

<b>Institution:</b> University of Leeds		
<b>Unit of Assessment:</b> 7 - Earth Systems and Environmental Sciences		
<b>Title of case study:</b> Reducing consumer food waste, influencing business strategy and increasing sales of sustainable products through co-produced research		
<b>Period when the underpinning research was undertaken:</b> 2013 - 2018		
<b>Details of staff conducting the underpinning research from the submitting unit:</b>		
<b>Name(s):</b>	<b>Role(s) (e.g. job title):</b>	<b>Period(s) employed by submitting HEI:</b>
Charles William Young Sally Russell	Professor Associate Professor	1 May 2001 to present 1 July 2013 to present
<b>Period when the claimed impact occurred:</b> 2014 - 2018		
<b>Is this case study continued from a case study submitted in 2014?</b> N		
<b>1. Summary of the impact</b> (indicative maximum 100 words)		
<p>A problem-oriented collaboration between Leeds researchers and Asda was used to “nudge” its customers to reduce their food waste and to buy more sustainable products, contributing to efforts to meet Courtauld Commitment targets on UK food waste. This has reduced food waste by 48,276 tonnes and CO<sub>2</sub>e by 183,449 tonnes, whilst at the same time increasing the pre-tax profit for the retailer by GBP5,000,000. Furthermore, Asda experienced an increase in brand loyalty as a result of the core consumer-focused sustainability strategy. The methods and tools developed in the project were promoted as best practice through the grocery, retailing and higher education trade associations.</p>		
<b>2. Underpinning research</b> (indicative maximum 500 words)		
<p>The environmental impact of food consumption is a significant global problem: the UN Food and Agriculture Organisation (FAO) suggests that one third of food produced for human consumption is wasted. In the UK, this amounts to 20,000,000 tonnes CO<sub>2</sub>e per year. The UK grocery sector has used the Courtauld Commitment to deliver voluntary food waste reductions. Leeds researchers, led by Professor Young, partnered with Asda (14% of UK market share in 2020, according to statista.com) to achieve Courtauld Commitment targets, gaining access to data on 18,000,000 shoppers per week in the UK. The research adapted established social research methods from the laboratory to a real-world food retailing setting. The research focused on 1) how to reduce the food waste of customers through more effective (positive) communication, and 2) how to increase sales of products labelled as sustainable by ensuring that the correct message is communicated to the correct groups.</p> <p>Leeds researchers first applied the social-influence theory to ‘nudge’ people towards wasting less food, which was the first field test of social-influence theory. The Waste and Resources Action Programme (WRAP) has developed industry-standard messages on food waste. These messages were communicated to Asda customers over two six-week periods in 2014 and 2015 via three channels: the in-store magazine, e-newsletters, and stickers placed on products. Asda’s Facebook page and in-store demonstrations allowed customers to interact with the ideas in the messaging, giving them an opportunity discuss them, share their own thoughts and witness practical waste-reduction practices. Over the next 21 months, six follow-up surveys were conducted with customers to ask them to self-report how much food they wasted. The surveys involved between 2,789 and 7,900 people. The results indicated that the combined communication channels and repeated messages decreased the food wasted by customers. The research revealed that social media an intervention tool, did not replicate enough of the</p>		

effect of 'face-to-face' interaction that does create change but in-store demonstrations of how to reduce food waste were successful [1, 2, 3].

Next the researchers performed data analytics to a combination of national datasets acquired through the ESRC Consumer Data Research Centre and open data to gain insight into the characteristics of those purchasing sustainable products. Datasets were sourced from National Statistics, TransUnion UK (previously Callcredit) and Asda's sales data from 18,000,000 customers a week. The research identified clear differences between purchasing behaviours by mainstream and green consumers of sustainably-labelled products. For example, while a range of sociodemographic factors can predict purchase patterns of organic milk bought by green consumers, this is not the case for free-range eggs bought by mainstream consumers. The results demonstrated that mainstream consumers do not respond to green consumer marketing methods adopted by retailers, and a change in their marketing strategy was needed for sustainable products to become mainstream [4].

The ongoing collaboration with Asda began in 2013. The research was supported by funding from Innovate UK, Asda and ESRC for a 3-year Knowledge Transfer Partnership (KTP) and the ESRC Consumer Data Research Centre.

### 3. References to the research (indicative maximum of six references)

1. Russell, S.V., Young, C.W., Unsworth, K.L., Robinson, C., 2017. Bringing Habits and Emotions into Food Waste Behaviour. *Resources, Conservation and Recycling*, 125, pp. 107-114. <https://doi.org/10.1016/j.resconrec.2017.06.007>
2. Young, C.W., Russell, S.V., Robinson, C.A., Chintakayala, P.K., 2018. Sustainable Retailing – Influencing Consumer Behaviour on Food Waste. *Business Strategy and the Environment*, 27, pp. 1-15. <https://doi.org/10.1002/bse.1966>
3. Young, W., Russell, S.V., Robinson, C.A., Barkemeyer, R., 2017. Can social media be a tool for reducing consumers' food waste? A behaviour change experiment by a UK retailer. *Resources, Conservation and Recycling*, 117 (Part B), pp. 195-203. <https://doi.org/10.1016/j.resconrec.2016.10.016>
4. Chintakalaya, P.K., Young, W., Barkemeyer, R., Morris, M.A., 2018. Breaking niche sustainable products into the mainstream: Organic milk and free-range eggs. *Business Strategy and the Environment*, 27, pp. 1039-1051. <https://doi.org/10.1002/bse.2050>

#### Research Funding

- Innovate UK Knowledge Transfer Partnership (2013 - 2016), GBP88K
- ESRC Consumer Data Research Centre (2014 - 2022). GBP6.4million

### 4. Details of the impact (indicative maximum 750 words)

Asda is one of the largest supermarket chains in the UK. Between 2015 and 2018, it held a 15% market share in the groceries market. More than 18,000,000 people shop in Asda stores weekly and consumer spending at Asda has been estimated at over GBP4,000,000,000 per quarter between 2015 and 2017 (statista.com). The Asda Chief Customer Officer said: "As a major food retailer, we have a responsibility and the ability to bring about large scale change when it comes to tackling food waste. By partnering with the University of Leeds, the team has been able to take our insight and really explore this area, meaning that we now have a greater understanding of customer attitude and behaviour, helping shape the way we communicate with our customers and ultimately the way we do business" [A].

Asda estimated that 2,000,000 customers made changes in their homes as a result of the campaign co-produced with Leeds researchers, and 81% of them said that they planned to follow the advice in the interventions [A, B]. Examples included using shopping lists to shop smarter, planning meals and using up food that would otherwise be thrown away. As a result of the interventions, customers saved on average GBP57 per annum in 2015, rising to GBP81 per annum for those who said they had seen the interventions in both 2014 and 2015, by applying

these changes in their home [2, 3]. This is estimated to reduce food waste by 48,276 t (0.7% of UK annual) and 183,449 t of CO<sub>2</sub>e (using Waste and Resources Action Programme (WRAP) conversions GBP1 = 0.15 kg food waste; 1 t food waste = 3.80 t CO<sub>2</sub>e). A Senior Director at Asda reported that *“the customer-reported results showed a positive change in behaviour and true cost savings.”* [B].

Secondly, the research was designed to directly inform and improve Asda’s sales strategy and profits. Through the customer food waste campaign, Asda was able to build customer brand loyalty adding GBP5,000,000 to pre-tax profits [B]. The research team modelled Asda’s sales data through the ESRC Consumer Data Research Centre, focusing on mainstream and niche green product lines such as eggs, milk, poultry, cleaning products/hygiene and organic vegetables. The analysis identified more sustainable products that could triple sales in particular postcodes by communicating the correct message to the correct groups [4].

Thirdly, the sustainability strategy at Asda was directly informed by the research. *“The project influenced the activities of the sustainable business team, the insight team, the community team, the public affairs team and the trading team within Asda... The customer voice has now been embedded into every aspect of the sustainability strategy”* [B]. The Leeds researchers conducted quarterly surveys of 20,000 customers on sustainability issues from 2013 to 2016, which was used to feed into policy direction and Asda’s new Sustainability Strategy 2.0. Progress against the new strategy was publicly reported in “The Big Green Journey” report in 2016 [C]. The Leeds researchers directly contributed to annual consumer sustainability reports to help Asda adhere to the cross-food sector targets in the Courtauld Commitment and to report progress to customers [D].

Asda shared the outcomes of the project with over 1,000 suppliers through their Sustain and Save exchange forum and invested GBP20,000 in holding a conference to present the learnings of the project with staff and suppliers [B]. The work drew the attention of Walmart, Asda’s international parent company, and featured in the 2017 Global Responsibility Report as an example of best practice, which is shared globally across all Walmart companies [E].

The research has also had a wider influence on practice and policy in the retailing sector beyond Asda. This research and interventions it informed were focused on customers, which was unique as the other major retailers focused on their supply chains. The work from the partnership led to three sector-wide accolades: (1) a short-listing in the Institute of Grocery Distribution (IGD) Award for Sustainable Futures [F]; (2) the Environmental Association for Universities and Colleges (EAUC) Highly Commended Green Gown Award for Research and Development [G]; and (3) the KTP Excellence Award, which was awarded the highest grade of “Outstanding” [H].

The grocery and wider retail sector benefited from the outcomes of the partnership showcased by WRAP in the Courtauld Commitment 3 [I] and the British Retail Consortium [J]. The impact of the work was also recognised at a Parliamentary Reception by the Director of WRAP, the Chief Customer Officer at Asda, the CEO of Innovate UK, the Parliamentary Under Secretary of State for Rural Affairs and Biosecurity at Defra, and the Member of Parliament for Leeds Central. At the event, the Director of WRAP said: *“Food waste is one of the biggest challenges of our time, it’s bad for the environment, economy and to society as a whole. WRAP has a track record of reducing waste and at the heart of this work is collective action, which is pivotal to this success. We therefore welcome Asda’s work with the University of Leeds to help customers waste less and save money, and encourage more of this type of work to ensure food waste reduction continues.”* [A].

##### 5. Sources to corroborate the impact (indicative maximum of 10 references)

- A. Press release. Asda. July 2016.
- B. Letter of corroboration from Senior Director for Sustainability, Asda.
- C. Report. Asda. *Our Big Green Journey*. 2016. Compiled by Asda using data from University of Leeds project.

## Impact case study (REF3)

- D. Report. Asda. *Green Britain Index 2016*. Compiled by Asda using data from University of Leeds project.
- E. Report. Walmart. *Global Responsibility Report*. 2017. Page 110.
- F. Brochure. Institute of Grocery Distribution. 2016. Asda Stores Food Waste at Home Programme – Finalist in the Award for Sustainable Futures.
- G. Award. Sustainability Exchange. Green Gown Awards 2016 – Highly Commended
- H. Certificate of Excellence. Innovate UK Knowledge Transfer Partnership. 2016.
- I. Waste and Resources Action Programme (WRAP) Courtauld Commitment 3 (2017)
- J. Report. British Retail Consortium (BRC). 2016. *The Retail Industry's Contribution to Reducing Food Waste*.