it is estimated that the number of containers issued was higher at 1,434. There is some indication that not all restaurants recorded all of the 'additional' food items given in containers so this total may be underestimated.

The average number of containers given out per week per restaurant was 16. Uptake of containers was generally low in proportion to the total number of covers, ranging from 2 to 26 containers issued per 1,000 covers; the exception was two of the international restaurants that gave out over 50 containers per 1,000 covers.

Compared to the baseline, the majority of pilot restaurants increased the uptake of take-home containers over the period of the pilot. In some cases this was only a small increase but for around half of the restaurants the increase was substantial.

**Table 5-2 Number of take-home containers issued during pilot**

ID	Type	Average no. covers / wk	Wks in pilot	Total containers (recorded)	Total containers (adjusted for missing data)	Containers / wk (based on adjusted totals)	Containers/ 1000 covers
A	Pub	1,200	1.75	5	5	2.9	2.4
B	Pub	1,250	4	17	17	4.3	3.4
C	Pub	900	8	10	16	2.0	3.6
D	British	200	8	58	78	9.8	65.0
E	British	1,050	8	37	37	4.6	4.4
F	British	300	8	50	50	6.3	20.8
G	British	800	1.75	36	36	20.6	25.7
H	British	700	1.75	68	68	38.9	55.5
I	International	930	8	11	11	1.4	1.5
J	International	2,100	1.75	26	26	14.9	7.1
K	International	800	8	150	150	18.8	23.4
L	International	1,000	8	572	572	57.2	57.2
M	International	2,100	1.75	28	28	16.0	7.6
N	International	170	8	283	283	35.4	208.1

ID	Type	Average no. covers / wk	Wks in pilot	Total containers (recorded)	Total containers (adjusted for missing data)	Containers / wk (based on adjusted totals)	Containers/ 1000 covers
O	Other	450	8	57	57	7.1	15.8
<b>Total (average)</b>		-	-	<b>1,408</b>	<b>1,434</b>	<b>(16)</b>	<b>(33.4)</b>

98% of the containers issued were for food left on the plate or otherwise served; only 2% of the containers were for 'additional' food items that the restaurant assessed customers would not have ordered had the take-home container option not been available. There is circumstantial evidence that not all the restaurants fully recorded when a container was used for this purpose, so the potential impact on upselling could be understated. It is estimated that the 2% of containers used for 'additional' food also represented 2% of the weight of food waste.

In the majority of cases (87%) restaurants did not note the type of food taken in the containers. Where specified 34% of containers were used for a main course item and 24% dessert items; the remainder included a mix of food types including breakfast items, starters and petit fours given at the end of a meal.

Out of the participating restaurants, nine recorded the weights of the take-home containers and 71% of all containers recorded overall were associated with weight data; summary data is given in **Table 5-3** for both 'served' and 'additional' food and by food type. Notably the average weight for 'dessert' and 'other' was considerably lower than for all other categories at 92g and 101g respectively; the average weight for all others being over 160g. The sample size where the food type was specified was small.

**Table 5-3 Weight of food distributed in take-home containers**

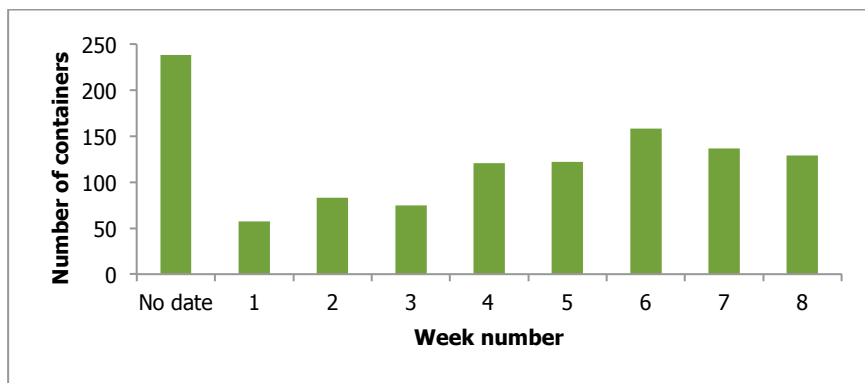
Type	ID	Average weight food/container (g)							Kg / wk
		All	Served food	Additional food	Main course	Dessert course	Other course	Unknown	
Pub	B	92	104	70	96	70	no data	184	0.39
Pub	C	316	316	no data	no data	no data	no data	316	0.63
British	D	252	242	318	302	239	no data	220	2.39
British	E	186	231	106	257	75	91	no data	0.84
British	F	107	107	no data	131	89	111	102	0.27
International	I	116	94	268	125	50	no data	no data	0.12
International	L	203	203	no data	no data	no data	no data	203	11.63
International	O	137	137	no data	no data	28	no data	138	4.86
Other - Fine dining	P	102	102	no data	no data	no data	102	no data	0.03

Type	ID	Average weight food/container (g)						Kg / wk	
		All	Served food	Additional food	Main course	Dessert course	Other course		Unknown
Restaurant average		168	171	190	182	92	101	194	2.35

*NB: Figures are based on containers where weight data was recorded.*

Figure 5-1 shows that the total number of containers issued per week did increase as the pilot progressed; however, it should be noted that only two of the restaurants gave details of the containers issued by date for the full eight weeks and 21% of the containers were issued with no date recorded. Due to the likely and unquantifiable fluctuations in customer numbers over the trial, it is difficult to conclude any overall trend.

**Figure 5-1 Containers issued by week**



## 5.2 Weight of restaurant plate waste

- Results from the monitoring of plate waste weight in the participating restaurants before the pilot and at the end of the pilot indicate a reduction in food waste over the period of the pilot.
- 9 out of 10 of the restaurants saw a reduction in their average plate waste; the average percentage reduction across all the restaurants was 41.8%.
- The average plate waste per cover across all restaurants combined was 0.067 kg in the pre-pilot monitoring period. This average is similar to the 0.075 kg/cover found to be attributed to plate waste in WRAP's previous hospitality sector study. The average pre-pilot plate waste reduced to 0.024 kg/cover in the post-monitoring period.
- The proportion of the reduction in plate waste that can potentially be attributed to food waste diversion in containers varied greatly, with an average of 24.3% and a median of 10.0% across the nine restaurants showing a reduction. This is based on the weight of food estimated to have been taken home by customers, relative to the reduction in plate waste observed on the premises. The remainder of the reduction is assumed to come from changed levels of service, menu variation, portion management and/or staff behaviour change brought about by a heightened awareness of food waste (i.e. due to involvement in the implementation of the pilot activities and the plate waste monitoring process).

Food plate waste was recorded by restaurants for two weeks prior to the pilot starting and then again for the last two weeks of the pilot (weeks 7 and 8) to provide a snapshot of the impact of the take-home container pilot. Restaurants were asked to keep all plate waste separate from other food waste



generated in the restaurant; they were provided with scales and recording sheets to note down the amount of food plate waste arising per day.

Analysis of the results includes data provided by 10 restaurants; the five restaurants that started during week 8 of the pilot were not asked to record data and one restaurant was not able to provide plate waste data for the second period of monitoring. The data provided was not consistent, with three restaurants providing plate waste data for weeks other than those requested and one did not provide data for every day open during weeks 7 and 8.

**Figure 5-2** and

**Table 5-4** give summary figures on the average plate waste over the two periods of monitoring and the change. The results show that 9 out of 10 of the restaurants saw a reduction in their average plate waste between the pre monitoring period and the post monitoring period. The percentage reduction ranged from 18-92%.

The results in terms of kilograms per cover are shown in

---

**Table 5-5.** During the pre-monitoring period the average per cover for all the restaurants was very similar to the UK average for an earlier study by WRAP. The average per cover in the current study was slightly higher when including only those restaurants with complete datasets. By restaurant style, pubs appear to have the highest average, but it should be noted the sample group is too small from which to generalise. During the post-monitoring period average plate waste per cover had fallen below the UK average across all restaurants and all restaurant types.

The results indicate that the take-home container pilot may be having a positive influence in terms of reducing plate waste in the majority of the participating restaurants. It should be noted that there are a number of variables which will influence plate waste in addition to use of take-home containers, including number of covers and type of food served, and it is not possible to identify the impact of each of these on the plate waste. For instance, Restaurant F commented that the food they were serving later in the pilot was lighter due to seasonal menu changes *“food is lighter e.g. salads and fish, not so much meat, which is heavier”*.

Restaurant P, the only restaurant that saw an increase in their plate waste, commented that the number of covers in the post monitoring period was higher *“A busier two weeks than the pre pilot weeks and this waste would be more indicative of the restaurant”*.

---

Figure 5-2 Pre and post plate waste (kg/wk) by restaurant

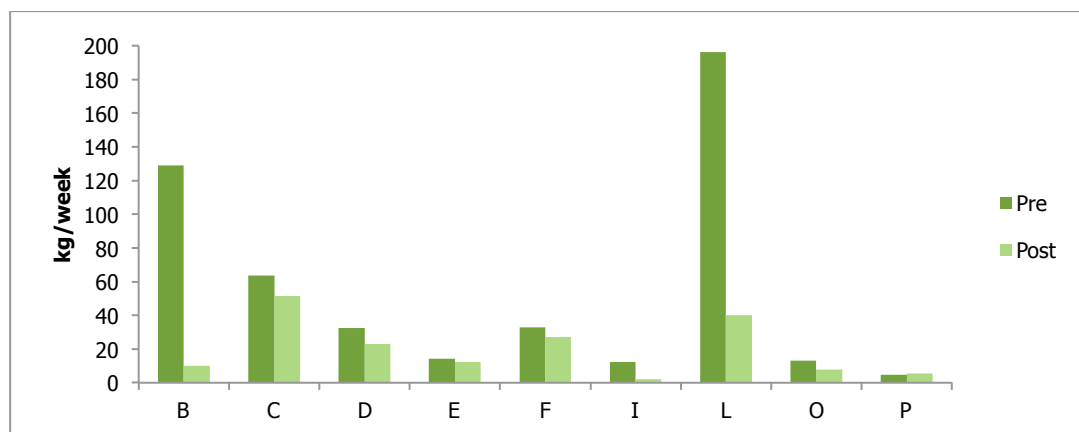


Table 5-4 Pre and post plate waste kg/wk

ID	Type	Average plate waste (kg/wk)		% change on average	Pre-post (kg/wk)
		Pre (2 wks prior to pilot)	Post (wks 7&8 of pilot)		
B	Pub	129.0	10.1	-92%	119.0
C	Pub	63.7	51.6	-19%	12.0
D	British	32.5	22.8	-30%	9.6
E	British	14.3	12.3	-14%	2.0
F	British	33.0	27.0	-18%	6.0
I	International	12.5	2.3	-82%	10.2
K	International	10.4	4.2	-60%	6.2
L	International	196.3	40.1	-80%	156.2
O	International	13.2	7.7	-41%	5.4
P	Other - fine dining	4.9	5.7	17%	-0.8
<b>Average</b>		<b>51</b>	<b>18</b>	<b>-42%</b>	<b>32.6</b>

**Table 5-5 Pre and post plate waste (kg/cover) – combined restaurant data**

Average (weighted by covers)	Average plate waste (kg/cover)	
	Pre	Post
Average all	0.067	0.024
Average exc. incomplete data	0.096	0.025
Average - pub	0.090	0.029
Average - British	0.051	0.040
Average - international	0.068	0.016
<i>SRA - average</i>	<i>0.144</i>	
<i>WRAP - hospitality sector – all types</i>	<i>0.075</i>	
<i>WRAP – hospitality sector – casual dining</i>	<i>0.110</i>	

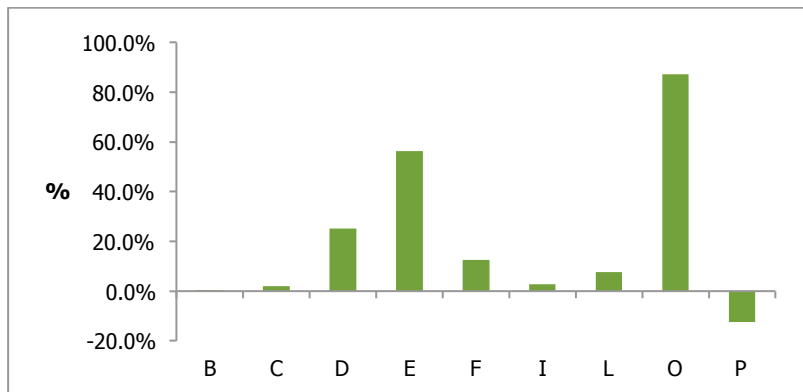
**Figure 5-3** and **Table 5-6** shows the proportion of the change in plate waste between the pre and post monitoring periods that is equivalent to the amount of food waste diverted through the take-home containers. Due to differences in data reporting across the restaurants three methods were used to calculate the food waste diverted to use in the calculation; these are given below in order of decreasing data quality:

- Based on actual food waste recorded in weeks 7 and 8 (used for 5 restaurants).
- Based on average container weight and average containers in weeks 7 and 8 (used for 3 restaurants).
- Based on average container weight and average number of containers for full pilot (used for 1 restaurant).

The results show the proportion of the change in plate waste that can potentially be attributed to food waste diversion in the take-home containers varies greatly across the participating restaurants. In three of the restaurants the results indicate a diversion of plate waste to containers of over 20% suggesting the implementation of take-home container scheme can have significant impact in certain situations.

The reduction in plate waste cannot be attributed to direct diversion in take-home containers alone; the pilot may also be having knock-on impacts in terms of practice within the restaurant e.g. greater awareness of appropriate portion sizes and greater awareness of types of food resulting as plate waste. As already mentioned, other factors are likely to be involved such as seasonal changes and variations in cover numbers.

**Figure 5-3 Reduction in plate waste at restaurants due to food being taken home in containers (average %)**



**Table 5-6 Reduction in plate waste at restaurants due to food being taken home in containers**

	Average %
Average all restaurants	20.2%
Median all restaurants	7.6%
Average – restaurants showing reduction in food waste	24.3%
Median – restaurants showing reduction in food waste	10.0%

### 5.3 Carbon impacts

- The carbon saving as a result of the pilot was 0.58 tonnes of carbon dioxide equivalent (t CO<sub>2</sub> eq) assuming the diversion in food waste avoided food waste being recycling.
- The carbon savings as a result of the pilot were 0.86 t CO<sub>2</sub> eq assuming the diversion of food avoided food waste being landfilled.
- The carbon savings per tonne of food waste diverted in take-home containers are 2.37 t CO<sub>2</sub> eq for avoided recycling, or 3.48 t CO<sub>2</sub> eq for avoided landfill.
- These figures include the carbon impact of the containers used.

The carbon impact of the pilot has been assessed using carbon factors based on the 2012 Carbon Metric, as calculated by Zero Waste Scotland. As well as including the carbon impacts and savings of each waste management route the carbon factors allow the inclusion of the impacts of material production. This approach, known as the consumption approach to carbon accounting, gives a fuller picture of the whole life impacts for each waste material. This can support policy making decisions about the environmental impacts of different materials and their wastes.

The Carbon Metric includes factors for both household and commercial waste. Household or commercial factors have been used as appropriate. Positive figures indicate a net carbon impact, negative figures indicate a net carbon saving. These figures are estimates and, whilst based on the latest available data, are subject to data gaps and limitation which affect the certainty of the results.

For more information please see the published technical reports on the Carbon Metric found on the ZWS website at <http://www.zerowastescotland.org.uk/category/subject/carbon-metric>.

The assumptions used in the analysis are as follows:

- Pre-pilot: impact of disposal of food waste diverted during the trial:
  - Assumes all served food placed in containers would have arisen as plate waste.
  - The Waste (Scotland) Regulations meant that many of the restaurants were in a transition period between sending food waste to landfill and implementing food waste recycling. In addition, the regulations won't apply to the restaurants generating less than 5kg of food waste per week. Two scenarios have been calculated: one where all waste is disposed to landfill and one where all waste is recycled.
  - Assumes no containers or paper bags would have arisen without pilot being in place.
  
- Pilot: impact of food and containers taken home during trial:
  - Assumes 4% of served and additional food is landfilled based on outcomes of consumer research.
  - Assumes 4% of served and additional food is recycled based on outcomes of consumer research.
  - Assumes all food taken home displaces other food the consumer would have eaten.
  - Assumes destination of containers and paper bags (landfill, recycling, or reuse (in the case of paper bags)) for all containers is proportional to the responses received to the consumer research. In addition, these proportions have been calculated assuming the destination was disposal where not otherwise specified. The reuse of paper bags (8%) was not accounted for in the calculations.
  - Assumes that containers placed in Council recycling bins will be classed as contamination and landfilled.
  - The number of paper bags calculated based on the proportion receiving a paper bag in the consumer research and assuming one bag per container.
  - It was not possible to account for unavoidable food waste that will still have been disposed of e.g. bones i.e. assumed to be no food waste in these cases. Consumer research indicates that the proportion of unavoidable food waste was very small.
  - The carbon impact relating to the production of the table toppers and staff posters has not been included.
  - The carbon impact relating to the production of the research support materials has not been included.
  
- Net pilot impact: carbon savings:
  - Two scenarios have been calculated, one for avoided landfill and one for avoided recycling, by subtracting the 'pre-pilot' from the 'pilot'.

The results of the carbon assessment are given in **Table 5-7**. The results show a net carbon saving as a result of the pilot even with the addition of the container and paper bags.

Some analysis was carried out to assess the sensitivity of the results to the assumptions given above. The results are given in

---

Table 5-8, also showing the findings assuming restaurants landfill their food waste. Assuming the restaurant currently recycles their food waste and recycling and disposal increases at the expense of food consumption:

- If the consumer recycles more there is a negative carbon impact once consumption drops to 15% or below of food taken home (assuming landfilling remains at 4%).
- If the consumer disposes more there is a negative carbon impact once consumption drops to 35% or below of food taken home (assuming recycling remains at 4%).
- If both recycling and disposal increase equally there is a negative carbon impact once consumption drops to 26% or below of food taken home.

**Table 5-7 Assessment of carbon savings as a result of take-home container pilot**

Carbon impact	Waste disposal method	kg CO2 eq				t CO2 eq		
		Food	Boxes	Paper bags	Total - pilot	Total per t plate waste	Total – pilot	Total per t plate waste
<b>Pre-pilot -impact of disposal of food waste diverted during the trial</b>	Restaurant does not recycle food waste	1,005	0	0	1,005	4,077	1.00	4.08
	Restaurant recycles food waste	731	0	0	731	2,967	0.73	2.97
<b>Pilot - impact of food and containers taken home during trial</b>	As in survey responses	70	58	19	147	598	0.15	0.60
<b>Net pilot impact</b>	Restaurant does not recycle food waste	-934	58	19	-857	-3478.7	-0.86	-3.48
	Restaurant recycles food waste	-661	58	19	-584	-2368.7	-0.58	-2.37

**Table 5-8 Sensitivity analysis: end destination food waste**

Householder actual action scenario	Restaurant food waste disposal	Consumption tipping point (carbon saving to carbon impact)	Recycling / composting	Landfill	TOTAL
Consumer increases recycling	Recycling	15%	81%	4%	100%
	Landfill	0%	96%	4%	-
Consumer increases disposal	Recycling	35%	4%	61%	100%
	Landfill	8%	4%	88%	100%
Consumer increases disposal and recycling equally	Recycling	26%	37%	37%	100%
	Landfill	0%	36%	64%	100%

**Table 5-9** give results of sensitivity analysis carried out on the disposal of the assumptions used for containers and paper bag disposal. The overall carbon savings are +/- 3-5% depending on the disposal route; no change in the disposal route can result in a net carbon impact for the pilot overall.

**Table 5-9 Sensitivity analysis: end destination containers and paper bags**

End destination of containers and paper bags	% change against carbon savings	
	Restaurant recycles food waste	Restaurant does not recycle food waste
Landfill 100%	-3%	-2%
Recycling 100%	5%	3%

## 5.4 Cost impacts

- The cost per Good to Go container given out, including the paper bag and sticker, was £0.36.
- Taking into account container costs and disposal costs the net average cost per restaurant per week is estimated to be £5.54 or £288.30 per annum (if open 52 weeks); this does not take into account the cost of the promotional materials.
- The net cost per tonne of food waste given out in the scheme (based on a mid-estimate of food waste uplift costs) is estimated to be in the region of £2,063.

The potential cost impacts of the take-home container pilot, and if more widely implemented, can be summarised as:



- Container costs: containers and paper bags.
- Material costs: posters, table toppers etc.
- Disposal costs: costs for disposal of plate waste.
- Levies: single use carrier bag levy being introduced in Scotland would apply

**Table 5-10** shows the container and material costs used in the trial. It should be noted that these costs were specific to the Good to Go pilot; any future roll-out could use unmarked paper bags and may benefit from economies of scale.

**Table 5-10 Container and material costs (excluding VAT)**

Cost	Item	No. of units	Cost/unit	Total cost
Containers	Plain Box	10,000	£0.12	£1,185
	Box sticker	10,000	£0.06	£614
	Plain Bag	10,000	£0.06	£570
	Bag sticker	10,000	£0.08	£801
	Apply bag stickers	10,000	£0.04	£440
		<i>TOTAL</i>		<b>£0.36</b>
Materials	Posters	20	£1.50	£180
	Table toppers (1st supplier)	100		
	Table toppers (2nd supplier)	1,000	£0.33	£330
		<i>TOTAL</i>		
<b>GRAND TOTAL</b>				<b>£4,120</b>

A direct comparison between container costs and avoided food waste disposal costs, based on the snapshot picture of scheme performance presented in Section 5.1, suggests a net cost to restaurants.

**Table 5-11** shows a comparison of the cost per Good to Go container and the relative disposal cost of the food waste if it had not been taken home in the Good to Go container. The calculations do not include the costs of publicity materials (such as posters and table toppers) or the materials used as part of the pilot monitoring process. The data suggest that the net cost per tonne of food waste given out in the scheme (based on the mid-estimate of food waste uplift costs) would be in the region of £2,063.

The costs of the single use carrier bag levy, as these fall on the customer not the restaurant, have not been included within the calculations.

**Table 5-11 Comparison of container and disposal costs (excluding VAT)**

	Per container	Average pilot restaurant per week
Containers used	1	16
Weight of food (kg)	0.168	2.69
Volume <sup>1</sup> of food (litres)	0.58	9.27
Relative food waste disposal cost (£) - high	£0.02	£0.39
Relative food waste disposal cost (£) - mid <sup>2</sup>	£0.01	£0.23
Relative food waste disposal cost (£) - low	£0.005	£0.08
Cost of container with bag (£)	£0.36	£5.78
Net Good to Go cost (£) - mid	£0.35	£5.54

<sup>1</sup> Based on a bulk density of food waste in a 23l caddy of 0.29 – WRAP Material Bulk Densities Summary Report, 2010

<sup>2</sup> Based on a mid-estimate cost of £6 per uplift of a 240l food recycling bin – based on surveys and service development research conducted by GRA

The cost savings presented in

**Table 5-11** have been calculated as an equivalent cost per litre of the food waste bin i.e. a marginal cost as if charging was carried out based on the volume of the waste alone). Food waste is usually charged on a per uplift basis, collected for recycling in 140l or 240l wheeled bins, and a reduction in food waste volume will not result in any cost savings unless it allows for fewer uplifts of the food waste bin. In the event of such a reduction in uplift frequency the actual disposal cost savings will be much greater than those presented in

---

**Table 5-11.**

Based on the average pilot restaurant the weekly diverted food would be the equivalent of around 3.3% of the volume of a 240l bin or around 6.6% of the volume of a 140l bin; it therefore appears unlikely for an average restaurant that food waste disposal costs would be reduced.

---

**Table 5-12** shows that, of the pilot restaurants that recorded container weights, only restaurant L diverted enough plate waste to make a reduction in collection frequency a realistic possibility.

Many of the pilot restaurants observed a reduction in plate waste which was much larger than the estimated amount of food waste taken home in the Good to Go containers. Although this study cannot demonstrate any direct causality between the total reduction in food waste and the Good to Go scheme itself (the reduction may only be as a result of restaurants directly monitoring their own plate waste), it is possible that, beyond the weighed leftovers given to customers, further waste reduction may be possible as a general side effect of such a food waste initiative and, hence, a lower net cost may be possible.

The pilot data suggests that around one in fifty Good to Go containers were used for an additional order. This suggests almost one additional order every three weeks at an average pilot restaurant which would significantly reduce the net cost of the scheme.

---

**Table 5-12 Avoided waste as a percentage of the food waste recycling bin**

Type	ID	Weekly volume of avoided (served) food waste (litres)	Avoided weekly volume as % of 140l bin	Avoided weekly volume as % of 240l bin
Pub	B	1.5	1.1%	0.6%
Pub	C	2.2	1.6%	0.9%
British	D	8.2	5.8%	3.4%
British	E	3.7	2.6%	1.5%
British	F	2.3	1.6%	1.0%
International	I	0.4	0.3%	0.2%
International	L	40.1	28.6%	16.7%
International	O	16.7	12.0%	7.0%
Other - Fine dining	P	2.5	1.8%	1.0%

NB: No adjustment has been made to the food diverted based on how much was diverted prior to the pilot via informal take-home box practices. As such, the above volume of diverted food waste is representative of the different between the Good to Go pilot and no take-home activity.

## 5.5 Implications for a national take-home service

**Table 5-13** presents an estimate of the potential national impact of a Scottish Good to Go scheme. These figures have been generated based on the average number of containers issued during the pilot per 1000 covers and the total number of covers/meals served annually in Scottish restaurants (excluding quick serve restaurants and hotels).

**Table 5-13 Estimated impact of national Good to Go scheme**

Impact		Result (unit)
Food waste	Estimated Scottish food waste diversion potential <sup>1</sup>	395 tonnes
	Diversion potential as proportion of all restaurant and pub food waste <sup>2</sup>	1.8%
Carbon emissions <sup>3</sup>	Carbon savings (t CO <sub>2</sub> eq) - avoided landfill	1,374 t CO <sub>2</sub> eq
	Carbon savings (t CO <sub>2</sub> eq) - avoided recycling	935 t CO <sub>2</sub> eq
Cost	Cost for all containers per annum <sup>4</sup>	£850k

<sup>1</sup> Based on 0.168kg/container average, 33 take-home containers/1000 covers, 24 million meals/annum in Scotland (based on data for 2011 used in WRAP (2013b))

<sup>2</sup> Based on 17,500 tonnes food waste generated by Scottish restaurants per year (WRAP (2013b)).

<sup>3</sup> Based on food waste diversion potential and carbon savings per tonne presented in Part 0.

<sup>4</sup> Based on £0.36 cost/container, 33 take-home containers/1000 covers, 24 million meals/annum in Scotland.

## 6 Pilot results - Restaurant feedback

### 6.1 Obtaining restaurant feedback

During week 4 and from week 7 of the pilot, the participating restaurant staff were interviewed regarding their perceptions and experience of the pilot activities. The discussions, arranged on a one-to-one or group basis, were held with staff from the restaurant's management team, front of house and kitchen staff within the restaurant premises. The objectives of the meetings were to understand what worked well and what could be improved with respect to customer take up of the Good to Go service, the impact of the service offering on normal business operations and to understand any lessons learned that should be applied to a possible further roll out of the Good to Go service.

In addition to the formal research activities, throughout the 8-week pilot regular communications were maintained with the restaurants and anecdotal information was recorded.

### 6.2 Impact of a take-home service offering on normal business operations

Overall the restaurant staff agreed that the implementation of the Good to Go service had little or no negative impact on the restaurant's normal activities. Although discussing the service with customers inevitably takes time, most of the participating restaurants already offered a take-home service on an informal basis (normally only when requested by the customer) and the co-ordinated, professional offering was a welcome enhancement to this.

None of the kitchen staff were affected by the pilot activities; however, the waiting staff were pushed to deliver when the restaurant was busy, and at these times the take-home service was generally only provided at the customer's request. Eight of the ten restaurants mentioned busy periods being a potential issue; particularly Friday and Saturday evenings or weekend services.

*"It does not impact the back (kitchen) staff at all. The front of house staff think it's great to offer the service on a formal basis. We previously offered to pack leftover food so it hasn't had an impact on our normal activities. It is just now more formalised and professional."* [Fine dining restaurant]

### 6.3 Types of customers receptive to a take-home service

Four restaurants stated that they offered the Good to Go service to any customer that left uneaten food at the end of the meal, regardless of the amount or type. The other restaurants identified occasions when a customer would deliberately not be asked if they would like to take any uneaten food home and these included the following situations:

- When diners are known not to be going straight home: this includes diners who are visiting from outside the local area or are eating at the restaurant prior to going out for the evening (e.g. pre-theatre dining). Most restaurants believed that 50-75% of their diners do not go directly home on leaving.
- Diners who are in conversation or otherwise not to be disturbed when the waiter clears the table.
- Business customers.

With the above exceptions in mind, restaurant staff indicated that they would ask any of their diners who had left food behind, although there were some visitors who were thought to be more amenable to the idea of the take-home service. In particular, the following types of customers were identified as being more receptive to the Good to Go service:

---



- Regular diners (all participating restaurants enjoyed repeat business of at least 50%)
- Diners with young children,
- Older diners,
- Customers who were environmentally aware.

*“Customers who ask about provenance or sustainability of our ingredients or who seek advice on menu choices are the most likely to be interested in the service”* [British restaurant]

## 6.4 Menu management, portion control and business activities

Three of the restaurants changed their menus during the pilot duration; one offered meals that changed on a daily basis and two other vary their menu on a fortnightly basis – one of these introduced a new tea-time service during the seventh week of the pilot activities. The rest of the restaurants tended to have menus that incorporated seasonal produce with the menus changed twice a year, although some did vary their ‘specials’ more frequently.

It was hypothesised that the amount of food waste may be affected by the method of serving; if side dishes (such as vegetables and salads) are served separately to the plated meal, there might be more of an opportunity to encourage diners to take food home that had been left untouched in a side dish. Depending on the actual meal, eight of the restaurants serve accompaniments separately; however most said that diners tended not to leave any food untouched in these, rather putting it all on the plate(s).

*“We serve vegetables and salad both as a side and included in a main dish, it depends on what is ordered. However, when the sides are served in separate dishes, any leftovers tend to be on the main plate, not left in the serving dishes.”* [Pub restaurant]

Only two restaurants described their portion sizes as moderate; these were a fine dining and international restaurant. Although it does depend on the actual meal ordered, the other restaurants agreed that their portion sizes are generous although they did counteract that this does not necessarily result in high volumes of waste as customers would tend to eat all provided. One restaurant had previously tried reducing the portion sizes but reversed this when regular customers did not welcome the change.

The restaurant staff were asked if they had experienced any changes to their normal business activities that might have had an impact on the take-up and distribution of Good to Go containers. One British restaurant introduced a new tea-time service in the last two weeks of the pilot which meant there were more customers visiting; because the servings are generous they found that there were additional customers (mostly older women) taking items such as sandwiches and cakes home. One restaurant had to close for four mornings due to building work in the second half of the pilot and another closed for three days. Towards the end of the pilot, as they became accustomed to the Good to Go service, one restaurant experienced regular customers deliberately leaving parts of their entire meal to take-home that would normally have been consumed.

*“We have noticed people leaving a bit of everything (a mini meal) ready to take-home for their lunch.”* [British restaurant]

## 6.5 Packing food up to take-home

There were concerns regarding the aspect of food safety and, for this reason, the pilot guidance stipulated that uneaten cooked rice must not be offered to customers under the Good to Go scheme.

---

Only one of the restaurants had experienced a customer asking about food safety and the Zero Waste Scotland policy was explained to them.

In addition to not packing up rice, the restaurants highlighted that they proactively avoided offering to pack food if it: comprised of items that may not readily lend themselves to re-heating (seafood and chicken), did not constitute a new meal in themselves (salads and side orders), items required specialist packaging such as liquids (such as soups) or food scrapings.

*“Mostly it is on the quantity of food left, not the type of food that is important – but it also needs to contain meat or vegetables not just the sauce.”* [International restaurant]

As seen previously in **Table 5-1**, all of the restaurants with the exception of one (a pub restaurant) had previously offered a take-home service to customers, although this tended to be at the customer’s request and was not a formal, publicised service offering.

*“We used plastic containers, the same as we use for our takeaways. It was not a service we publicised or encouraged, but if a customer requested this we would pack up the food for them.”* [International restaurant]

All respondents agreed that the Good to Go card food boxes and stickers were simple to use – indeed, one international restaurant felt that they were easier to use than their previous containers (normally a foil box with card lid). Although five restaurants expressed reservations in using the Good to Go food boxes to pack liquid foods, only one confirmed that they had experienced leakage when they attempted to place wet food in the container.

*“There aren’t really any foods that we would not pack (we previously packed rice for customers although we don’t do this during the trial). However, we don’t use the Good to Go containers for watery curries as we have experienced leaks from the bottom corners - instead we use our own containers.”* [International restaurant]

In the main, the restaurants were more than satisfied with the current style and size of the cardboard food boxes. However, three restaurants (two international and one fine dining) suggested that the food boxes could be improved if they were (or clearly appeared to be) waterproof to ensure that there was no risk of leakage. Just two restaurants felt that the food containers should additionally be available in a smaller size (half that currently available).

Similarly, most restaurants were happy with the box stickers and felt that the information provided on them was adequate. None of the staff at any restaurant offered additional verbal advice to the customer, although some would bring the information on the sticker to the customer’s attention. There was an exception to this, where two restaurants felt that the sticker was not always appropriate to some of their food items, for example, sandwiches which have to be eaten within 24 hours.

*“There are some foods on a short shelf life, so we tell customers to eat them within 24 not 48 hours.”* [Pub restaurant]

To address this issue, it was suggested that there should be an additional space on any subsequent label for staff to write in the use by date as appropriate.

Each time that a food box was provided for a customer, a Good to Go carrier bag was said to have been provided. Eight restaurants expressed satisfaction with the current bag colour, style and imagery;

however two British restaurants felt that the bags were garish (too white or the green is too bright) and should be more discreet so that customers would be more comfortable carrying them. One of these also felt that the bags should be waxed to provide some water resistance in rainy weather.

*“The green colour is a bit bright and looks like the 'Macmillan' charity branding and perhaps they should be waterproof in Glasgow.”* [British restaurant]

## 6.6 Perceived take-up of the Good to Go service

The restaurants were asked to evaluate the approximate take-up of the Good to Go service amongst customers who had food left after their meal. Four restaurants explained that they had not issued many boxes during the pilot because few customers had any suitable food left and that use was mainly for desserts left because the diners were too full to finish or because of upselling. In establishments where enough suitable food had been left, depending on the persuasiveness of staff, at least 40% of these customers were said to have had the food packed up. As already discussed, diners leaving food behind have declined because either the food or the occasion is unsuitable or because they are not going directly home.

*“They do not think there is much point in taking it and tends to be salad, chips or bread. The customer perception is it is a low meal cost £6-£7 so they are not bothered if the food is wasted, this would probably be a different attitude if they were paying more.”* [Pub restaurant]

*“Around 20% of customers who leave food do not take it with them because they are too full or not enough waste, mostly curry sauce.”* [International restaurant]

Restaurants that had not experienced a significant level of take-up of the Good to Go service suggested that this is because customers did not leave enough or had no uneaten food at the end of their meal; for example in the fine dining restaurant where guests anticipate their meal reservation and ensure they are hungry before they visit. The ‘suitability’ of any uneaten waste was also said to be a factor; ‘side’ food items or food not appropriate for re-use as it has been ‘messed about’ by younger diners was not considered to be suitable for packing up.

*“People prioritise what they eat on a plate and are not going to take-home scraps and won't take food if it is not going to provide more than a nibble. Things like lamb shanks get eaten and people do not want to take-home the mash and veg that might be left. What is taken home depends on the quantity left; if it is not going to provide a suitable sandwich, munch or a lunch they will not take it.”* [British restaurant]

Information on the recorded take-up of the service during the Good to Go pilot can be found in Part 5.1 of this document.

## 6.7 Promoting the Good to Go service to customers

Each restaurant was provided with a supply of table toppers (or tent cards) to display around their restaurant to help promote the service to customers and only one restaurant did not wish to use the table toppers at all. Where space allowed, the cards were placed on dining tables, counters and bars, and additionally used as posters on walls or windows.

Three of the restaurants that used the table toppers felt that they would prefer to have materials that better fitted in with their particular colour scheme; specifically finding the green too bright although it was recognised that green is associated with recycling and therefore appropriate for this initiative.

*“The table toppers are a good idea they stand out and green is associated with the environment, but our restaurant is orange and black so the bright green does not look right with our décor.”* [International restaurant]

To further promote the Good to Go service to customers, one restaurant used their Facebook and Twitter accounts and another printed information about it on their menus. Six of the restaurants felt that they would additionally like to have had posters and/or window stickers to promote the service to customers.

With the exception of two restaurants, all indicated that they only verbally mentioned the Good to Go service at the end of the meal when clearing the table, provided there was suitable food left behind to take-home. Several of these restaurants mentioned that it would not be appropriate to discuss the service before this stage, mostly because they can then be certain that there is a need for it and they are not therefore wasting time, especially when they have customers waiting to be seated or because they did not want to appear to be obtrusive.

*“We don't talk to customers about the service until the end of their meal, and if they have suitable food left to take-home in terms of food type - not wet food - and quantity. We don't want to be obtrusive or get into our customers 'personal space' especially as most are here celebrating a special occasion or here for a formal meeting.”* [Fine dining restaurant]

The other two restaurants promoted the service when the orders were taken, using this as a way of upselling when diners are unsure of how many main dishes to order or concerned whether they would be able to consume three courses. They then offer the service again at the end of the meal if there is food left.

In most cases, with the exception of two restaurants which felt that it was an equal split, it is the restaurant staff that were said to have suggested that customers take food home, rather than the customer requesting without prompting that their uneaten food is packed up.

*“The customers would be too embarrassed to ask if they wanted to take any food home, especially if they are not the ones paying for the meal; so it has been our staff who have suggested this when it has been appropriate to do so.”* [Fine dining restaurant]

However, it was felt that the existence of the table topper card had empowered some customers to ask for their food to be packed up. It was suggested that the availability of the formal scheme and its promotion had certainly helped to remove any embarrassment or associated stigma that would normally prevent people from requesting or agreeing to have their food packed up to take-home.

*“The pilot has validated the customer's ability to take up the service; it has helped them to feel less embarrassed about taking food home.”* [International restaurant]

Only one restaurant (international) mentioned a single incident where a customer thought the idea of taking food home was unpleasant as she imagined it would be congealed and unappealing to eat the next day.

Five restaurants used the Good to Go facility to upsell their food, although one said that they had previously done this anyway. Mostly upselling was to encourage diners to order a dessert or to order more main menu items if they can't decide what to have (normally tapas-type food).

---

## 6.8 Perceptions of a national roll-out of the Good to Go service

Overall, restaurant staff felt that their customers reacted very positively to the availability of the formal take-home service. There were only a couple of issues mentioned, these being a dislike of the carrier bag promoting the fact that the customer was taking food home and the other involving a customer who expressed a preference to the previously used containers (foil) as they appeared 'safer' than the cardboard Good to Go box.

The restaurants agreed unanimously (but see reservation hereunder) that the Good to Go concept was excellent and should be rolled out throughout the Scottish hospitality sector. In particular, they felt that it was great to get involved with a service that promoted their ethos regarding the environment and sustainability and that it was a very useful tool in helping to control business costs associated with food procurement, preparation and disposal. Restaurants that had previously offered a take-home service felt that the Good to Go scheme enabled them to offer a more professional and co-ordinated service.

*"We did offer the service before and wrapped in foil, polystyrene etc., but the Good to Go materials make it look like it is a normal thing to do."* [British restaurant]

Only one restaurant expressed any reservation and this was that the Good to Go service is not always appropriate to customers who have specifically booked and are expecting a 'fine dining' experience. However, this restaurant did advocate that it is still important that the take-home service is available to offer customers when appropriate to do so. Similarly, some restaurants did feel that the scheme may not be appropriate for all restaurants all of the time, for example where there is little suitable plated food waste or the occasion is inappropriate (e.g. outlets with a high proportion of celebratory / business functions).

*"It is a great idea - all establishments should be able to offer a professional service, but it is particularly appropriate for the regular restaurants (serving pizza and pasta) as they are more informal and likely to have a higher take up."* [Fine dining restaurant]

Two restaurants specifically mentioned that other businesses should be encouraged to undertake the plate waste weighing activity as this would enable them to see exactly how big a problem their food waste is and to identify ways to address it.

It was also suggested that a formal national scheme would help remove any embarrassment and empower diners, with 'doggy bags' being publically viewed as the norm rather than the exception. The restaurants agreed that any national campaign should replicate the pilot with respect to the materials available (boxes, stickers and bags) with additional customer-facing promotional materials; two felt that the term 'doggy bag' is more effective. This raises an interesting point; subject to further research, although felt to have negative connotations, it is a well-established term in daily use. It might be easier to rehabilitate it as a positive thing (as it is in the United States) rather than wholly replace it. For example, household waste recycling centres (HWRCs) are still commonly referred to as the tip or dump; similarly, doggy boxes will still likely be used in conversation even if a national scheme with alternative branding is established.

It was suggested that there should also be a major media campaign to promote a national scheme and one restaurant suggested that the initiative should have a specific icon that makes it instantly recognisable; for example, as used in the national recycling campaign.

*“People should know when they walk through a door that the service is available. Some sort of symbol that can be put on menus, door stickers etc. like the ‘V’ means vegetarian or the recycle ‘swoosh’ - perhaps a little box symbol?”* [International restaurant]

## 6.9 Implications for a national take-home service

### 6.9.1 Post-pilot review of restaurant activities

Following their experiences of the pilot, several restaurants suggested that they plan to make changes to their menus or processes in order to minimise the amount of plate food waste generated. Although they felt comfortable with the size of their main meals, some agreed that they would review the amount of food offered in the side dishes; vegetables and, in particular, salad garnishes.

*“We are going to be offering various sizes of the side dishes, it is not feasible with the mains and we have noticed that people do not waste their main course.”* [British restaurant]

It was also suggested that customers should be asked whether they want different accompaniments with their meal so that it does not end up getting wasted. Under normal circumstances these food items are served as standard whether or not the customer wants them; even though there will be some customers that associate additional items as giving value for money and may therefore agree that they are wanted regardless, it is likely that this may have a positive impact on food waste.

*“We will now ask the question ‘Do you want veg?’; we can tell the type of customer to ask. We need to educate the customers to say ‘I don’t want or don’t eat bread, salad or vegetables’, otherwise they rarely tell you and just waste it at the end.”* [British restaurant]

There are potentially good environmental and cost benefits available if restaurants reassess their practice in this way, and it would appear that participating in the pilot has been a prompt to do so. It seems reasonable that a further roll-out might also prompt reassessment in other businesses too.

### 6.9.2 Implementing a take-home service

Restaurant staff were asked to consider their experiences of participating in the Good to Go pilot and to identify any issues or best practice that could be adopted to facilitate a wider roll-out. Their views are given in

**Table 6-1** overleaf.



**Table 6-1 Restaurants' views on implementing a national take-home service**

Issue/Activity	Restaurant staff perceptions
Experience of the pilot and ancillary activities (plate waste weighing)	<p>All of the restaurants concurred that they had had a highly positive experience and that the pilot had been a valuable lesson for them. Each restaurant confirmed that they would definitely continue to offer the service, although they would have to use their own (previous) containers once their supplies of Good to Go boxes ran out.</p> <p>Although a separate activity to the main pilot, it was agreed that the plate waste weighing had shown them that plate waste is a significant issue that can be addressed through better menu management and that offering the Good to Go service had unified the staff and made them proud to be able to provide added value to their customers.</p> <p><i>“Staff have felt more involved in the running of the restaurant by looking at the food waste. The plate waste exercise has been very good for the restaurant business we see how much is wasted and what to change.”</i> [International restaurant]</p> <p><i>“At the start I had reservations, but not now. Staff can find it embarrassing to judge the customer or amounts/type of food that is suitable but I have told them to judge on if they would take it home themselves – the process gets better with experience.”</i> [Pub restaurant]</p> <p>Furthermore, at least two restaurants mentioned that perhaps restaurants throughout Scotland should undergo a plate waste weighing exercise, as this pilot activity had highlighted and evidenced the extent of the food waste problem and suggested how it might be addressed through better menu management; cost saving strategies that were supported by several restaurants. This activity could be independent from any wider roll-out of a take home service which would not necessarily incorporate any plate waste monitoring.</p> <p><i>“The real cost savings are not going to come from the customer taking home the leftovers and therefore reducing food waste charges. They are more likely to come from a review of portion sizes and composition of the meals. The plate waste weighing has been interesting and taught me to do this exercise again. As an ongoing review we will change makeup and sizes of meals.”</i> [Pub restaurant]</p>
Staff responsibility	<p>Restaurants agreed that the waiting staff would be responsible for promoting a take-home service (or similar), although one restaurant mentioned that they would only offer the service if the customer requested it due to the cost of providing the service.</p> <p>The restaurants agreed that the optimum approach to offering a take-home service is for the waiting staff to pack the boxes as they were responsible for clearing the tables. One restaurant had tried making the kitchen staff responsible for the packing, but found the process to be less cumbersome if the waiters did this. Where space allowed, restaurants had a dedicated area, either in the kitchen or in the dining area itself, for packing up the food boxes.</p>



Issue/Activity	Restaurant staff perceptions
Containers	<p>Although the food boxes used in the pilot were generally found to be acceptable, it was suggested that for a national launch, food boxes should come in a variety of sizes that also allowed for liquid food items such as soups and stews. The label itself has all the information needed to inform the customer, however it was proposed that there should be a space on it for restaurants to add any further information (dates / times) that is applicable to the particular food item being taken away.</p>
Promotion	<p>Restaurants were split on whether they felt customers expected a take-home service to be available as a matter of course throughout Scotland. Some indicated that their customers had been surprised when offered the service during the pilot as it is not yet part of UK culture; others felt that customers are becoming more savvy and aware that they can take food home, with some even coming prepared to do so.</p> <p><i>“Yes, customers expect you to let them take-home food and some customers do bring their own foil or cling film to take their food home.”</i> [British restaurant]</p> <p>It was agreed that offering a take away service is beneficial to the restaurant in terms of building up customer loyalty, although most restaurant staff felt it won't necessarily increase footfall - unless backed up by a national campaign that positively promotes the green credentials of a restaurant offering the service.</p> <p><i>“It could make a difference - customers are boycotting the businesses that were named as tax avoiders like Starbucks. People are more demanding and more informed but it will take a while.”</i> [British restaurant]</p> <p>All restaurants agreed that any roll-out of the take away service would need to be branded so that it became instantly recognisable. When asked to give their final views on the Good to Go branding, two restaurants felt that the term 'Doggy Bag' is preferable (the others disagreed with this due to the negative associations with animal faeces) but the others felt that although Good to Go would catch on, it would be important that it was not confused with a takeaway service.</p> <p>In addition to the Good to Go name, it was felt that the brand would benefit from an icon, as with the recycling 'swoosh', which could be used on menus and door stickers. Suggestions for what the icon could look like ranged from a dog's head, a picture of a food box, the initials 'GtG' or a 'D' with a 'w' inside it (<b>Don't waste</b>).</p> <p>Although the budget for the pilot did not stretch to a range of promotional materials beyond table topper cards and posters, nearly all the restaurants agreed that a national launch would need to be supported by a media campaign to maximise its success.</p> <p><i>“Need to remove the barriers - public perception should be that it is the thing to do. Having a formal campaign means the serving staff feel more empowered to offer the service than before.”</i> [Fine dining restaurant]</p> <p>Suggestions included advertising on television (including being featured in programmes such as soap operas), radio, vehicle posters and in the press, but it was felt that these would have greater impact if fronted by a known celebrity.</p> <p><i>“A launch would need media support; it needs to be out in the consumer's world.”</i></p>

## Issue/Activity

## Restaurant staff perceptions

*The 'Groupon' vouchers have become huge in a short space of time and we get a lot of diners using them - so it is all about marketing the brand.* [International restaurant]

Whatever the supporting promotional material, it was agreed that the initiative should be rolled out and supported so that it can become a natural activity, such as the public's use of bags for life. In time, it would become second nature, much like other countries, such as USA, Australia and Canada which have enjoyed cultural acceptance of 'doggy bags' for several years now.

*"Look at how the middle classes use bags for life now. In Canada everyone takes a Tupperware style box with them to a restaurant. In Vancouver, we have been recycling for more than 30 years - it's engrained into children at school age. It's a cultural thing - a few years ago, people here (in Scotland) were embarrassed to say they shop at Aldi or in charity shops, now they are proud to be doing so."* [International restaurant]

## Costs and savings

Restaurants agreed that they currently have significant waste disposal costs and that any actions to reduce food waste can only be of benefit to the organisation. Although restaurants agreed that the Good to Go service had reduced the amount of food thrown away, it was felt that any reduction in disposal charges would not meet the increased costs associated with participating in a formal national initiative.

Although a take-home scheme helps reduce waste, the cost of providing the containers and promoting the service was identified as a potential significant cost, particularly burdensome to the smaller establishments; and all agreed that this could not be passed on to the customer. It was therefore suggested that provision of any promotional materials (and even the containers) should be provided free of charge or at a subsidised cost to restaurants. This would ensure that establishments throughout Scotland were willingly active in promoting a national initiative to its fullest potential. Failing this, it was suggested that consideration should be given to introducing a financial reward system for participating companies, such as VAT allowances.

*"There would need to be a reduction in food waste that you can see to help costs. If restaurants have to buy containers it adds to the overheads. If a couple are spending £30 on two main meals and side dishes and you then have to split the leftovers between 3 containers costing perhaps 75p, then with the carrier bag you are already £1 out of pocket without taking into account staff time. The Initial set up costs should be covered."* [International restaurant]

Restaurants considered the consequences if there was no central funding for the implementation of a take-home service. It was felt that although the large chains would be in a better position to absorb the costs of providing a proactive, formal service, other (smaller) organisations would have to build the costs into their charges which would therefore be paid by all diners regardless of take-up of the service. None felt that it would be appropriate to have a separate charge for packing up uneaten food unless it also provided funding for charitable cause.

*"There ought to be some help with the costs. I don't think the government should pay for the containers but perhaps they could get a good deal for the restaurants taking part. The point of difference for a restaurant taking part may be the cost involved in providing containers. I would probably charge the customer so say to*

Issue/Activity	Restaurant staff perceptions
	<p><i>them, for 25p you can take-home what you don't eat and then say something like at least 10p of this goes to charity the rest covers costs."</i> [International restaurant]</p>
<p>Food safety</p>	<p>The majority of the restaurants agreed that responsibility for the safety of the food that is packed up for customers to take-home lay jointly with the restaurant and the customer. It is up to the restaurant to ensure that adequate and appropriate advice is given (as provided on the box sticker); but once the food had left the premises it was up to the customer to ensure that they carried out the instructions properly. A couple of restaurants felt that in a national launch, restaurants should have a template 'disclaimer' that they could provide.</p> <p><i>"This is a major concern it is the pub first and then the customer's responsibility once it leaves the pub. There should be some sort of disclaimer when they go home with the food."</i> [Pub restaurant]</p> <p>One restaurant suggested that consideration should be given to providing customers (and people in general) with information on re-heating foods safely through an appropriate website.</p> <p><i>"There needs to be a website which people can access so if they take-home beef say, they can click on 'beef' and it tells them how to store and reheat beef and the same for other foods - they just click and the information appears."</i> [British restaurant]</p>

## 7 Pilot results - Consumer feedback

### 7.1 Obtaining consumer feedback

There were two strands of consumer research undertaken;

- Pre-pilot door step interviews with a random sample of 50 householders in Glasgow and Edinburgh which took place 20-25 January 2014, to discuss experiences of eating out and use of existing doggy bag facilities.
- Surveys during the pilot duration in which consumers at each of the participating restaurants were invited to complete a questionnaire designed to evaluate the Good to Go concept and to understand experience of use. 201 questionnaires were completed online, by telephone interview and by post up to 14 June 2014. Consumers leaving their contact details with the restaurant were contacted immediately (generally within 1-2 days) to ensure accurate respondent recall. It must be remembered that the participating diners were encouraged to give feedback by the restaurant staff and that there may be a risk of pro-social behaviours affecting the results achieved. The profile of customers completing a questionnaire can be found at Appendix A.

### 7.2 Experience of eating out in restaurants (pre-pilot research)

Half of the respondents participating in the pre-pilot concept testing research stated that they eat out one or two times per month, whilst only three in ten visited a restaurant less frequently. The majority (54%) indicated that the type of restaurant visited varied but most popular venues were a pub restaurant (18%) and Indian or Italian (12% each).

Nearly six in ten (58%) respondents stated that they normally have food left uneaten when they visit a restaurant. The most common reasons mentioned were that children did not finish their meal or because the portions were too large; Indian restaurants were identified as a most common venue where food remained uneaten.

Although half (52%) of respondents stated that they would request a doggy bag to take uneaten food home, a third (35%) said that they would not – generally, they normally don't have any food remaining and if there is it's because they did not enjoy it. A significant minority (14%, 7 in number) had not previously thought about doing this, which indicates that the promotion of a take-home facility is an important factor in changing behaviour.

Regardless of a consumer's willingness to take uneaten food home to eat later, there will always be circumstances when this will not be done. These were said to include the following:

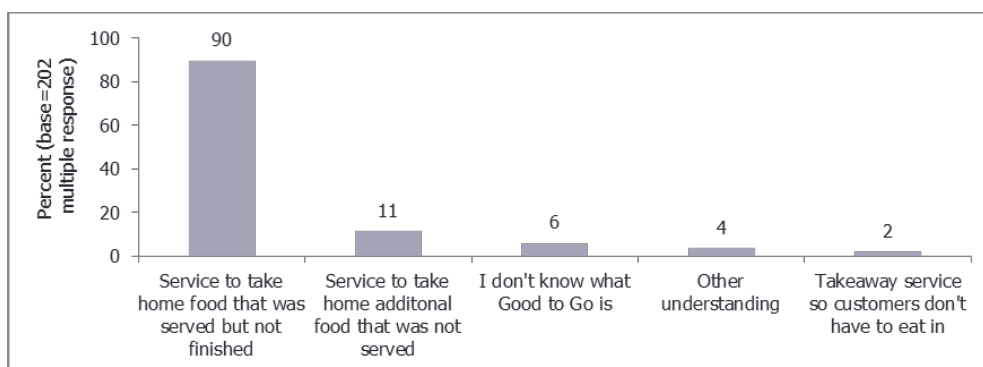
- Issues with the food: there is not enough to take-home or if the food is unsuitable for eating later (e.g. liquids, salads, foods that are unsafe to reheat or did not taste/look nice).
- Issues with the occasion: the consumer is not going home after visiting the restaurant, they are out on a formal occasion, in a large group or in a 'posh' restaurant.

### 7.3 Perceptions of the Good to Go service

Diners at the participating restaurants (regardless of whether they took up the Good to Go service) were asked to give their opinions of the pilot activities.

**Figure 7-1** illustrates that nearly all respondents (90%) correctly identified that the Good to Go service was about enabling diners to take-home any food that had been served but had not been finished. One in ten (11%) felt that it was a service to allow customers to buy additional food to take-home. Few (2%) thought that it was to promote a takeaway service. Other suggestions mostly included it being a service to reduce the amount of food waste in restaurants.

**Figure 7-1 Understanding of the Good to Go service**



### 7.4 Perceptions of the Good to Go promotional activities

#### 7.4.1 Table topper card

Seven in ten (72%) of respondents indicated that they had seen the table topper card during their visit to the restaurant and they were asked to give their views on this promotional material; the results are shown in **Figure 7-2**.

Three quarters of respondents made positive comments regarding the colour and style of the card, in particular mention was made of the colour being vibrant or appealing and the green being a familiar colour associated with environmental issues.

*“Good - eye catching, the colour green already represents environmental issues, easy to read friendly clear font and the text is easy to understand.”*

Just over one in ten (12%) respondents felt that the style or colour could be improved; most specifically, the colours were too bright, that the card looked cheap or could be associated with a charity (MacMillan) or the use of two shades of green made it difficult to read.

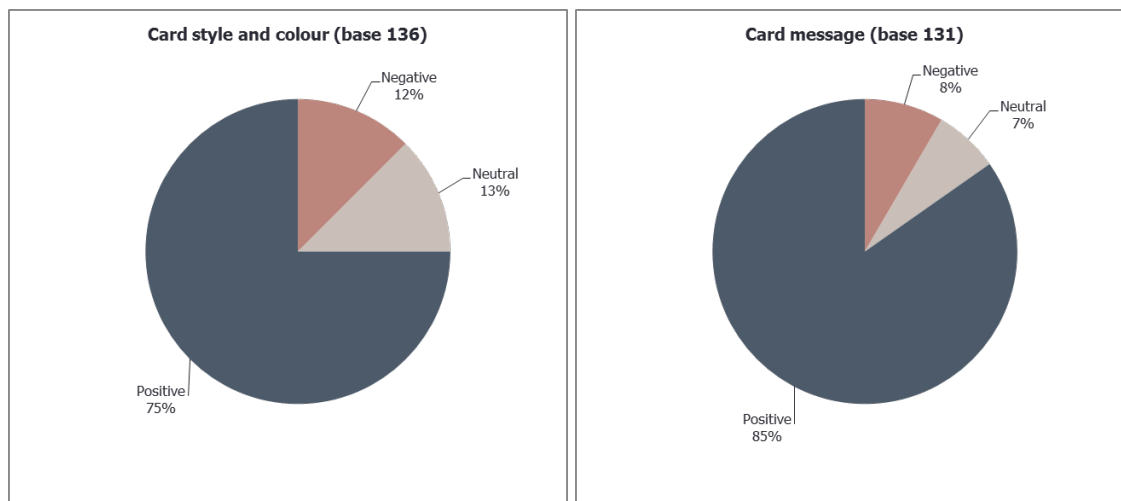
*“Poor shade of green although green is a good choice, the green lettering does not contrast enough making it difficult to read.”*

85% were positive regarding the message; agreeing that it was easily understood and got to the point. One respondent mentioned that the promotion helped to remove any potential embarrassment that a diner might feel in asking for uneaten food to be packed.

*“I thought it was good they are promoting it because it is embarrassing to ask for a doggy bag but when it is offered it’s easier.”*

There were few negative comments and these involved either not remembering the message that the card was delivering or having to seek clarification on the message from the waiting staff.

**Figure 7-2 Type of comment made on the table topper card**



#### 7.4.2 Restaurant staff discussing the service

Nearly seven in ten (69%) of respondents indicated that their waiting staff had verbally promoted the Good to Go service with them. Most indicated that this happened at the end of the service when the tables were cleared and the respondent was asked if they would like to take the uneaten food home with them. A few mentioned that the waiting staff discussed the service at the beginning of the service; either because the customer had asked for more detail, having seen the promotional materials or because the waiter had suggested that they order as much food as they like as they would be able to take any uneaten food home if they wished. This finding correlates with the restaurant feedback obtained.

*“We couldn't decide what to have and the waiters advised if we ordered too much we could take it home.”*

### 7.4.3 Further information requirements

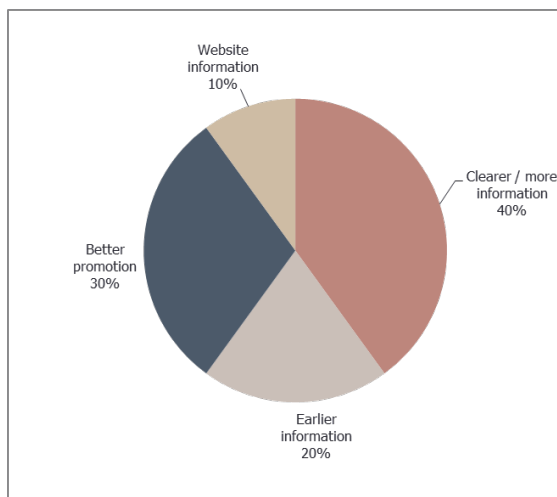
It is recognised that the amount of detail given upfront regarding a take home service may be off-putting to some diners; successful promotion will be dependent on balancing a range of factors including the type of restaurant and the occasion on which diners visit.

As shown in **Figure 7-3** the majority of respondents felt that the Good to Go service was adequately promoted and easy to understand; however, one in ten suggested that there was additional information that could have proved useful. Eight respondents proposed that the message should be clearer on how the diners can request the food to be packed up, more information on food waste issues or details on reheating and food management. Six respondents thought that the Good to Go service should be better promoted, with larger cards or posters that would not be missed. Four respondents suggested that the service should be promoted to diners at the beginning of the visit rather than left until the end of the meal.

*“There should have been more highlighted in advance we were only given the information in the bill folder at the end although we didn't have any food left over.”*

However, it is recognised that the amount of detail given upfront regarding a take home service may be off-putting to some diners; successful promotion will be dependent on balancing a range of factors including the type of restaurant, and the occasion on which diners visit.

**Figure 7-3 Type of further information needed (base 20)**

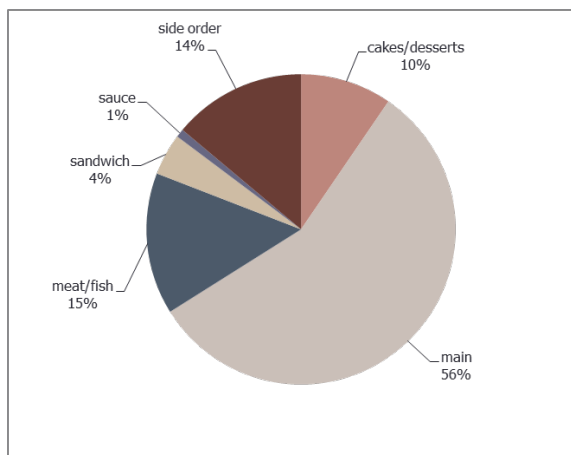


### 7.4.4 Use of the Good to Go service

#### 7.4.4.1 Type of uneaten food left

**Figure 7-4** illustrates that six in ten (62%) of respondents confirmed that they did have uneaten food left at the end of their meal. More than half (56%) had part of the main meal remaining (such as meat/fish and vegetables), and a further 15% left just meat or fish uneaten. More than one in ten (14%) left food such as vegetables, chips or salads (side dishes) and 10% did not eat all of their dessert.

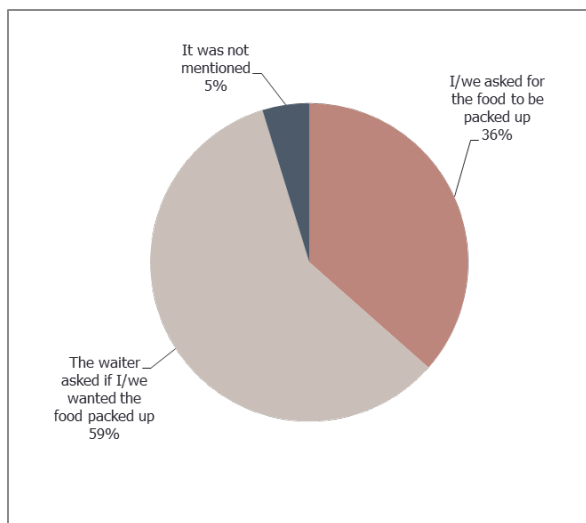
**Figure 7-4 Type of uneaten food left (base 115)**



**7.4.4.2 Requesting the Good to Go service**

**Figure 7-5** illustrates that only six of the 126 respondents that had uneaten food left at the end of their meal did not ask for the food to be packed, nor were they offered this service. Where the possibility of taking the food home was discussed, this was most commonly (59%) suggested by the waiting staff rather than the customer (36%). Eight in ten (81%) of the customers who were asked by the restaurant staff if they would like to have the food packed up to take-home agreed to this.

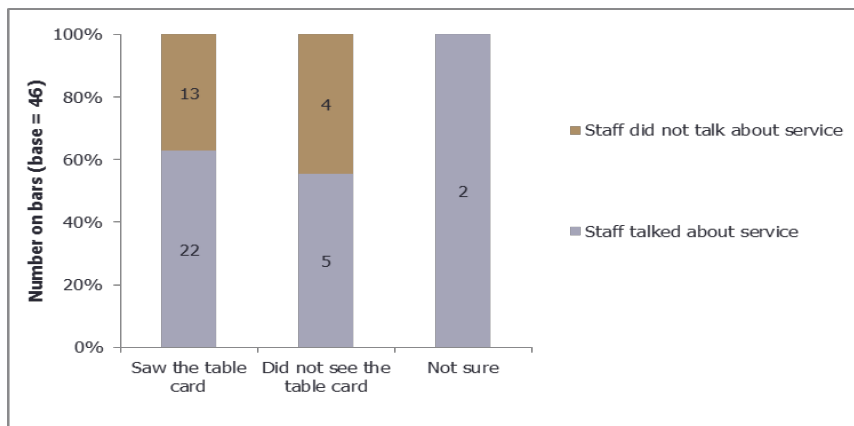
**Figure 7-5 Was the Good to Go service discussed when food had been left at the end of the meal? (base 126)**



It can be seen in **Figure 7-6** that among the 46 respondents requesting their uneaten food is packed up without prompting, only four confirmed that they had not seen the promotional table topper card and had not previously had the service brought to their attention by the restaurant staff. This illustrates that take up of the Good to Go service may have been facilitated by the promotional materials and activities and that this is an important aspect of any national roll-out.

Eight in ten (81%) of the customers who were asked by the restaurant staff if they would like to have the food packed up to take-home agreed to this.

**Figure 7-6 Influence of promotions on customers requesting the Good to Go service**



Respondents that did not ask to take uneaten food home or had declined their waiter's offer were asked to explain the reasons behind this and the results are illustrated in



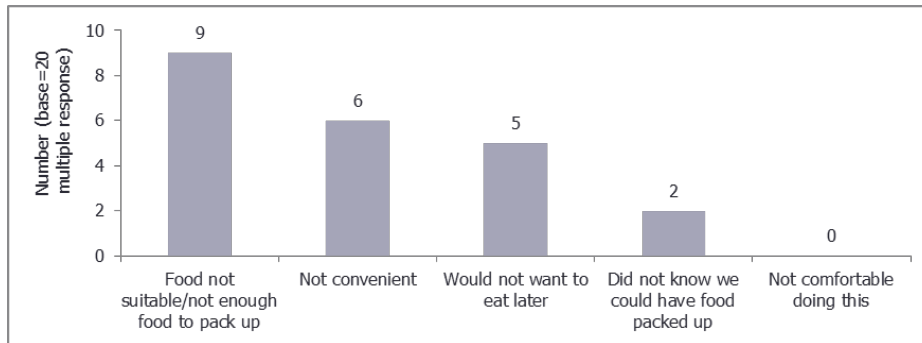
**Figure 7-7.** The most common response (9 in 20) was that the remaining food was not suitable for packing up and taking home. Respondents mentioned that the amount of food left did not make it worthwhile, or that the type of food remaining was not sufficient to make a meal that could be eaten later.

*“I’m not averse to taking food home and probably if there had been meat or more food left, we would have taken it.”*

None of the respondents indicated that they did not take up the Good to Go service because of any perceived embarrassment and only one additionally mentioned that they had concerns about food safety (this was not the influencing factor). There was also occasions when the food was left because the diner did not like it; although in such circumstances there is likely to be sufficient food left to make a new meal, clearly, it would only be taken home if there was someone else who would benefit from it.

*“I had chosen an off-menu special which (unbeknownst to me at the time of ordering) contained a lot of mushrooms, a food which I very much dislike. That is the reason why I left some of my meal and the only reason that I didn’t want to take the food home - otherwise I would have done so.”*

---

**Figure 7-7 Reasons for not taking up the Good to Go service**

More than eight in ten (84%) of the respondents with uneaten food left on their plate agreed or asked to have this packed up so that they could take it home. Only one respondent, who said that the food had been taken away to feed their dog, stated that they had not felt comfortable agreeing to have the food packed up.

**Figure 7-8** shows that six in ten (59%) of these respondents stated that they had taken the food home because they don't like to waste food and nearly half (47%) [also] said that they wanted to enjoy the food another time. Although a factor, less than a quarter of respondents stated that they took the food home for financial reasons.

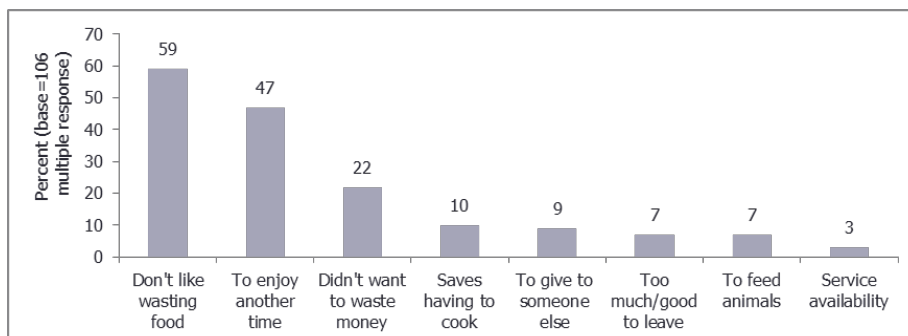
A few respondents mentioned that they would not have taken the food home if they had not been told about the service – either because they would not have known that they could indeed do this, or because they would have previously been too embarrassed to ask for their food to be packed up.

*“The notices on the table made you feel it was ok to ask, the staff didn't have chance to ask me if I wanted to take-home the food because I asked if I could before they asked.”*

Some respondents explained that they had been comfortable over-ordering because they knew that they would be able to take any uneaten food away, whilst one felt that they would have ordered more if they had known about the facility when placing their order.

*“We knew we had an option to take food home so ordered more and ordered a starter which we don't usually do.”*

*“If we'd been more aware of the scheme I'd have ordered desserts too. We passed on desserts because we thought we wouldn't finish them.”*

**Figure 7-8 Reasons for taking up the Good to Go service**

14 respondents (7%) said that they had deliberately ordered additional (unserved) food items to take-home, indicating that the Good to Go service may not only have an impact of food waste, but may also present an opportunity for restaurants to upsell items such as desserts.

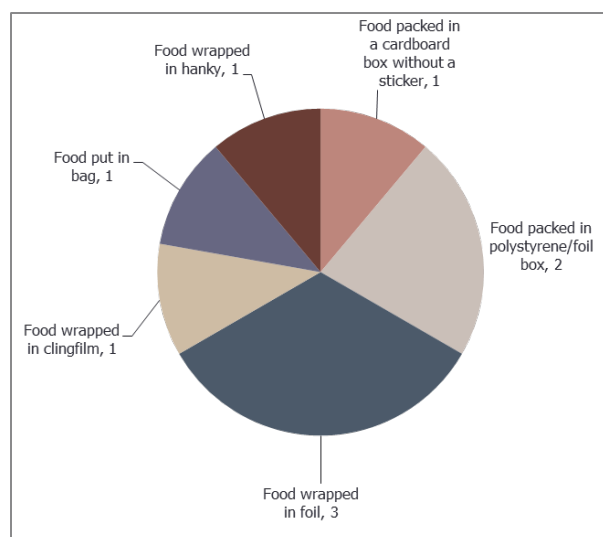
#### 7.4.4.3 Perceptions of the Good to Go containers

Nearly all (94%) of respondents who took food home to eat later, said that it had been packed in the Good to Go box sealed with the sticker. Only seven customers were provided with alternative arrangements and two respondents who were given a box and sticker also took food home in an alternative container (one had the food wrapped in cling film as well as the box, the other had taken unserved food home (upsell) in the box but had also taken some uneaten food home secreted in their handkerchief).

The following chart (**Figure 7-9**) illustrates that some restaurants had wrapped the food up in foil (3) or packed it into their own polystyrene or foil container (2). One respondent had deliberately asked for the food to be wrapped in foil rather than inside the Good to Go box.

*“I had just asked for the food to be wrapped in foil so I could put it straight in my hand bag.”*

**Figure 7-9 Containers used to take food home other than the Good to Go box and sticker (base 9)**



Respondents that had taken food home in a Good to Go box sealed with a sticker were asked to give their views of the information provided on the sticker and the quality & size of the box; the results are illustrated in **Figure 7-10**. Few (three in number) expressed dissatisfaction with the sticker information; because it did not apply to the food that was taken home (cakes) or that it should have had a space where restaurant staff could write in additional information such as the date by which the food should be consumed. Overall, respondents felt that the information provided on the sticker was appropriate, easy to read and readily understood. One respondent mentioned that it was a good idea to have the instructions on the sticker so that they would be difficult to miss.

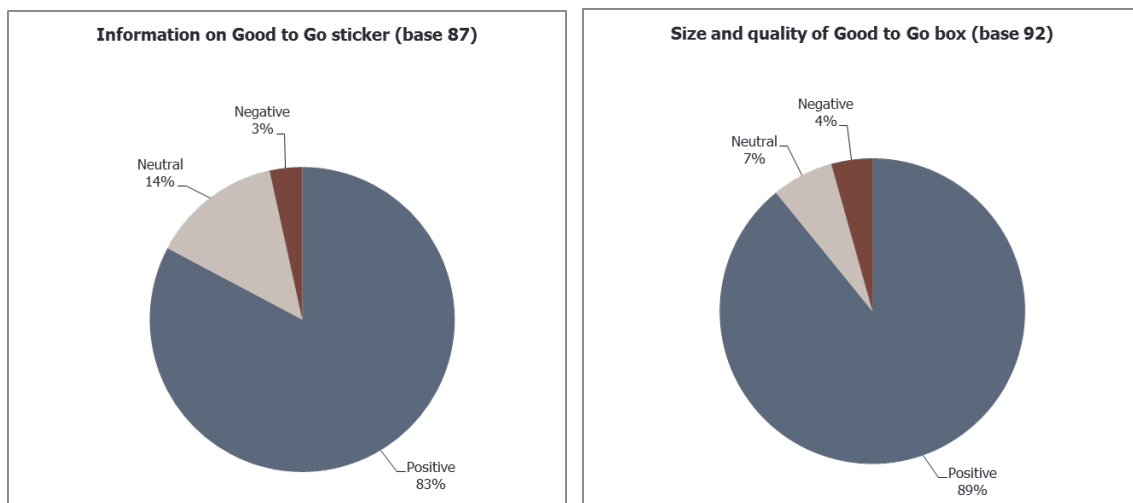
*“The label gave enough information and stuck the lid of the box down so when you open the box you have to read it.”*

Similarly, nearly nine in ten (89%) commented positively on the size and the quality of the box and several mentioned their delight in the box containing their food without any leaks. The design was said to be a key factor in removing any embarrassment in taking food away to eat later.

*“Lovely, exceptional, pleasing to the eye and environmentally friendly. Normally you get a horrible yellow polystyrene box which you do not want to be seen carrying.”*

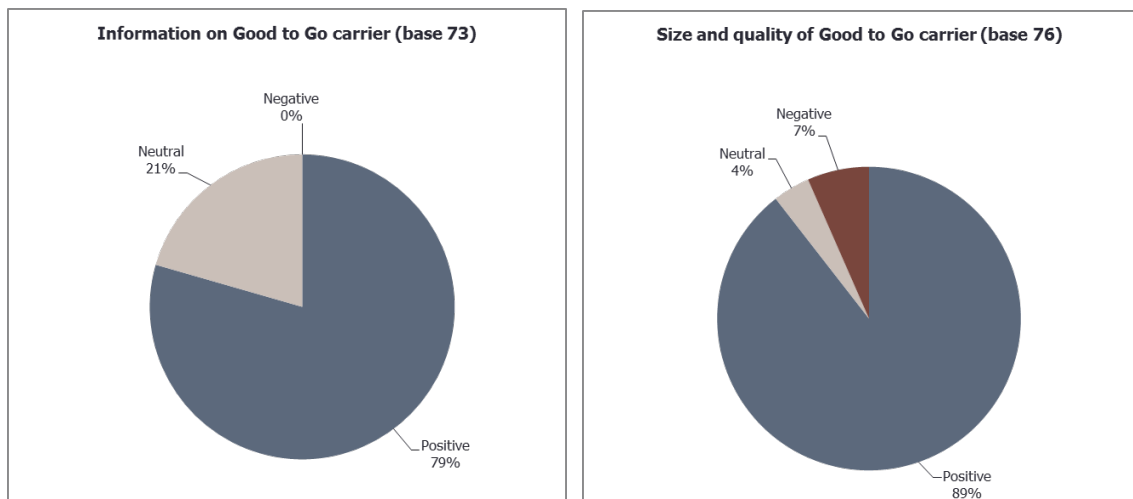
Only four respondents felt that the box did not suit their needs – and this was due to the size. Two felt the box was too big and the other two said it was too small to contain all the food they had left. This may illustrate the need for restaurants having at least two different sized containers available for packing up uneaten food.

**Figure 7-10 Perceptions of the Good to Go box and sticker**



More than three quarters (78%) of respondents who took food home in a Good to Go container were provided with a Good to Go carrier bag. As shown in **Figure 7-11**, none of these had any negative comments to make regarding the information printed on the bag; only five felt that the size and/or quality did not meet their expectations. Complaints ranged from the bag being the wrong size (equally too big or too small) or not being strong enough, especially in the rain.

**Figure 7-11 Perceptions of the Good to Go carrier bag**

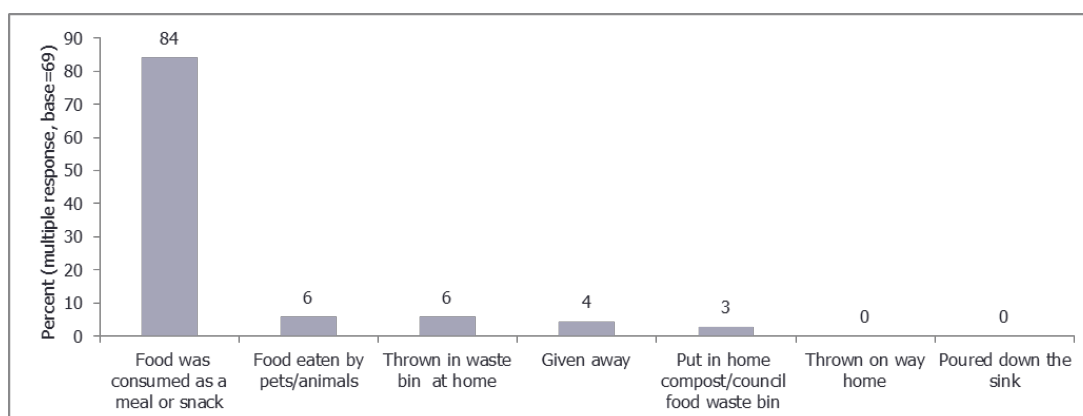


## 7.4.5 Disposal of the food and Good to Go containers taken home

### 7.4.5.1 What happened to the food taken home?

Of the 108 consumers who had taken food away to eat later, more than six in ten (64%) stated that the food was no longer being stored and had been eaten or thrown away. **Figure 7-12** illustrates that nearly all of these respondents stated that they had consumed the food (84%) or fed it to pets (6%). Only four (6%) admitted that the food had been thrown away in the regular waste bin and two (3%) had put it in their home compost or council food waste bin.

**Figure 7-12 How food was consumed or thrown away**



Three of the four respondents who threw their food away in the regular bin explained that they had left the food to long (2) and/or it no longer looked appetising (2). One respondent said that they had eaten the edible food and only thrown away the bones. Three of the four respondents had asked for the food to be packed whilst the other had agreed to take up the service when it was offered to them by the restaurant staff.

### 7.4.5.2 What happened to the Good to Go food containers?

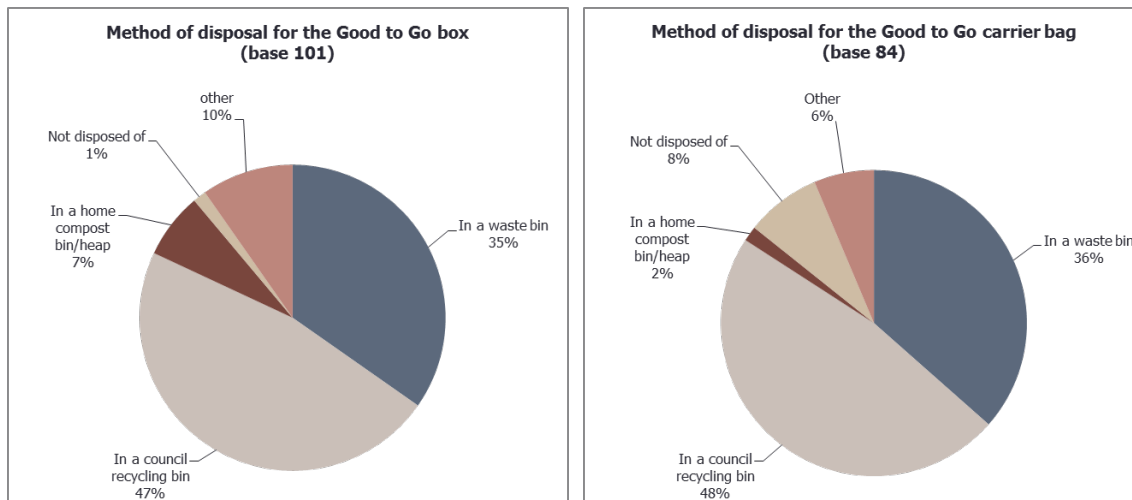
Of the 108 consumers who took food away from the restaurant, 101 had it packed in a Good to Go box and 84 took the box away in the paper carrier bag. **Figure 7-13** illustrates the method of disposal used for each.

Just over a third (35%) said that they had disposed of their box using their regular waste bin. One respondent commented that they had to put the box in their waste bin because of contamination.

*“The box was stained from the food and we are not allowed to recycle food-contaminated cardboard.”*

Nearly half (47%) put the box in their council recycling bin however it is understood that the local authorities would categorise this as contaminated waste and not recyclable. 7% (5 in number) of respondents stated that they had home composted the box after use.

A similar picture emerges for the disposal of the Good to Go carrier bag. More than a third (36%) threw the carrier bag in the household waste bin. Nearly half (48%) put the bag in their council recycling bin although only one mentioned composting the carrier at home. Respondents were more likely to say that they had kept the carrier bag to re-use compared to the cardboard box (five respondents compared to one).

**Figure 7-13 How the Good to Go box and carrier were disposed of**

#### 7.4.6 Impact of the Good to Go service

##### 7.4.6.1 Consumers' overall perceptions of the Good to Go service

Nearly all of the respondents that commented on their overall perceptions of the Good to Go service agreed that it was an excellent offering and would help to minimise food waste. **Table 7-1** gives examples of some of the comments made and shows that the initiative is viewed as a useful service that should be available nationwide. One respondent highlighted that the facility may help people to avoid overeating; the facility to take food home may prevent people from 'forcing' food down.

There were some negative comments regarding aspects of the service, though not necessarily regarding the concept itself. A lack of promotion, quality or style of the materials, use of carrier bags and the need for restaurants not to offer large portions were all identified as potential issues. Only one respondent mentioned that they would be uncomfortable with taking up the service.

**Table 7-1 Comments on the Good to Go service**

Positive Comments
A good, environmental-friendly idea
It is really good and convenient
A great idea and should be available everywhere
A very good idea as some people can feel shy to ask to take leftovers home - it should be encouraged
A worthy initiative and very happy to see it in action
Excellent idea it should be rolled out further
Excellent idea, I hope the scheme is successful and rolled out to a wide range of restaurants
Fantastic idea. I eat out regularly and would definitely use this scheme
It is a prevention of food waste and overeating in one meal
It is a very good service and helps not to waste food when you have paid for it
Promotes a good way of thinking in relation to food waste
The US has done this for years it reduces waste and further promotes food recycling
It is a good idea to promote this more widely; you generally get bigger portions in a restaurant than you would serve at home and therefore more food is wasted

<b>Suggestion for improvement</b>
I had seen the TV coverage and noticed it straight away from the table toppers but the staff did not mention it at all
A bag was offered but I would turn it away anyway. A bag should not be handed out automatically it is wasteful
It is a good idea but surely they shouldn't serve so much in the first place
I do not feel happy asking to take food away
Make the containers/bag waterproof
The card was boring and there is no need for a carrier

#### **7.4.6.2 Willingness to use a take-home service in the future**

As illustrated in

---

**Figure 7-14**, only 13% (25 in number) of all respondents stated that they would not consider using a take-home service such as Good to Go in future; although this is because of an outright refusal to ever consider taking food home, some respondents mentioned that they never have any food left or that they would not do this unless they felt comfortable doing so because it was made to be a 'normal thing to do'.

*"If this service is not offered by the restaurant, one can (as a customer) feel uncomfortable about asking, so it was good to have cards on the table and the impetus from the waiting staff."*

Six in ten indicated that they would be very likely to take any uneaten food home away with them. Overall 87% of all respondents agreed that they would consider taking food home, although some mentioned that this would depend on whether they were going straight home or the type of food that had been left. Some respondents felt that it would be important that they felt comfortable asking for food to be packed or accepting an offer to have food bagged; this would require appropriate promotional activity or familiarity with the restaurant.

*"It depends where you are, if it is Pizza Express then the food lends itself and you don't mind asking for a box and don't feel awkward. If you are in a fancy individual type restaurant you aren't going to ask, and also if you are paying a lot of money for the meal you are not going to waste it."*

*"I do tend to ask if I can take-home leftovers, but it is better if you know the restaurant offer this service as you don't mind asking then."*

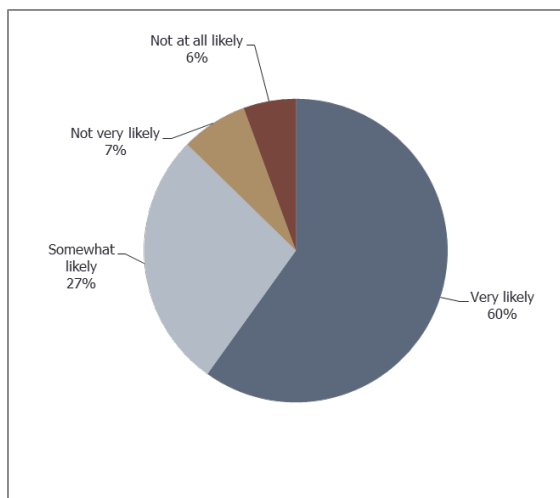
Clearly, a formal scheme that makes taking food home an acceptable norm throughout Scotland is viewed as being a positive initiative to encourage and facilitate consumers to be comfortable in asking for food to be packed up to take-home.

*"Been crying out for this type of service, some establishments won't do this and when asked say it is due to health & safety - most annoying. Once I was not feeling well just as my food arrived so I asked to take it home and they said 'No- I couldn't be trusted to reheat it properly', so I stole the plate with the food on it."*

---



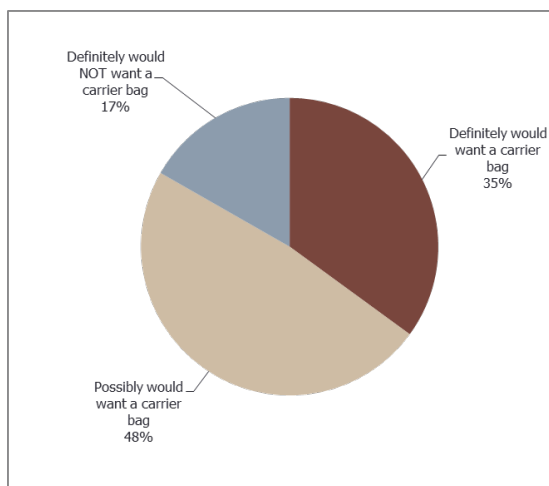
**Figure 7-14 Likelihood of using a take-home service in future (base 197)**



**7.4.6.3 Use of a carrier bag to take uneaten food home in future**

**Figure 7-15** shows that less than a fifth (17%) of respondents indicated that they would definitely not use a carrier bag to take-home uneaten food from a restaurant in the future. Where qualified, respondents mentioned a desire to minimise waste or environmental issues as reasons for this. Conversely, more than a third (35%) stated that they definitely would want to be offered a carrier bag. These respondents suggested that a bag would be necessary to avoid any possible food leakage escaping and that it makes it easier to carry the food box(es). At the very least, it was felt that a carrier bag should be offered by the restaurant staff so that they could decline to take one if not needed.

**Figure 7-15 Requirements for a carrier bag to take food home (base 197)**



Respondents were asked what they thought about a levy of around 5 pence than may be charged if a carrier bag was provided to take a food container home from a restaurant; the results are displayed in **Figure 7-16**. Nearly two thirds (64%) of respondents commented without reservation on their approval of the concept. These comments fell into two main camps; those that supported activities that protected the environment and those that felt that it was necessary for customers to have a choice of paying for a bag rather than not having a bag at all.

*“It is all right; if I don't want to pay, then I have the option of not taking the bag.”*

*“Good idea - too many people take them regardless; they should take their own bags. They should use a 'Baggy' – an American bag, very portable and durable comes in a range of colours and sizes and freezes food.”*

A further 6% (9 in number) appeared to agree with the concept, but felt that 5p is too much to charge for what is essentially a relatively small bag. Similarly, 4% (6 in number) agreed that the levy is a good idea, but that a charge of around 5p would not be enough to deter consumers from using new carriers in future; 10p and even 20p were suggested as charges that would encourage behavioural change.

*“I don't think 5p is enough of a deterrent - it should be 20p so people 'raise their eyebrows'.”*

Overall, a fifth (21%) of respondents disagreed with the concept of a carrier bag levy. Some felt that a paper carrier bag should not incur any charge at all whilst others felt that having paid for a meal, there should be no charge to the customer if they wanted to take any uneaten food home.

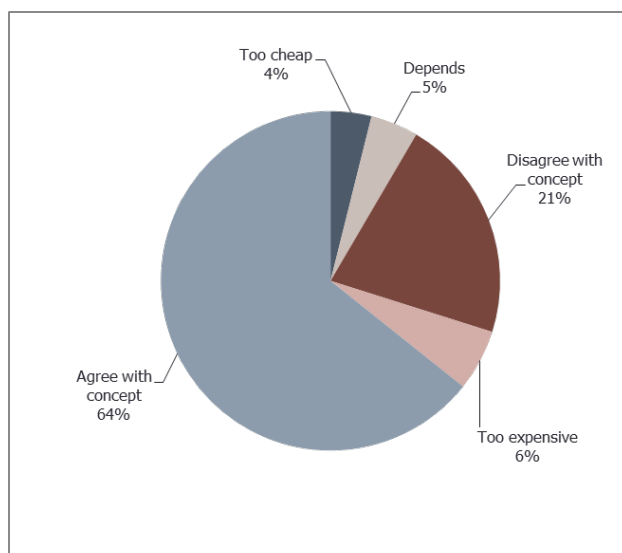
*“No, just 'hide' cost in with the meal cost. If you pay over £100 for a meal then the request for 5P seems a bit miserable, the cost of the carrier bags should just be an overhead for the restaurant so customer doesn't see the cost.”*

One respondent felt that the introduction of a carrier bag levy might dissuade consumers from taking uneaten food home, thereby eradicating any intentions of encouraging food waste minimisation.

*“For me I would say fine, but it might be a deterrent for others taking food home they might say 'forget it' and walk away.”*

Other respondents (5%) felt that their acceptance of a possible levy would depend on factors such as the quality and materials used in the production of the bag and the benefactors of the proceeds raised.

**Figure 7-16 Perceptions of possible carrier bag levy (base 154)**



## 7.5 Implications for a national take-home service

**Table 7-2 Consumer views in relation to a national take-home service**

Issue/Activity	Restaurant staff perceptions
Potential demand	<p>The consumer research indicated that 62% of the participating diners left food uneaten on their plates or in the serving bowls at the end of their meal. Although there will always be occasions when diners are unable or unwilling to take this food home to enjoy another time, more than a third (36%) of the consumers with uneaten food proactively asked for the food to be packed up. Including those that agreed to take the food home when asked by their waiter if they would like to have it packed, more than eight in ten (84%) of the diners with uneaten food left took the food home.</p> <p>The promotional materials used to support the pilot were well received by the consumer respondents. Generally, the Good to Go message was clear to understand and the font style and colours used were liked. The information provided on the box stickers was seen to be relevant and easy to read in most cases and the size and quality of the containers (box and bag) were adequate.</p> <p>The pilot has shown that the availability and promotion (either physical or verbal) of a take-home service is key to encouraging diners to take food home. Although previous research has shown that embarrassment prevents diners from asking for food to be packed up, once there is evidence to show that it is an acceptable activity, consumers are willing to make use of the service when appropriate.</p>
Impact on household food and recyclable waste	<p>The research indicates that when food it is taken home from the restaurant, it is either consumed or recycled via the council collection scheme or home composting; only 6% of respondents threw any of the food away, and some of these were disposing of unavoidable waste left after consumption (such as bones).</p> <p>Just over a third of respondents taking food home threw the cardboard box into the general waste bin. Although nearly half threw their box into the council recycling bin, their efforts to recycle waste this way will be in vain if the council prohibits this material due to contamination. This shows that it is important to provide clear information on how the containers should be recycled in the event of a national initiative. Previous research has illustrated that householders can be confused over the terminology of home composting, imagining that their council garden bin is a form of 'home composting' because the bin is collected from their home. Where council collections do not cater for food containers, alternative methods of disposal, such as HWRCs should be promoted.</p> <p>Conversely, the paper carrier bags are much more likely to be recycled or re-used, with around a third (36%) throwing it away in the regular bin. There was no charge for taking a carrier bag during the pilot, however around a quarter (22%) of respondents were either not given or declined one to take their food box home. If a levy was introduced, indications are that the majority of diners would support this, although a fifth were unhappy with the concept.</p> <p>It is noted that respondent bias may impact these results.</p>

## 8 Lessons learned

### 8.1 Lessons learned for any future pilot study

#### 8.1.1 *Recruitment of restaurants*

The recruitment of participants to any future or similar pilot is crucial to its success. The recruitment of restaurants for the Good to Go pilot demonstrated that a different approach is required for national chains. For these establishments, the local manager, national manager and health and safety representative all need to agree to participation - not just the local contact.

Furthermore, although all written information sent to prospective participants incorporated all information regarding health and safety, restaurants are extremely time poor. It cannot be assumed they will have read any information sent, even if in a very concise format.

If time and resources had allowed then there should have been a face to face meeting with each restaurant to go through the terms of reference and ensure all issues are addressed at this point. This would have also been the point to agree the most appropriate restaurant 'champion' (see 8.1.2 below).

A briefing session was provided to each restaurant but none of the restaurants were able to ensure that all key staff attended this briefing session. The training did rely heavily on the cascade of information by management and staff attending the training. From day one all staff need to attend a formal training session in each restaurant regarding both theory and practice. Because most restaurants do not offer a formal, proactive take-away service, anecdotally it was found that some staff feel embarrassed at offering it; this can be overcome with training using role play if needed.

#### 8.1.2 *Assigning a restaurant 'champion'*

Each restaurant was asked to state who the contact/liaison person would be prior to the pilot commencing. In some cases the contact was not directly involved or changed throughout the pilot making liaising throughout the project duration difficult. One restaurant proved very difficult to communicate with as it was not possible to obtain a mobile phone number and the contact either repeatedly cancelled or did not turn up for on-site meetings. Another restaurant had at least four different staff responsible for the pilot implementation; however, one was never on-site when approached, another left to take annual leave and another continuously claimed to be too busy to discuss pilot progress.

It is critical therefore, that any restaurants recruited in a future pilot are able to provide full contact details of at least one person who will assume responsibility for the pilot and be fully committed to the process.

#### 8.1.3 *Obtaining consumer feedback*

Face-to-face interviews on-site would be the preferred method of obtaining consumer feedback; however, this was not possible as restaurants had concerns about this negatively impacting the 'dining experience'. Those restaurants that agreed to allow research staff to conduct interviews within their premises stipulated that this must be at times when the restaurant was quiet, thereby rendering the feedback limited. Even though a range of methods for participating were provided, the feedback obtained from the consumers for this pilot depended completely on the goodwill of both the restaurant staff (in promoting the research) and the customer taking the time to give their response. A prize draw was considered at the beginning of the project although was not implemented due to lack of budget. When the potential offering of a prize draw was discussed with restaurant staff partway through the pilot in an attempt to boost numbers of respondents, they felt that it would not make a difference.

---

Although it is essential that feedback is obtained from consumers directly exposed and making use of the service offered, this could be supplemented with a phase of face-to-face research with the general public to get a greater understanding of consumer views on how they **might** behave.

#### 8.1.4 *Food containers*

For the pilot, 10,000 boxes and stickers were produced – far too many as it turned out due to a lack of data on which to base the decision. A more detailed examination of possible take-up (type of diners, numbers leaving **suitable** food behind, numbers likely to be going straight home, etc.) at the start of the recruitment phase may help to inform the number of containers that each participating restaurant would need throughout the pilot. It must be noted that the containers and bags remaining after the pilot are being used by the participating restaurants to continue the service offering.

## 8.2 Lessons learned for any further roll-out of a take home service

#### 8.2.1 *Food containers*

Overall, the food boxes used in the Good to Go pilot were well received by the restaurants, although one or two were concerned that they might leak if wet curries or stews are put in them. It would be preferable to provide containers that can be recycled by householders; however, the variability in household kerbside service across different local authority areas, and the risk of food contamination does make this a challenging to find a suitable container for all areas. The stickers on the containers did provide information about home composting but other container options and appropriate messaging in relation to disposal should be kept under review. The labels were also liked by the restaurants, although some changed the information on the 2-day warning to same day, and it may be prudent to state that the container is microwavable.

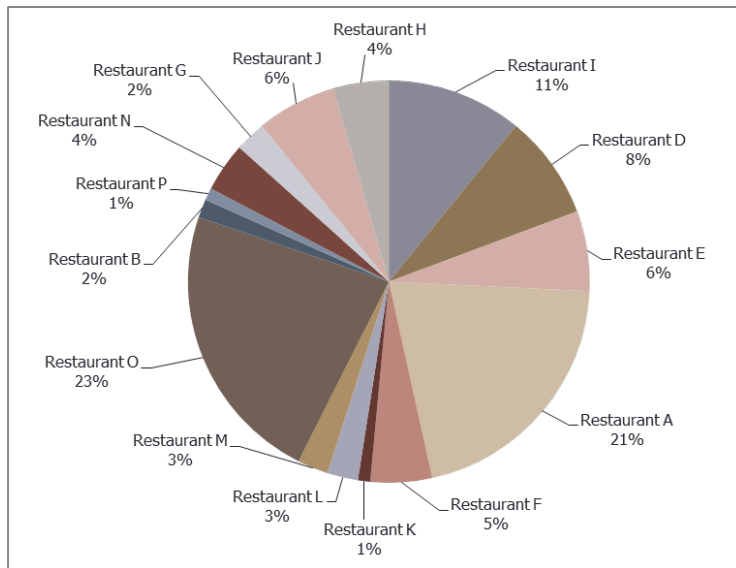
For the pilot, 10,000 boxes and stickers were produced – far too many as it turned out. A more detailed examination of possible take-up (type of diners, numbers leaving **suitable** food behind, numbers likely to be going straight home, etc.) at the start of the recruitment phase may help to inform the number of containers that each participating restaurant would need throughout the pilot.

---

## Appendix A: Profile of consumers completing a Good to Go pilot questionnaire

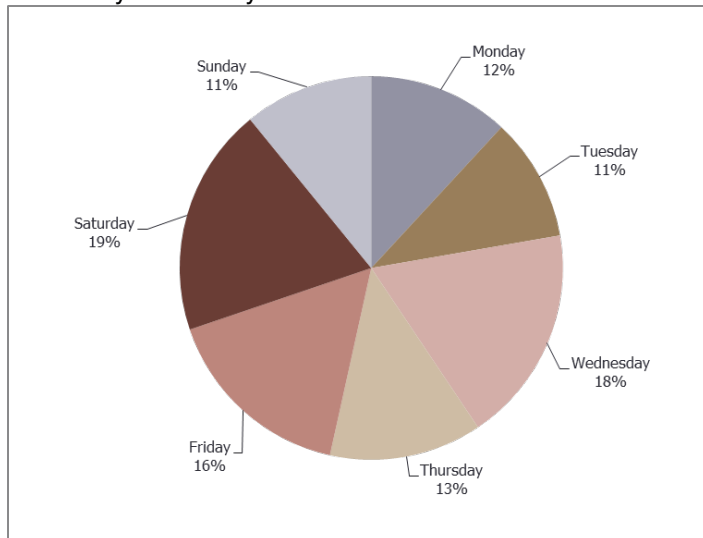
- **Restaurant visited** (base 202)

In order to invite diners to participate in the consumer research, the participating restaurants handed out promotional cards to customers which provided details of the survey online web address and Exodus telephone support line so that they could complete the survey via a telephone interview if preferred. Some restaurants also provided customers with a hard copy of the questionnaire and freepost return envelope. During the research period, a total of 202 questionnaires/interviews were completed by customers in the restaurants shown in the following chart.



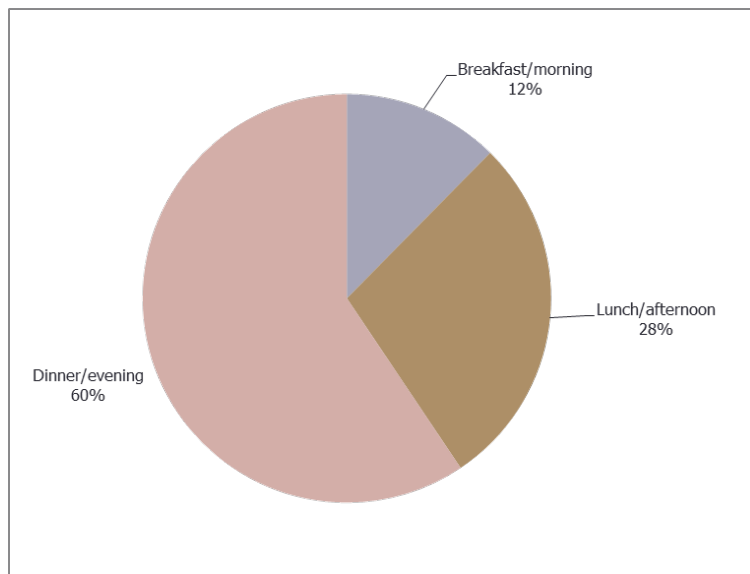
- **Day of visit** (base 202)

All days of the week were covered, although Saturday (19%) and Wednesday (18%) were the most commonly stated days for the visit to the restaurant.



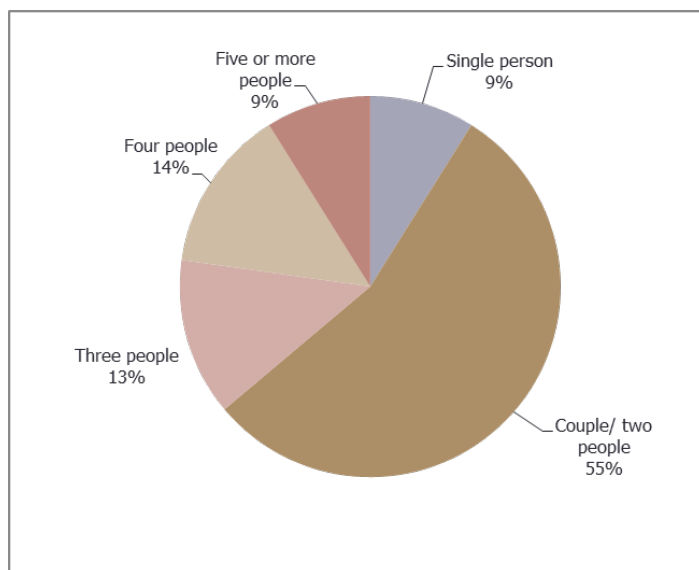
- **Type of service** (base 202)

As expected, the majority (60%) of the questionnaires were completed by respondents who had visited the restaurant in the evening; only two restaurants offered a breakfast service.



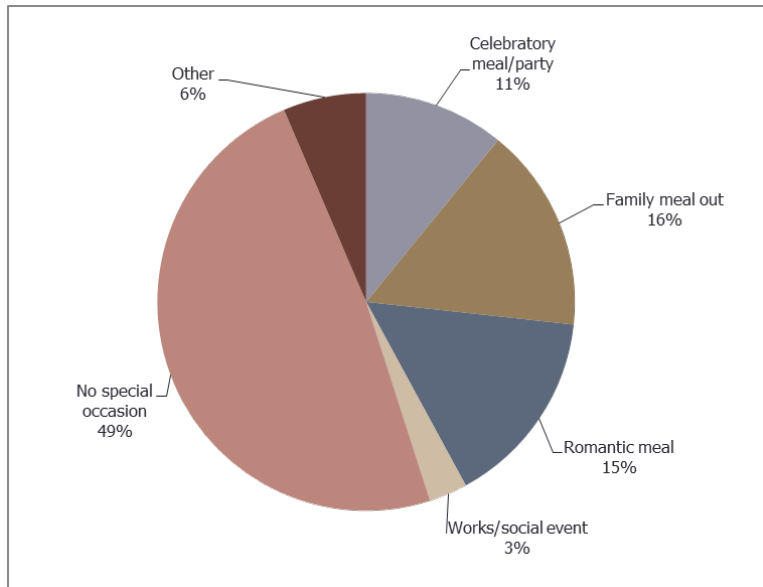
- **Number of people in party** (base 202)

More than half of the respondents visited the restaurant as a couple; 86% of all respondents stated that the party did not include children under the age of 11 years.



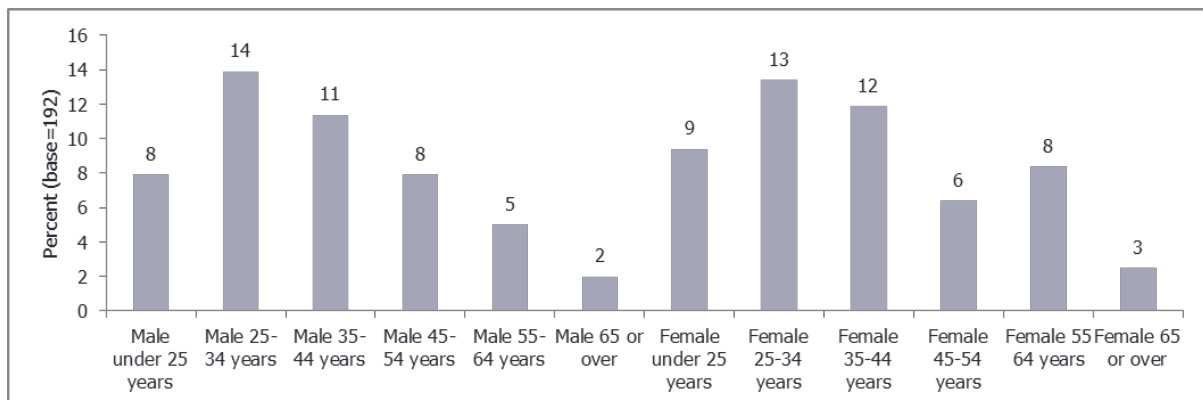
- **Reason for visiting restaurant (base 202)**

Nearly half (49%) of respondents visited the restaurant although there was no special occasion associated with the visit. Otherwise, a family meal out (16%) or a romantic meal (15%) were the most commonly mentioned special occasions. Other reasons for visiting the restaurant included using a voucher or visiting prior to going to the theatre or for afternoon tea.



- **Respondent gender and age (base 202)**

Just more than half (52%) of respondents were female. Respondents were most likely to be aged 25 to 34 years (27%) or 35 to 44 years (23%).





## Appendix B: Development of the pilot materials

The initial scoping exercise provided evidence that Scottish restaurants already have informal doggy bag schemes in place. However, such take-home services are offered on an informal basis when the customer requests uneaten food to be packed or if the staff notices food has been left and offers the service. In some cases plastic takeaway containers are used, especially if the restaurant offers a takeaway service. Other methods used for food to go include food cartons, tin foil (sometimes artistically folded), brown paper bags or own-branded pizza boxes.

Two brand original concepts were developed by the marketing specialists Corporate Culture using the straplines 'Good to Go' and 'Goody Bag' and these were tested and discussed with both shortlisted restaurants and members of the public in face-to-face interviews. The results of this consultation<sup>3</sup> led to the development of the following container materials using the Good to Go branding:

- Cardboard food box.
- Adhesive label to seal the box and to provide information on storage and reheating.
- Paper carrier bag.

Consideration was given to the type of containers that should be made available to participating restaurants for the pilot duration. The carbon impact and disposal options for a variety of container types were explored based on the locations of the participating restaurants. The waxed cardboard 'hot food box' and sugarcane box were considered to be preferable as they have the lowest carbon impact, can be home composted and can potentially be recycled if not contaminated with food residues and grease.

Discussions were held with Zero Waste Scotland about the appropriate messaging that should be included on the container regarding disposal. Due to the risk of food waste contamination on the container it was agreed that the container (the sticker) should not include information to encourage recycling; the information provided was restricted to encouraging home composting: 'this box is sustainably sourced and can be composted at home'.

Further discussions were held with existing doggy bag schemes in Torbay ("Love it, don't leave it") and Belfast ("Bring home box"). Both of these schemes, and the Sustainable Restaurant Association's London scheme ("Too good to waste"), use cardboard 'hot food boxes'. There was a lack of uptake evidence and evaluation from the existing schemes; however, the contacts were able to confirm that this type of container had been found to be suitable over a variety of restaurant and food types.

The waxed cardboard 'hot food box' was chosen over the sugarcane box due to requirements identified by the participating restaurants for the container to be leak proof and available in sizes suitable for most food types.

A preferred supplier was selected based on cost and ability to deliver according to pilot timescales. The supplier produced waxed cardboard 'hot food boxes' and paper carrier bags. Due to minimum order requirements it was only possible to supply restaurants with one size of box (170x155x65mm, volume 1400ml).

To promote the availability of the take-home service to customers visiting the pilot restaurants, table topper cards were produced. Posters were also designed to act as prompts to restaurant staff to remember to offer the new service to their diners. All except one of the participating restaurants used the table topper cards to promote the formal take-home service to customers. Restaurants placed these cards on dining tables, bar areas and counters, and in menu folders. Due to the limited number of posters available (due to budgetary constraints), some restaurants additionally used them as posters on walls and doors.

---

<sup>3</sup> Research results are reported in a separate document submitted to Zero Waste Scotland in February 2014

## Appendix C: Restaurant briefing document

### *Take-home Food Container – Good to Go Pilot Restaurant Briefing Document*



Zero Waste Scotland has been asked by the Scottish Government to conduct a pilot study on the use of take-home food containers in restaurants and the impact these can have on food waste. Your restaurant has agreed to take part in this exciting and important pilot. This document provides information to staff on the background to the pilot and what the pilot will entail.

#### **Who is Zero Waste Scotland?**

Zero Waste Scotland works on behalf of the Scottish Government to help consumers and businesses reduce waste, recycle more and use resources sustainably. Zero Waste Scotland delivers a range of support programmes, campaigns and other interventions to help people and organisations on the journey to Zero Waste in Scotland and to implement Scottish Government's waste and support strategy.

#### **Who is involved with the pilot?**

The project is funded and managed by Zero Waste Scotland. Zero Waste Scotland has engaged Exodus Research, an experienced market research organisation, to work with the participating restaurants in the delivery of the pilot. The pilot is taking place at 11 Scottish restaurants, representing a range of business types.

#### **What is the pilot is trying to achieve?**

The purpose of the pilot is to measure the extent to which use of take-home food containers results in reduced food waste and associated carbon emissions. The findings will be used by Zero Waste Scotland and the Scottish Government to determine best practice for providing take-home containers throughout restaurants in Scotland.

#### **What is the problem with food waste in the hospitality sector?**

Zero Waste Scotland research estimates that businesses in the Scottish hospitality sector dispose of 53,500 tonnes of food waste, two-thirds of which (35,800 tonnes) could be avoided. This waste costs the industry an estimated £64 million a year.

It is estimated that over 26,000 tonnes of 'plate waste', waste left by customers at the end of their meals, is thrown out each year in Scotland. The total cost of this 'plate waste' from the Scottish hospitality and food sector is estimated at over £72 million; this includes the labour cost to prepare, cook and serve the food, the cost of ingredients, energy, water and transport.

In addition, the Waste (Scotland) Regulations require all food businesses generating over 50kg of food waste to segregate it for recycling from 1 January 2014. Food waste producers generating between 5 and 50 kg of food waste will also be required to segregate from 2016. These new Regulations are designed to encourage businesses to examine their waste arisings and find ways to reduce them and their associated costs.

Wasted food is not only a waste of money; it's also a major contributor to climate change. Producing, transporting and storing food uses a lot of energy, water and packaging, which is all wasted if the food gets thrown away uneaten. If the avoidable food waste from the Scottish hospitality industry was prevented and the unavoidable food waste recycled, Scotland could save 150,000 tonnes of CO<sub>2</sub> equivalent emissions, the same as taking almost 50,000 cars off the road for one year.

### What is meant by the term ‘take-home container’?

A container used to package up uneaten food left by a customer at the end of a meal (or course).

### My restaurant already offers take-home food containers so should we do this?

The pilot will try and work out if having a consistent Scottish Government backed approach helps to encourage consumers to take food home by making it more socially acceptable.

The containers and materials developed for the pilot will be used across each restaurant taking part; the stickers used to seal the containers and the paper carrier bags will show food safety information. Research carried out by WRAP found that two fifths of customers are too embarrassed to ask for take-home containers. The research also found customers generally need reassurance: that it is socially acceptable to ask for a take-home container and that it is safe to consume its contents at home at a later date.

### What take-home containers are being provided?

The Good to Go take-home container is a cardboard ‘hot food box’ (1400ml). Stickers are provided to seal the box and provide food safety information.



### What about health and safety?

The Food Standards Agency has provided Zero Waste Scotland with advice on giving out Good to Go containers and this has been used to develop the food safety information that will go onto each container issued:

- If you want to store the food, as a general rule (for foods other than rice) chill the food quickly, ideally within 2 hours as chilling food properly helps to stop the growth of harmful bacteria, and consume the food within 2 days.
- If you reheat the food, you should do so until it is ‘steaming hot’ throughout, reaching a core temperature of 70°C for 2 minutes or equivalent.
- Only reheat leftovers once.
- It is advised that rice is neither kept nor reheated.

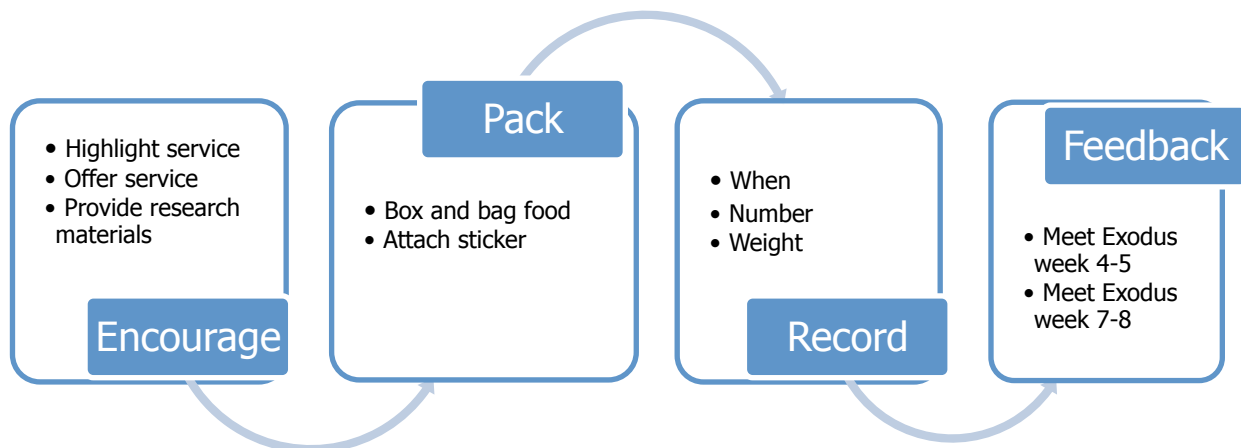
### Is anything else being provided for the pilot?

Paper carrier bags are available to customers to carry the containers. Staff posters and table toppers are also available. Your manager will advise you as to which of these materials are being used.



### What do I need to do?

You are crucial to the success and smooth running of the pilot. We are asking staff to encourage use of the Good to Go containers, to pack the food to be taken home, to record use and give us feedback on the pilot.



### Encourage

- Highlight the service to customers when they arrive.
- Offer the service to customers if they have left food suitable for the “Good to Go” service.
- If used, customers can be shown the table topper to help encourage use of the service.

Exodus is providing research materials to all participating restaurants; these are both to encourage use of the service and to obtain important feedback from customers.

- **Contact card:** to promote the service and to get feedback from customers. These can be left on the front desk, placed on tables or used as a prompt to introduce the service when meeting and greeting customers. Completed cards need to be retrieved from the customer and stored safely until collected by Exodus.
- **Promotional card:** to promotes the research element of the pilot. The card can be placed in the paper carrier bag or placed in the bill wallet.
- **Hard copy questionnaire and pre-paid envelope:** this can be used where customers do not want to leave their contact details or would like to participate in the research immediately.

Staff should obtain further guidance on the use of these materials from your manager.

#### **Prepare and provide information**

- Take food away from table and place in a “Good to Go” container/s and paper carrier bag.
- Attach a “Good to Go” sticker to every container used. It is very important that one of the “Good to Go” stickers is attached to the box; this sticker provides important food safety information. There are also bags available if requested by a customer or if more than one container is being provided.

#### **Record**

- Monitoring sheets and a set of scales will be provided to record use of the containers.
- The sheet records date, number of containers, total weight and additional comments.
- The sheet should be used to identify if the uneaten food taken was food left on the plate or for additional food requests e.g. pudding.

#### **Feedback**

- Exodus will visit participating restaurants in week 4/5 and week 7/8 of the pilot at a time agreed with your manager.
- The meetings will be used to get feedback from staff on how the pilot has been going.

#### **What should I use the take-home container for?**

- **Uneaten food:** any uneaten food left by the customer that they would like to take-home.
- **Additional food requests:** the take-home containers can be used for additional food requested by a customer e.g. to take a dessert home for later.

#### **What shouldn't I use the take-home container for?**

- **Take-away orders:** the take-home containers should not be used for take-away orders.
- **Rice:** the take-home container should not be used for any rice as this has been identified as unsuitable by the Food Standards Agency.
- **Foods that your restaurant does not want to pack:** the take-home container should not be used or any types of food identified by your manager as inappropriate.

#### **Do I have to use the term Good to Go when talking to customers?**

No, there are lots of different ways you could ask customers if they want to take food home:

- *“Would you like that food ‘Good to Go?’”*
- *“Shall I make that ‘Good to Go?’”*
- *“Would you like that food boxed to take-home for later?”*
- *“Would you like that packaged to take-home?”*
- *“Would you like to take that with you?”*
- *“Would you like me to box that up for you?”*

#### **What should I do if a customer wants to take leftover rice home?**

Guidance from the Food Standards Agency is that rice should not be included in take-home containers. Any customer questioning why the rice can't be taken should be given this information.

#### **What should I do if a customer wants to take-home food that we have been told we can't offer?**

Tell them that guidance from the Food Standards Agency restricts the restaurants from offering some types of food in a take-home container.

#### **What if a customer asks what they should do with the container after it has been used?**

Tell them that the container can be composted, if they have a compost bin at home, or it should go into their household waste bin. The paper carrier bag can be recycled using council household recycling services.

#### **What will the Zero Waste Scotland team be doing?**

The project team will be available to provide support throughout the pilot and will be conducting monitoring and evaluation work to assess how well the pilot is working.

---

**How will we know if the pilot has been successful?**

We have designed a programme of research that will enable us to collate and record information that we need to be able to assess the extent to which the pilot has had an impact on food waste; this covers four important areas:

1. The amount of food that is left on plates: Your restaurant t has already helped us to weigh the amount of plate waste that is left behind by diners before the pilot started. This exercise will be repeated towards the end of the pilot (weeks 7-8) so that we can identify any change in the amount of plate waste.
2. Staff feedback: it is important that we understand how the pilot has been received; what has worked well and what could be improved. Exodus will liaise with your manager to arrange meetings with staff at convenient times, either in a group or individual setting, to fit in with normal restaurant activities.
3. Consumer research: it is important to get the opinions of the “Good to Go” service from customers visiting your restaurant during the pilot duration. This includes both diners who take a container home and those who chose not to use or do not have need of it. We have designed a questionnaire to capture consumer feedback; this can be accessed on-line, via a telephone or face-to-face interview or paper copy (with freepost envelope).
4. General pilot support: Exodus will liaise with restaurants on a regular basis by phone/visit (at agreed times) to ensure you are happy with progress, have enough stock and to answer any queries or concerns.

**How long is the pilot?**

The pilot will run for 8 weeks from the 31<sup>st</sup> of March.

**Who do we contact if we're running out of containers or any of the other materials?**

The team have provided take-home containers, bags and other materials. The team will replenish stocks of containers and paper bags on request as long as 2 days' notice is given. The team can also be contacted if any issues arise that you are unsure about (see below).

**Who do I contact if I have a question or an issue?**

Contact your manager in the first instance; if your manager needs input from the team we can be contacted during normal working hours (9am-5pm). Out of normal working hours a message can be left or email sent and the issue will be dealt with as soon as possible the next working day.

<b>Project team contact details</b>	
Primary contact.	<i>Name, telephone, email</i>
Secondary contact.	<i>Name, telephone, email</i>

**What will happen after the 8 weeks of the pilot are over?**

This will be agreed between your manager and the team based on how the pilot progresses over the 8 weeks.



**What PR will be associated with the pilot?**

The project was launched nationally on the 20<sup>th</sup> of March at Two Fat Ladies at The Buttery in Glasgow. Details of the project will also be added on the “Love food, hate waste” website ([www.lovefoodhatewaste.com](http://www.lovefoodhatewaste.com)). A final report on the results of the pilot will be published and there is likely to be more PR associated with this.

**How will the results be used?**

The results will be used by Zero Waste Scotland and the Scottish Government to decide if the service should be supported across the whole of Scotland.

## Appendix D: Plate waste weights form

<b>GOOD TO GO</b> <b>Pilot of take home containers in restaurants</b>		 
<b>Restaurant Name:-</b>		
<b>PLATE WASTE WEIGHT RECORD</b> <p>One of the objectives of the pilot is to understand the extent to which it reduces the amount of uneaten food that is left on the plate (plate waste). To enable this, we need to have an estimate of the weight of the plate waste that your restaurant throws away over a two week period at the end of the pilot. We would therefore be grateful if you would weigh any food left on served plates &amp; dishes from <b>Monday 12<sup>th</sup> May to Sunday 25<sup>th</sup> May</b> and record this in the table below. <i>Please do not include any food waste that has not been served to customers (e.g. preparation waste).</i> Please ensure the weight of the empty container is not included in the measurements you record.</p> <p>The completed sheet(s) need to be posted to Exodus at the end of the pilot using our freepost address: ADDRESS, alternatively you can email the returns to EMAIL.</p> <p>If you have any queries at all, please do not hesitate to contact <b>XXX or XXX on ☎XXX</b>. Thank you once again for your help with this part of the research and for taking part in this important pilot.</p>		
<b>Date of plate waste arising</b>	<b>Weight (grams) of plate waste</b> (please state unit used if not grams)	<b>Any additional comments about the food waste</b>
<i><b>Example:</b> Monday 12<sup>th</sup> May</i>	<i>1100 grams</i>	<i>This includes all plate waste except for one table of four, mostly vegetables, bread and chicken bones.</i>





## Appendix F: Consumer questionnaire

### Good to Go Pilot Customer Research

#### INTRODUCTION

We are conducting some research to assess the impact of a pilot which is taking place in a select number of restaurants in Glasgow and Edinburgh. The research is being undertaken on behalf of Zero Waste Scotland and the Scottish Government and is being managed by Exodus Research, a full member of the Market Research Society. The survey should take no more than a few minutes to complete and all information that you provide will be kept confidential and anonymous. If you have any queries at all, please do not hesitate to call our help line on Freephone xxx.

#### **SECTION 1: BACKGROUND INFORMATION**

Q1.1. Which of the following restaurants did you visit? *Please tick one*

- (select from list)

Q1.2. On which day did you eat at the restaurant and for which service? *Please tick one for each*

- | <b>DAY</b>  |                            | <b>SERVICE</b>      |                            |
|-------------|----------------------------|---------------------|----------------------------|
| • Monday    | <input type="checkbox"/> 1 | • Breakfast/morning | <input type="checkbox"/> 1 |
| • Tuesday   | <input type="checkbox"/> 2 | • Lunch / midday    | <input type="checkbox"/> 2 |
| • Wednesday | <input type="checkbox"/> 3 | • Dinner / evening  | <input type="checkbox"/> 3 |
| • Thursday  | <input type="checkbox"/> 4 |                     |                            |
| • Friday    | <input type="checkbox"/> 5 |                     |                            |
| • Saturday  | <input type="checkbox"/> 6 |                     |                            |
| • Sunday    | <input type="checkbox"/> 7 |                     |                            |

Q1.3. Which of the following best describes your party that ate at the restaurant? *Please tick one*

- |                       |                                  |                       |                                  |
|-----------------------|----------------------------------|-----------------------|----------------------------------|
| • Single person       | <input type="checkbox"/> 1 →Q1.5 | • Four people         | <input type="checkbox"/> 4 →Q1.4 |
| • Couple / two people | <input type="checkbox"/> 2 →Q1.4 | • Five or more people | <input type="checkbox"/> 5 →Q1.4 |
| • Three people        | <input type="checkbox"/> 3 →Q1.4 |                       |                                  |

Q1.4. Did your party include children aged less than 11 years of age? *Please tick one*

- |       |                            |      |                            |
|-------|----------------------------|------|----------------------------|
| • Yes | <input type="checkbox"/> 1 | • No | <input type="checkbox"/> 2 |
|-------|----------------------------|------|----------------------------|

Q1.5. Which of the following best describes the occasion for your visit? *Please tick one*

- |                          |                            |                       |                                  |
|--------------------------|----------------------------|-----------------------|----------------------------------|
| • Celebratory meal/party | <input type="checkbox"/> 1 | • No special occasion | <input type="checkbox"/> 5       |
| • Family meal out        | <input type="checkbox"/> 2 | • Other (write in)    | <input type="checkbox"/> 6 _____ |
| • Romantic meal          | <input type="checkbox"/> 3 |                       |                                  |
| • Works/social event     | <input type="checkbox"/> 4 |                       |                                  |

Q1.6. Please give your gender and age group. *Please tick one*

- |                       |                            |                         |                             |
|-----------------------|----------------------------|-------------------------|-----------------------------|
| • Male under 25 years | <input type="checkbox"/> 1 | • Female under 25 years | <input type="checkbox"/> 7  |
| • Male 25-34 years    | <input type="checkbox"/> 2 | • Female 25-34 years    | <input type="checkbox"/> 8  |
| • Male 35-44 years    | <input type="checkbox"/> 3 | • Female 35-44 years    | <input type="checkbox"/> 9  |
| • Male 45-54 years    | <input type="checkbox"/> 4 | • Female 45-54 years    | <input type="checkbox"/> 10 |
| • Male 55-64 years    | <input type="checkbox"/> 5 | • Female 55-64 years    | <input type="checkbox"/> 11 |
| • Male 65 or over     | <input type="checkbox"/> 6 | • Female 65 or over     | <input type="checkbox"/> 12 |

#### **SECTION 2: AWARENESS OF THE Good to Go SERVICE**

Q2.1. The restaurant you visited is taking part in a pilot to promote the Good to Go service. What, if anything, did you understand this service to be about? *Please tick all that apply*

- |   |                            |
|---|----------------------------|
| • A take-away service so customers don't have to eat-in   | <input type="checkbox"/> 1 |
| • A service to enable customers to take home additional food items like an extra dessert        | <input type="checkbox"/> 2 |
| • A service to enable customers to take home food that was served but that they couldn't finish | <input type="checkbox"/> 3 |
| • I don't know  | <input type="checkbox"/> 4 |
-

- Other (please write in) 5 \_\_\_\_\_

Q2.2. Did you see the table top card (Figure 1 shown) promoting the Good to Go service? Please tick

- Yes 1 →Q2.3
- No 2 →Q2.5
- Not sure 3 →Q2.5



one

Q2.3. What do you think about the style and colour of the table card? Please write in

Q2.4. What do you think of the message that the table card was promoting? Please write in

Q2.5. Did the restaurant staff talk to you about the Good to Go service? Please tick one

- Yes (please describe briefly) 1 \_\_\_\_\_
- No 2

Q2.6. Is there any other information that you think should have been made available about the Good to Go service? Please tick one

- Yes (please write in) 1 \_\_\_\_\_
- No 2

### **SECTION 3: USE OF THE Good to Go SERVICE**

Q3.1. Did you/a member of your party have any uneaten food left on your plate/in serving dishes at the end of your meal? Please tick one

- Yes 1 →Q3.2
- No 2 →Q3.7

Q3.2. Briefly, what type of food was left uneaten at the end of your meal? Please write in

Q3.3. Did you (or a member of your party) ask if the uneaten food could be packed up to take home or did your waiter offer to do this for you? Please tick one

- Yes, I (or a member of my group) asked for the food to be packed up 1 →Q3.6
- The waiter/restaurant staff asked if I/we wanted the food packed up 2 →Q3.4
- No, it was not mentioned at all 3 →Q3.5

Q3.4. Did you (or a member of your party) agree to have the uneaten food packed up to take home? Please tick one

- Yes 1 →Q3.6
- No 2 →Q3.5

Q3.5. What was the reason for not asking for/having the uneaten food packed up to take home? Please tick all that apply

- Did not know I/we could do this 1 →Q3.7
- Food not suitable/not enough to take home (please explain) 2 →Q3.7
- Did not feel comfortable doing this 3 →Q3.7
- Not convenient/did not go home after eating 4 →Q3.7
- Would not want to eat the food later on 5 →Q3.7
- Other reason (please write in) 6 →Q3.7 \_\_\_\_\_

Q3.6. What was the reason for having the uneaten food packed up to take home? Please tick all that apply

- Didn't want to waste money 1
- Don't like wasting food 2
- Saves having to cook later/tomorrow 3
- To enjoy another time 4
- To give to someone else to enjoy 5
- To feed dog/animals 6
- Other reason (please write in)

7 \_\_\_\_\_



Q3.7. Did you (or a member of your party) ask to have any extra food (e.g. a dessert) that was not served as part of your meal packed up to take home? *Please tick one*

- Yes  1 → Q4.1
- No  2 → IF YOU TOOK FOOD AWAY GO TO Q4.1. OTHERWISE GO TO Q5.7

**SECTION 4: PERCEPTIONS OF THE Good to Go CONTAINERS**

Q4.1. Did you receive your packed food in a cardboard box with an information sticker on it (Figure 2 shown) promoting the Good to Go' service? *Please tick one*

- Yes  1 → Q4.3
- No  2 → Q4.2



Figure 8-1: Good to Go food box

Q4.2. Which of the following best describes how your food was packed? *Please tick all that apply*

- In a cardboard box without sticker  1 → Q4.5
- In a polystyrene/foil box  2 → Q4.5
- Wrapped in foil  3 → Q4.5
- Wrapped in cling-film  4 → Q4.5
- Other container / wrap (please write in)  5 → Q4.5 \_\_\_\_\_

Q4.3. What did you think about the information provided on the box sticker, was it easy to understand and tell you everything you needed to know? *Please write in*

Q4.4. What did you think about the size and quality of the food box? *Please write in*

Figure 8-2: Good to Go carrie

Q4.5. Did you receive your packed food in a Good to Go paper carrier bag (Figure 3 shown)? *Please tick one*

- Yes, I received a Good to Go carrier bag  1 → Q4.6
- No, I did not receive a Good to Go carrier bag  2 → Q4.8



Q4.6. What did you think about the information provided on the carrier bag, was it easy to understand and tell you everything you needed to know? *Please write in*

Q4.7. What did you think about the size and quality of the carrier bag? *Please write in*

Q4.8. If you would like to make any further comments about the Good to Go service, containers or promotional materials, please write in below. *Please write in*

**SECTION 5: OUTCOME OF THE Good to Go SERVICE**

Q5.1. What has happened to the uneaten food that was packed up? *Please tick one*

- Not applicable, just received  1 → Q5.2
- Still being stored  2 → Q5.2
- Consumed or thrown away  2 → Q5.3
- Don't know  4 → Q5.4

Q5.2. We would really like to find out what happens to the food; whether it gets eaten or how it is disposed of. If you are happy for us to contact you in a couple of days, please give your contact details below. *Alternatively please ring us on ☎ 0800 xxx*

Name	Phone (inc code)	Email	

Q5.3. How was the food taken home in the Good to Go container eaten or thrown away? *Please tick all that apply*

- Consumed as meal/snack 1 →Q5.5
- Eaten by pets/animals 2 →Q5.5
- Given away 3 →Q5.5
- Thrown away on way home 4 →Q5.4
- Thrown into waste bin at home 5 →Q5.4
- Poured down the sink 6 →Q5.4
- Put in home compost/council food bin 7 →Q5.5
- Other (*please write in*) 8 →Q5.5

Q5.4. What was the reason for throwing the food away in the bin or down the sink? *Please tick all that apply*

- Parts leftover (*e.g. chicken bones after eating the rest*) 1
- Left too long before ready to eat it 2
- No longer fancied eating it 3
- Didn't look very nice 4
- Too much bother to re-heat 5
- Worried about food safety 6
- Didn't go straight home 7
- Other (*please write in*) 8 \_\_\_\_\_

Q5.5. How was the Good to Go cardboard box disposed of? *Please tick one*

- In a waste bin 1
- In the council recycling bin 2
- In a home compost bin/heap 3
- Not applicable 4
- Other (*please write in*) 5 \_\_\_\_\_

Q5.6. How was the Good to Go carrier bag disposed of? *Please tick one*

- In a waste bin 1
- In the council recycling bin 2
- In a home compost bin/heap 3
- Not applicable 4
- Other (*please write in*) 5 \_\_\_\_\_

Q5.7. If you had uneaten food after eating a meal in a restaurant in the future, provided it was suitable to take home, how likely are you to do this? *Please tick one*

- Very likely 1
- Somewhat likely 2
- Not very likely 3
- Not at all likely 4

Q5.8. If you were to take home any uneaten food after eating a meal in a restaurant in the future, would you want the container to be given to you in a carrier bag? *Please tick one*

- Definitely would want a carrier bag 1
- Possibly would want a carrier bag 2
- Definitely would NOT want a carrier bag 3

ADDITIONAL COMMENTS

Q5.9. Finally, what do you think about a levy (circa 5p) that may be chargeable if a carrier bag was used to take home a food container? *Please write in below*

ADDITIONAL COMMENTS

**THANK YOU FOR YOUR TIME. PLEASE RETURN THIS COMPLETED FORM USING THE FREEPOST ENVELOPE PROVIDED, OR POST TO THE FREEPOST ADDRESS BELOW**

## Appendix G: References

WRAP (2010) WRAP material bulk densities summary report.

WRAP (2013a) Where food waste arises within the UK hospitality and food service sector: spoilage, preparation and plate waste.

WRAP (2013b). Waste in the UK Hospitality and Food Service Sector - Full Technical Report.

Zero Waste Scotland Carbon Metric - <http://www.zerowastescotland.org.uk/category/subject/carbon-metric>





**Inspiring change  
for Scotland's  
resource economy**

Find out more at [zerowastescotland.org.uk](http://zerowastescotland.org.uk)  
or call freephone **0808 100 2040**