



Our Sustainable Food Journey



Concern about the twin climate and environmental crisis has grown dramatically in the past 12 months with high-profile protests in the UK and beyond promoting politicians to make increasingly ambitious commitments to lower emissions and protect natural habitats. But what practical actions can we undertake to meet this challenge? This report summarises a strikingly effective initiative underway at the University of Cambridge, where catering managers have, in a very short time, dramatically reduced the environmental footprint of their operation. Through cutting-out ruminant meat, which is linked to vastly greater greenhouse gas emissions and land use than other protein sources, and by greatly improving their offer of vegetarian and vegan alternatives, the University Catering Service has lowered its land footprint by over a quarter and its carbon footprint by over one-third – while simultaneously increasing sales and profit. On top of that they've lowered food waste and eliminated unsustainably-harvested fish from their menus. It is hard to imagine any other interventions that could yield such dramatic benefits in so short a span of time. There is more to be done – further lowering use of plastic, and in particular, encouraging take-up of these ideas across Cambridge Colleges (which are not part of the UCS), and the wider university sector. This report demonstrates how achievable, environmentally effective, and professionally rewarding these bold actions can be.

Andrew Balmford
Professor of Conservation Science

The University Catering Service: A sustainable food service.

The University Catering Service (UCS) is the University of Cambridge's in house catering service. It manages fourteen cafés and canteens throughout the city and caters for over 1,500 events a year.

The UCS has a long-standing commitment to good sustainability practices; a number of initiatives have been introduced in recent years to improve environmental performance, from the roll-out of 'Vegware' compostable packaging and disposables, to the introduction of 'KeepCup' discounts, and the recycling of cooking oil.



Figure 1 The UCS team and chefs

"I knew that we should be doing more to actively promote the consumption of more sustainable food to reduce our damage to the environment and to help encourage positive lifestyle changes, which would lead to a positive impact on health and well-being of our students and staff. For us it was about making the right choice easy for our customers. I felt a big responsibility to do something about it, I knew it was down to me to start our journey."

Nick White, Head of Operations, UCS

What happened?

With limited time and resources to dedicate to sustainability initiatives, Nick White was keen to ensure that the UCS focused on the areas with the biggest impact. To do this, Nick sought advice from researchers within the University itself. Andrew Balmford suggested four areas where the UCS could change, without compromising on cost:

1. Reducing the consumption of meat, in particular ruminant meat
2. Improving and increasing the availability of plant-based options
3. Removing unsustainable fish from the menu
4. Reducing food waste

The UCS implemented these changes in October 2016, with help from the University's Environment and Energy section. To formalise their approach, they worked together to develop a Sustainable Food Policy, with the above four aims forming the central theme. See the Sustainable Food Policy here: www.environment.admin.cam.ac.uk/sustainable-food/university-cambridges-sustainable-food-policy

Securing support from catering service staff was key to making these changes. Staff were briefed on the environmental benefits of the Sustainable Food Policy and why the UCS wanted to implement it. As cooking with meat is a key part of most chef's training, the UCS provided chefs with vegan cookery classes and a trip to Borough Market to get inspiration for plant-based menus. Meanwhile, café managers were given training on marketing for sustainability rather than profit.

The Sustainable Food Policy was widely supported by customers. However, key to the Policy's success was that the customer didn't have to change their behaviour in order to eat more sustainably, as most changes happened before the food reached the customers' hands. The UCS now sells more sustainable, plant-based food and, as a bonus, they retain the same level of footfall, but a 2% increase in gross profit was achieved in 2017/2018 compared to 2014/2015, despite increases in food costs.

The UCS also decided to stop selling single-use plastic bottles, and have replaced these with glass bottles, cans or bio-degradable plastic bottles. This has led to saving over 30,000 plastic bottles from landfill per year.



Figure 2 Chefs on one of their vegan cookery classes

"The Environment and Energy section is thrilled to have worked in partnership with the University Catering Service and academics across the University to enhance its sustainability performance on food in such a practical way. The success of the policy both in reducing carbon emissions and spreading the word about sustainable food is something which we can be proud of."

Joanna Chamberlain, Head of Environment and Energy section

A few of UCS' favourite plant-based meals:

- ✓ Swedish style vegballs with mash and creamy mustard sauce
- ✓ Smoky Moroccan chickpea stew with saffron infused couscous
- ✓ Baked aubergine with lemon- infused couscous
- ✓ Sweet potato burger
- ✓ Vegan stir fry



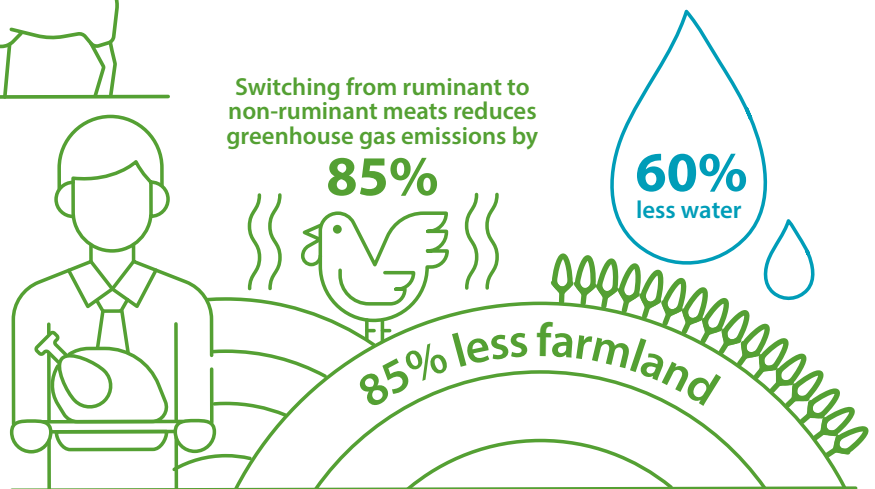
Food for Thought – the main features of the Sustainable Food Policy

1 Reduce the consumption of meat, in particular ruminant meat



- The **livestock sector accounts for 14% of global greenhouse gas emissions**¹.
- The production of ruminant meat (beef and lamb) demands more feed and water than other livestock as they have relatively inefficient “ruminant” stomachs. **Ruminant stomachs also produce methane during digestion, accounting for around 40% of livestock greenhouse gas emissions.** Methane has a stronger warming effect than carbon dioxide¹.

- Switching your diet to **non-ruminant meats results in emitting 85% less greenhouse gases, and using 60% less water and 85% less farmland**². These figures increase to 95%, 85%, and 95% respectively when removing meat altogether².
- While dairy produces less emissions than meat production, it is still reliant on the rearing of an animal. Plant based proteins require less resources than dairy³.



2 Promoting the consumption of plant-based food

- **Producing beef and lamb emits 6 times more greenhouse gas per gram of protein than pork or poultry**, and 250 times more than legumes (lentils, chickpeas, beans)⁴. One beef or lamb meal has the same footprint as eight months of chickpea based meals.
- Plant-based foods require less water and land than livestock.
- The UCS uses choice architecture to encourage customers to select plant-based meals. For example, increasing the proportion of plant based options available; positioning the plant based option first or at eye level; and reducing the cost. They believe in making the right choice easy for their customers.

“The Cambridge Sustainable Food Policy is such an inspiring and practical document with the focus on the right things. I am particularly pleased to see the focus on reducing dairy (as well as meat), and the approach to fish procurement”.

Emma Garnett, PhD Student

3 Ensure that no fish from the Marine Conservation Society (MCS) ‘fish to avoid’ list is served

- Using sustainable fish is vital. The UN’s Food and Agriculture Organisation estimates that **31% of monitored fish stocks are already being over-exploited**, while another 50% are fully exploited⁵.
- Fish sustainability is difficult to guarantee as guidance changes frequently. The UCS decided to reduce fish sales to white sustainable fish as part of Fish Fridays, in the Main Dining Hall, West Café and Maths Café. Other cafés sell pole and line caught tuna with sandwiches or jacket potatoes.

4 Reducing food waste and other waste

- The UCS uses compostable disposables, which are sent to anaerobic digestion. **This has prevented over 2.5 million pieces of single-use plastic going to landfill.**
- Around **one third of food in the world is wasted every year**, with higher rates in developed countries. Food is most often wasted at the end of the supply chain, where the disposal of edible food is driven by excessive portion sizes, wasteful sales practices and unnecessary aesthetic standards.

For more changes that the University have made and the science behind it, visit www.environment.admin.cam.ac.uk/sustainable-food

¹ FAO. Tackling Climate through Livestock: A Global Assessment of Emissions and Mitigation Opportunities. (2013).

² J Ranganathan et al. (2016). Shifting diets for a sustainable food future. Working paper, Installment 11 of Creating a Sustainable Food Future. World Resources Institute. Washington, D.C., United States.

³ J Poore and T Nemecek (2018). Reducing food’s environmental impacts through producers and consumers. Science. 360(6392): 987- 992.

⁴ D Tilman and M Clark (2014). Global diets link environmental sustainability and human health. doi:10.1038/nature13959

⁵ FAO. The State of the World Fisheries and Aquaculture 2016. Contributing to food security and nutrition for all. (2016).

'The Taste of Success': The impact of our Sustainable Food Policy

The Sustainable Food Policy was reviewed in October 2018 by academics in the Departments of Geography and Zoology, CISL and the Behaviour and Health Research Unit. Food purchased by the UCS in two periods, March to May 2015 (pre-policy) and March to May 2018 (post-policy) was compared and the associated carbon emissions calculated.

1 Reducing the consumption of meat, in particular ruminant meat

Implementing the Sustainable Food Policy has reduced the UCS's emissions by 500 tonnes of carbon dioxide each year (Figure 3). That's equivalent to driving 1.2 million miles, or around the equator over 94 times!

Carbon emissions were reduced by 10.5% between 2015 and 2018, despite an increase in volume of food purchased. When standardised, there was a 33% reduction in carbon emissions per kilogram of food purchased, and a 28% reduction in land use per kilogram of food purchased (Table 1).

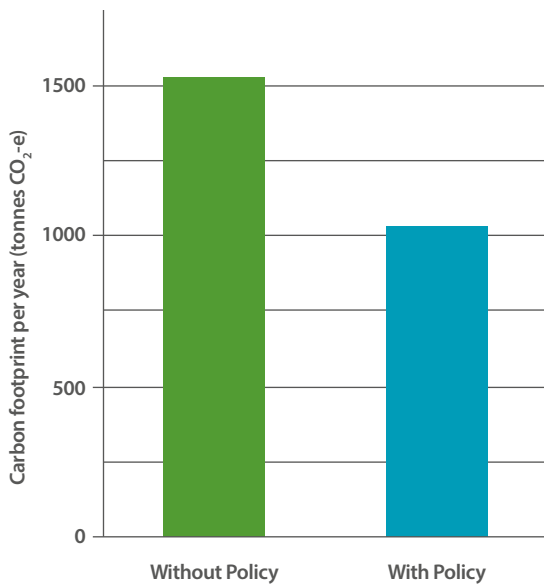


Figure 3. Projections of carbon footprint per year shown in tonnes comparing with and without the policy implementation.

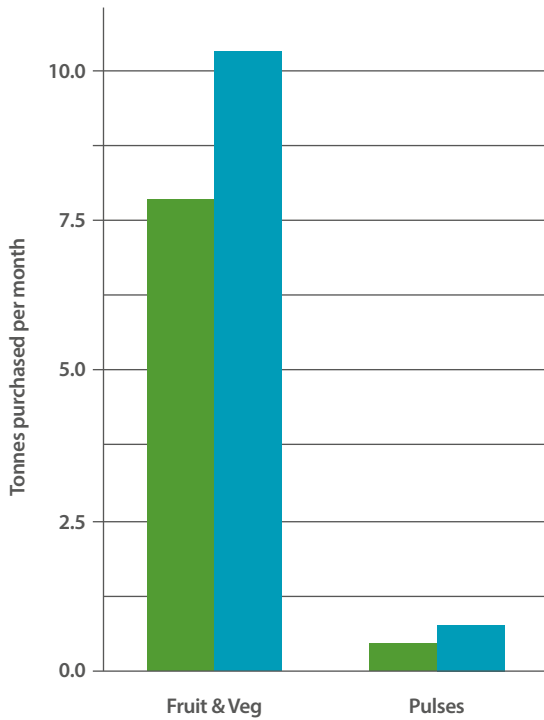
	March-May 2015	March-May 2018	% Reduction
Overall Carbon Footprint of Food (tonnes)	287	257	10.5%
Overall Land Use of food (m per year)	434,102	414,107	5%
Kg CO ₂ per kg food purchased	4.78	3.22	33%
Land Use per kg food purchased	7.22	5.18	28%
Total food purchased (kgs)	60107	79863	

Table 1. Overall carbon footprint and land use of food, proportional carbon footprint and land use per kg food purchased and the total amount of food purchased during two different time intervals.



2 Improving and increasing the availability of plant based options

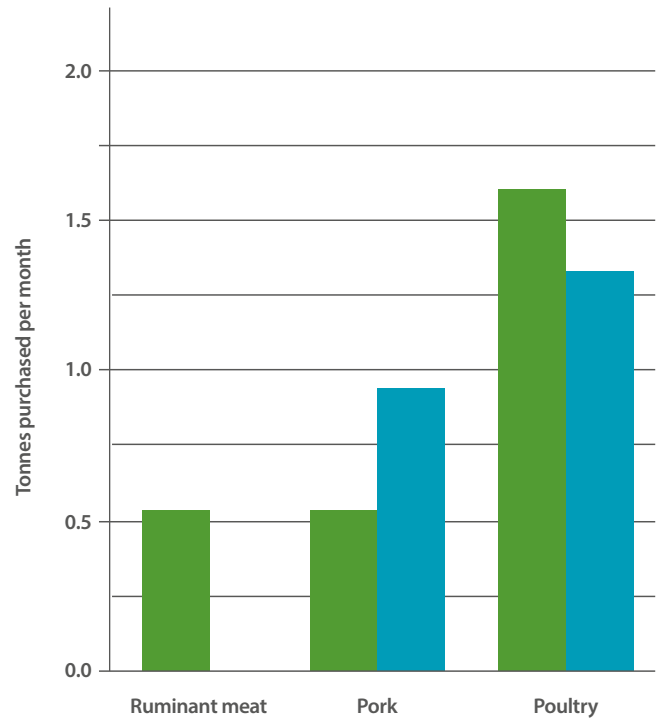
More fruit, vegetables and pulses have been purchased post policy, which reflects UCS efforts to promote plant-based meals⁶ (Figure 4).



● A. Pre-policy (2015) ● B. Post-policy (2018)

Figure 4. Tonnes of fruit and veg, and pulses purchased per month, both pre- and post-policy implementation.

Ruminant meat has largely been replaced with plant-based options but pork usage has also increased. Pork has a greater environmental impact than plant-based proteins but lower carbon emissions than beef or lamb. The total weight of meat purchased has declined (Figure 5).



● A. Pre-policy (2015) ● B. Post-policy (2018)

Figure 5. Tonnes of meat types purchased per month, both pre- and post-policy implementation.



⁶ D Tilman and M Clark (2014). Global diets link environmental sustainability and human health. Nature. 515: 518- 522.



3 Removing unsustainable fish from the menu

The UCS procures no fish that are on the Marine Conservation Society 'fish to avoid' list. Since the test period of Mar-May 2018 the University has continued to reduce its use of fish which is now almost entirely limited to white fish served in "Fish Fridays" at the University Centre and West Café and tuna in sandwiches and baked potatoes at all outlets.

4 Reducing food waste

The University began collections of food waste in August 2016 which approximately coincided with the start of the University's Sustainable Food Policy. Data is available from August 2017 – March 2019, which shows that 163 tonnes of food waste was collected from around the University during this period, of which 60% (98 tonnes) was collected from University cafés.

There has been an increase in food waste collections, as more sites and departments have instigated collections (collections have trebled for non-UCS sites). Food waste collections from UCS have dropped slightly over the period with the most recent 9 months showing a 6% reduction compared to the first 9 months.

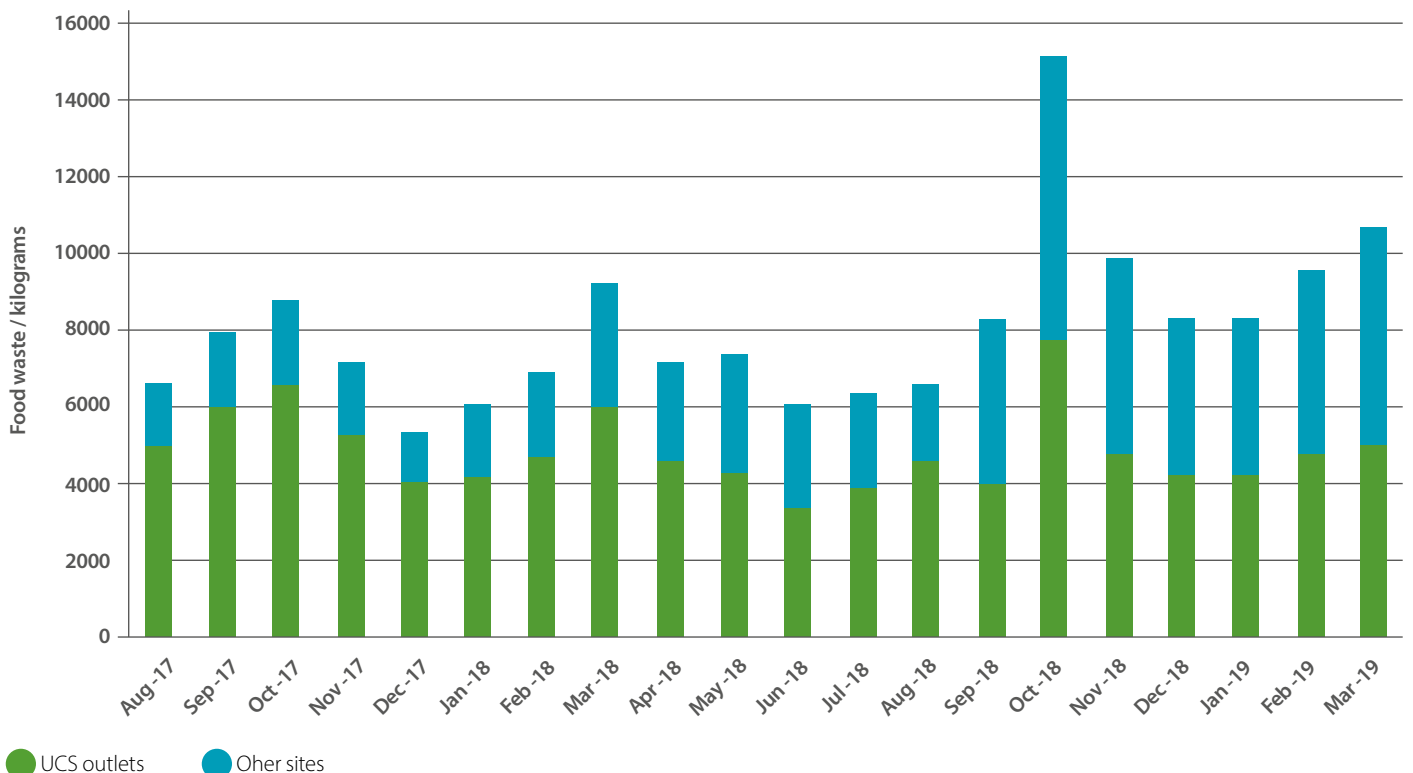
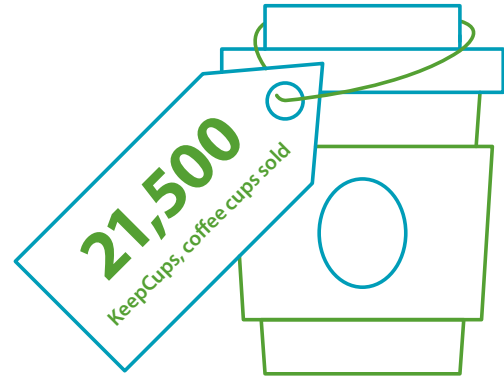


Figure 6. Kilograms of food waste collected per month.

The UCS is also reducing its use of single use disposables:

- **A 25p charge has been introduced for using a disposable cup** (changed from a discount for bringing a reusable cup). The earlier discount scheme has saved 121,000 disposable cups from being used, equivalent to one for every person living in Cambridge!
- Discounted cup sales now make up around 10% of total hot beverage sales.
- The UCS have sold a total of 21,500 KeepCups, coffee cups and flasks since their introduction in 2013. That's one for every student at Cambridge University.
- The UCS continues to collaborate with researchers on innovative methods to reduce use of disposables.



Recognition for the Sustainable Food Policy

The UCS believe they are one of the first caterers in the UK to remove ruminant meat on environmental grounds. This, combined with many other sustainability initiatives in UCS cafés, has led to recognition...

The Sustainability Award from The Universities Caterers Organisation (TUCO) in 2018






Figure 7 The team photographed shortly after winning their TUCO award for Sustainability

Food and Drink Green Gown Award in 2017



Figure 8 The team photographed after winning their Green Gown Award in the Food and Drink Category

The Sustainable Food Journey has also received recognition from:

-  The Parliamentary Office for Science and Technology who requested a summary of the changes and success to promote as a case study for a policy note.
-  #NoBeef, a group started by science communicator Matthew Shribman, has cited the Sustainable Food Policy as a great example for others to follow.
-  Top 10 finalist for a 'Solution Search' award in the 'Climate Change Needs Behaviour Change' category. This initiative is run by National Geographic, Rare, UNDP, WWF, Conservation International and the Nature Conservancy.

What's next?

- Reducing the use of plastics and disposables, both recyclable and non-recyclable.
- Improving communication of the environmental benefits of dietary change to customers through posters and symbols on menus.
- Encouraging greater uptake of these initiatives by the 31 Cambridge Colleges. Predictions show that if Colleges replace all ruminant meat with poultry and pork, this would lead to a 64% decrease in carbon emissions, which is the equivalent of 597.3 tonnes of CO₂ each term.
- Sharing our learning from implementing the Sustainable Food Policy with other universities and institutions.
- Monitoring the impact of the Sustainable Food Policy annually.
- Continuing to seek and support the research of academics and students with regards to sustainable food, and implement their suggestions to improve our sustainable food offering to customers.

For more information contact: environment@admin.cam.ac.uk