

Measuring food waste: manual and smart meter based approaches

Summary

Sodexo took part in a food waste monitoring trial evaluating the use of manual monitoring and smart meters at six of its UK and Ireland sites. The project was funded by WRAP as part of the Hospitality and Food Service Agreement (HaFSA).

Although both the manual and smart meter approaches required time to implement, once in place, staff found the additional processes were easy to integrate into the day to day running of the kitchens. The data gathered provided valuable insights into the sources and scale of food waste and supported the identification and implementation of a range of actions to reduce food waste. The project highlighted that when introducing any food waste monitoring it is important to take time to consider set-up space and equipment integration, data accuracy, staff motivation and the impacts of introducing changes to existing practices.

- Overall the sites achieved food waste reductions ranging from 5% to 41% savings in grams per cover from the baseline.
- These reductions equate to food waste savings of the equivalent of 12 tonnes per annum (tpa) across the sites or a 6% reduction in food waste per cover across all six sites.
- Cost savings using smart meters created a 7p/cover saving, amounting to £3,900 savings from the eight week monitoring period, the equivalent of £25,000 per annum. Manual monitoring systems delivered a similar waste reduction by weight but accurate costs cannot be given as the types of food wasted was not recorded in enough detail. The process of monitoring increased awareness of food waste, staff engagement and also created greater team cohesion.



Containers for manual monitoring

'This project has helped highlight the benefits of food waste tracking but also the challenges. Having this level of information on the two monitoring approaches will certainly aid better decision making and enhance advice provided to Sodexo sites on the best route to take in addressing food waste'.

Paul Bracegirdle, Environmental Manager, Sodexo UK and Ireland

forward

Food waste monitoring, manual vs smart meter

Approaches, actions and staff feedback

Tackling food waste - conclusions

Background

Sodexo UK and Ireland is a contract caterer employing over 5000 staff. They are a founding member of the HaFSA www.wrap.org.uk/hospitality which is working with industry to take action on reducing waste and increasing recycling rates.

Sodexo wanted to understand the challenges and benefits of the two approaches of manual food waste monitoring and smart meters. To do this six Sodexo UK and Ireland sites in the corporate, defence and healthcare sectors were identified to take part in a food waste monitoring trial. Three sites followed the manual approach and three followed the smart meter approach. Each site set a baseline over a four week period and then implemented food waste prevention actions for eight weeks.

Manual approach

Before monitoring began, staff briefings were held at each of the sites. At the briefings staff at each of the sites were given:

- guidance sheets that provided information on how to record the data during the baseline and monitoring periods;
- weighing scales;
- Three containers for food waste, one for plate waste, one for production/preparation waste and one for expired or spoiled goods.

Staff were asked to weigh each container at the end of each service period (breakfast, lunch, dinner, hospitality event) and record weights on a sheet split into:

- preparation and overproduction waste;
- expired/spoiled/out of date waste;
- customer plate waste.

The sheets were then entered into a spreadsheet which was exported once a week to the project team for analysis. Once the data had been normalised for the number of covers, weekly staff calls were held to discuss levels of food waste and prevention opportunities.

Smart meter approach

Staff briefings were held with each of the three sites on the background to the project. The three sites were given a LeanPath food waste smart meter, which was an android tablet connected to Wifi.

Staff were asked to weigh and then categorise food waste by food item, service period and reason for waste. This was done by selecting icons on the tablet touch screen. This data was automatically uploaded into the LeanPath Reporting Dashboard and was used to identify food waste hot spots. As procurement data had also been uploaded the system was able to calculate the cost of the food being wasted.

Once the data had been normalised for the number of covers, weekly staff calls were held to discuss data and suggest food waste prevention actions.

Setting the baseline and identifying actions

Each site measured food waste to set a baseline for four weeks. The sites then started the eight week monitoring period, trialling between four and eight food waste prevention actions at each site.

At the smart meter sites the Leanpath software identified commonly occurring food that was being wasted, the reason and the service period e.g. overproduction of beans at the lunch service. Using this data food waste prevention actions were discussed at weekly teleconferences with staff on site and the remotely based smart meter support staff.

At manual sites, the data was analysed by the project team using a spreadsheet and then weekly teleconferences were held with staff site leads. Due to the level of manual categorisation being recorded in this trial, the manual sites could only identify the type of waste and service period from the data, e.g. plate waste at lunch time, rather than the individual item or food group causing the food waste. The team relied on the staff to identify specific food waste prevention actions.

Examples of actions

Actions that led to reduced food waste across all six sites included:

- **Batch cooking:** cooking smaller batches more frequently;
- **Portion control:** keeping tight control of served portions by weighing and measuring food or serving food in specifically selected crockery;
- **Customer numbers:** accessing better data on customer numbers to help improve forecasting;
- **Vegetable preparation:** preparing too many vegetables was a common area that produced food waste. The emphasis on preparing for the right numbers and a focus on portion control significantly improved this;
- **Purchasing:** improving tracking of items in stock and having effective purchasing processes;
- **Using leftovers:** improved use of leftovers, examples included using the ends of tomatoes from the salads in the soup and creating croutons from the leftover baguettes;
- **Self-serve:** introducing a self-serve on salad so that customers tailor their portion according to their appetite.

Results

The food waste savings achieved across all the sites were very similar with a 22% reduction in grams per cover on average across the manual sites and a 16% reduction in grams per cover across the technology based sites.

Applying this percentage reduction to the weight of waste collected during the monitoring period gives of total of 1800kg or 12 tonnes per year of food waste prevented across all six sites. Cost savings were not established for the manual sites, however the sites using smart meters recorded a 7p/cover saving, amounting to £3,900 savings from the eight week monitoring period, the equivalent of £25,000 per annum.

Staff feedback and behaviour change

Staff feedback was collected via telephone interviews with the site leads plus a short online survey which was completed by kitchen staff at all sites.

- The monitoring trials were successful in increasing staff awareness of food waste. This was reflected in the staff survey, which found 89% of respondents either agreed (56%) or strongly agreed (33%) that the monitoring raised their awareness of food waste.
- Overall the food waste monitoring was well received by all trial sites regardless of the method used.
- Both approaches were considered easy to adapt to the running of the kitchens by management and the data gathered by both methods was valuable in terms of identifying and implementing food waste reduction actions.
- However some staff found the food waste monitoring time consuming. This was particularly apparent at the technology based sites that collected a greater level of detail of data.

Staff motivation and communications

Interviews revealed a range of motivations. Some staff members were motivated by wasting less food or saving money, and others by the environmental benefits and preserving the world for future generations. Many staff were motivated by attaining results and achieving better ways of operating, whilst preventing food waste and saving money.

Progress was communicated to staff at weekly meetings, as well as displaying graphs tracking progress on notice boards. Staff were keen to see comparison or benchmark data to understand how they were performing. In addition some sites found identifying food champions to keep staff motivated very effective.

Challenges and solutions

Overall, both monitoring techniques were considered effective at engaging staff and reducing food waste. Whilst both systems required time to implement, and vary in the level of financial investment required, they provided valuable insights into the sources and scale of food being wasted.

The approach taken in the manual trial did encourage more widespread staff involvement and therefore awareness to pinpoint food waste prevention actions and discuss opportunities.

The manual approach was more labour intensive as food waste data was recorded by hand and then all the data was entered into a spread sheet.

The way the manual trial had been set up meant that it was difficult to distinguish between avoidable food waste (potato skins, crusts) and unavoidable food waste (bones, inedible peel, egg shells, tea bags, coffee grounds) and between preparation waste and over production, in addition no detail was given on the specific item of food wasted.

The technology approach required a higher level of capital investment (to rent the smart meter). There were also issues with some staff who struggled with data entry, this was overcome by introducing more training. With the technology approach it is important to think about what data you want to capture to avoid categorisation becoming over complicated.

Conclusions

This trial has shown that monitoring food waste leads to food waste reduction and this can be achieved effectively by using a manual or smart meter approach. To run a successful trial businesses need to:

- Have a clear approach to engaging with staff which needs to involve staff working in food preparation and service, as well as staff involved in menu planning, purchasing, and food waste disposal. This should occur before and during the trial.
- Get commitment to reducing food waste at all levels of the organisation so that food waste prevention actions can be tackled quickly.

Top tips

- ✓ Actively track what food is being thrown away.
- ✓ Check your specifications (e.g. meal element portions and preparation procedures) and make sure these are met consistently.
- ✓ Prepare and cook in small batches to respond to demand 'on the go'.
- ✓ Make the most of meat, fruit and vegetables through careful trimming (e.g. reducing the end waste on carrots).
- ✓ Where possible use pre-portioned meal elements.
- ✓ Take particular care over portioning of chips, veg and salad garnish.
- ✓ Maximise the use of prepared and not served food in daily 'specials'.
- ✓ Offer 'lite' bite versions of main courses.
- ✓ Ask customers if there are meal items they don't want to be included in their meal, such as tomatoes with breakfast and steaks.
- ✓ Reduce side dish and buffet plate and bowl sizes, but allow top ups.

The Hospitality and Food Service Agreement

In June 2012, WRAP launched the Hospitality and Food Service Agreement, a voluntary agreement to support the sector in reducing waste and increasing recycling rates.

For more information, as well as tools and guidance, on WRAP's work with the Hospitality and Food Service Sector, visit www.wrap.org.uk/hospitality or email hafs@wrap.org.uk

WRAP's vision is a world where resources are used sustainably. It's mission is to accelerate the move to a sustainable resource-efficient economy through re-inventing how we design, produce and sell products; re-thinking how we use and consume products; and re-defining what is possible through re-use and recycling. WRAP is a registered charity (no. 1159512) and a company limited by guarantee.

While we have tried to make sure this case study is accurate, we cannot accept responsibility or be held legally responsible for any loss or damage arising out of or in connection with this information being inaccurate, incomplete or misleading. This material is copyrighted. You can copy it free of charge as long as the material is accurate and not used in a misleading context. You must identify the source of the material and acknowledge our copyright. You must not use material to endorse or suggest we have endorsed a commercial product or service. For more details please see our terms and conditions on our website at www.wrap.org.uk

Tackling food waste - conclusions

Food waste monitoring, manual vs smart meter

Approaches, actions and staff feedback