



# FOOD FUTURES PANEL



## Overview report

## A guide to the GFS Food Futures panel outputs

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## Contents

<b>Chapter 1: About the panel.....</b>	<b>5</b>
1.1. About the Food Futures panel.....	5
1.1.1. Sciencewise Guiding Principles.....	6
1.2. Involving specialists.....	6
1.3. About this report .....	7
<b>Chapter 2: Panel activities .....</b>	<b>8</b>
2.1. Introduction.....	8
2.2. Summary of Food Futures projects.....	8
2.3. Summary of informal activities .....	10
<b>Chapter 3: Overview of the findings .....</b>	<b>11</b>
3.1. Introduction.....	11
3.2. Recurrent themes .....	11
3.3. Project specific findings.....	14
3.3.1. Baseline Survey .....	14
3.3.2. Insects as Animal Feed .....	15
3.3.3. Food Systems .....	15
3.3.4. Urban Agriculture .....	17
3.3.5. Buying British .....	19
3.3.6. Understanding Consumer Priorities for Food Innovation .....	20
3.3.7. Trade-offs in Future Food Systems – Consumer Perspectives .....	21
3.3.8. Endline Survey .....	23
<b>Chapter 4: Evaluation and learning .....</b>	<b>26</b>
<b>Appendix A: List of specialists involved in the project .....</b>	<b>28</b>



## Chapter 1: About the panel

### A note about terminology

We use the following terminology in this report:

- The public panel is called Food Futures. When we talk about the complete public panel programme we refer to the “**public panel**” or “**the panel**”.
- “**Topic**” describes the main content focus of the project – for example, sustainable intensification. Topics are specifically policy directed.
- “**Topic lead**” is the representative of the GFS partner organisation that suggested the topic. One way to describe the topic lead is as the person asking the question which the project explores.
- “**Project**” describes the implementation of a topic, using a method or methods.
- “**Method**” describes the approaches used to implement a project, for example, survey, blog, online forum discussion or workshop
- “**Specialist**” describes people with specific knowledge and/or expertise who have contributed to the project, without also holding a formal role (e.g., on the Food Futures/GFS public panel Steering Group, Project Management Team or as an employee of one of the GFS partner organisations).

### 1.1. About the Food Futures panel

The Global Food Security (GFS) programme brings together the UK’s major public funders of research into food security. A central part of the programme is to understand and respond to public views on global food security challenges and potential solutions. To help meet this aim, the GFS programme has commissioned a panel of 600 members of the public to take part in engagement activities, including deliberative and online activities exploring different aspects of food security research. The GFS programme will be using the findings of the public panel to inform the future direction of publicly funded food security-related research in the UK. The panel is co-funded by the Sciencewise<sup>1</sup> programme.

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<sup>1</sup> Sciencewise is funded by the Department for Business, Innovation & Skills (BIS). Sciencewise aims to improve policy making involving science and emerging technology across Government by increasing the effectiveness with which public dialogue is used, and encouraging its wider use where appropriate. It provides a wide range of information, advice, guidance and support services aimed at policy makers and all the different stakeholders involved in science and technology policy making, including the public. Sciencewise also provides co-funding to Government departments and agencies to develop and commission public dialogue activities. [www.sciencewise-erc.org.uk](http://www.sciencewise-erc.org.uk)

The Food Futures public panel is designed to enable both online and face-to-face engagement. The panel is managed through a software portal, which can host a range of different digital materials and activities. The panel is closed, with members recruited to a quota and all content is password protected, allowing privacy for participants and enabling effective control and management of the sample. The panel is clustered in six locations around the UK, allowing for a diverse sample and providing opportunities for face to face activities.<sup>2</sup>

The panel consists of 600 participants, quota sampled to be broadly representative of the UK population. The sample does not perfectly represent the UK: ethnicity is representative of local areas, and there is a slight bias towards female participants, middle age groups and more educated participants. Participants are incentivised to take part in some of the panel activities, with the value of the incentive tailored to the specific method or topic. Not all activities are incentivised – for example, ongoing engagement that is not part of a project on a specific policy topic tends not to be incentivised.

Any inferences to the general population based on results we report should be treated with caution.

#### **1.1.1. Sciencewise Guiding Principles**

The delivery of this project was guided by the Sciencewise quality framework and designed to align with Sciencewise Guiding Principles ([both available online here](#)). Both principles and quality framework aim to ensure that public dialogue is fair, effective and credible. You can read about learning from the public panel in the independent evaluator's report which can be found on the Global Food Security website, [here](#).

### **1.2. Involving specialists**

Dialogue, particularly that promoted by Sciencewise, is a two-way process of deliberation between the public and 'specialists' on a topic. This means that expertise is brought to the room (real or virtual) to help participants engage with the content at hand, but also so that specialists can hear from the public. The public panel project involved a number of specialists from within the GFS programme, and others recruited specifically for their expertise in the topic areas discussed during the different activities.

The aims and research questions of each activity were proposed by the GFS team and developed iteratively with the topic leads from the steering group which oversees the public panel project (see below for membership). We aimed to include a broad range of specialists and stakeholders in the development of the activities including academics, third sector and industry representatives. We also drew on specialist input when developing stimulus materials

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<sup>2</sup> Locations are: Belfast, Cardiff, Dundee, Harrogate, London, Plymouth.

and as participants in the workshops. Appendix 1 provides a list of specialists involved and the role they played.

Steering Group Members	
Tim Benton, GFS	Huw Jones, Rothamsted Research
Riaz Bhunnoo, GFS	Hannah King, NERC
Caroline Drummond, LEAF	Suzannah Lansdell, Sciencewise
Lucy Foster, Defra	Jennie Macdiarmid, University of Aberdeen
Tara Garnett, University of Oxford	Alison Mohr, University of Nottingham
Peter Jackson, University of Sheffield	Kieron Stanley, Defra
Roland Jackson, Independent Chair	Geoff Tansey, Food Systems Academy
Jon Woolven, IGD	

### 1.3. About this report

This report provides a high-level summary of the activity of the Food Futures panel. Where relevant, links have been included to the full version reports produced for each of the projects.

The report is structured along the following chapters:

- Chapter 2 outlines all projects delivered as part of the engagement programme listed in a chronological order, starting with the earliest activity.
- Chapter 3 summarises the main lessons learnt during the engagement programme as well as a link to the independent evaluation report.
- Chapter 4 presents the key findings that emerged during the programme. This chapter is split into two sections: section one looks at recurring themes across all projects whereas section two focusses on findings relevant to the specific projects.

## Chapter 2: Panel activities

### 2.1. Introduction

In this chapter we give an overview of all the activities that took place over the lifetime of the Food Futures public panel.

### 2.2. Summary of Food Futures projects

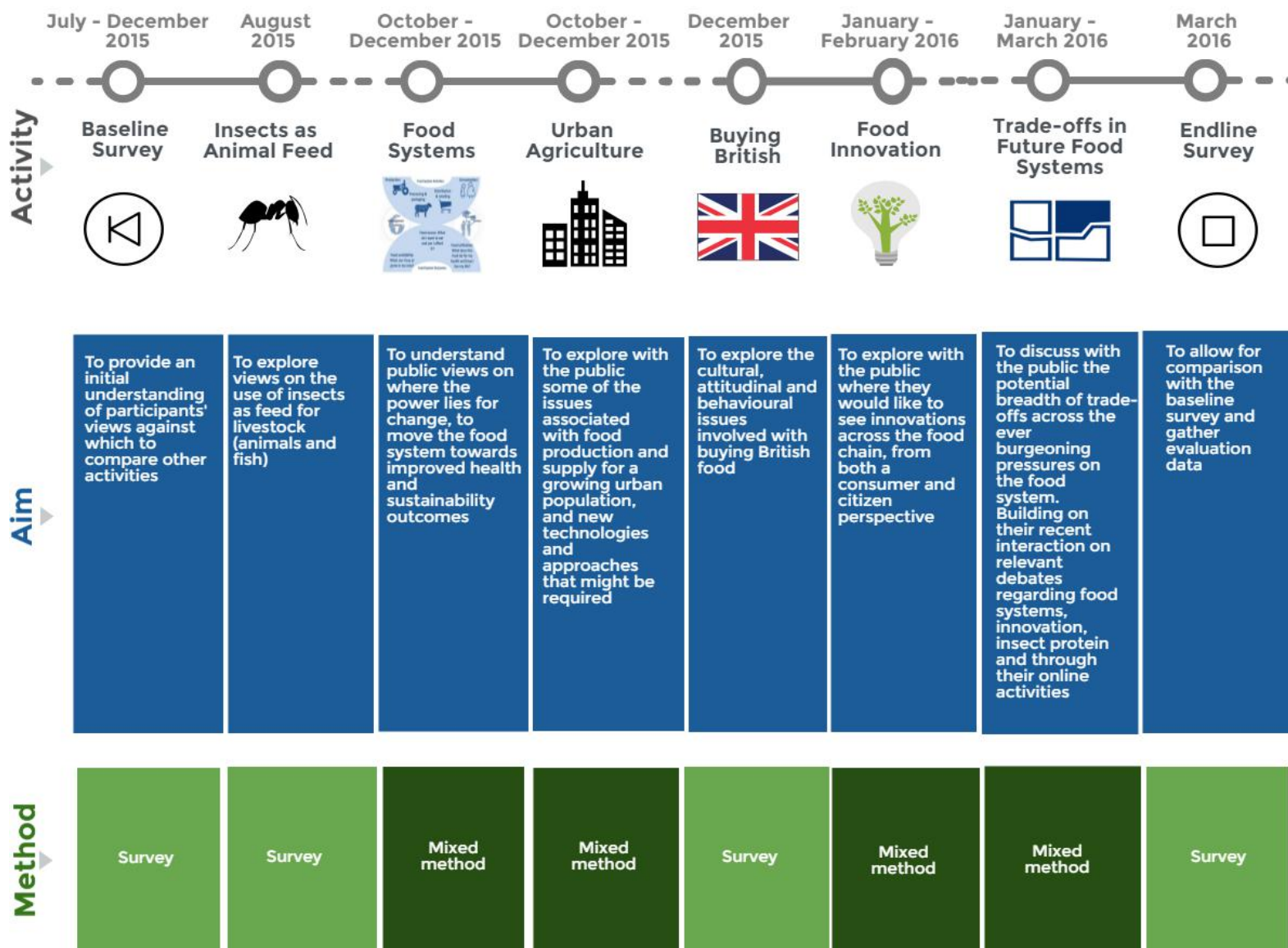
There were several topics explored through a mix of activities, from whole-day workshops to online surveys. Figure 1 gives an overview of the eight main projects. These were:

- Baseline Survey
- Insects as Animal Feed
- Food Systems
- Urban Agriculture
- Buying British
- Understanding Consumer Priorities for Food Innovation (Innovation)
- Trade-offs in Future Food Systems – Consumer Perspectives (Sustainable Intensification)
- Endline Survey

In addition to these eight projects we produced a short report in November 2015 that presented a high level summary of findings to date to inform work being carried out by the Food Standards Agency. This did not involve any additional dialogue with the panel, merely a desk review of other activities, so no findings are presented in the following chapters.



Figure 1 Food Futures Projects



### 2.3. Summary of engagement activities

In addition to the projects outlined above, we also sought to keep panel members engaged by selecting topics that were receiving media attention or were raised in forum discussions. These included:

- Blog posts:
  - “Produced but never eaten” - blog looking at food waste globally;
  - “Securing the future of your cup of tea” – blog looking at the impact climate change has on tea plants;
  - “Centipede vodka and fried crickets: Is this the future of food? ” – blog exploring the idea of using insects for human consumption;
  - “Do you know what the world eats” – blog presenting photographs from around the world documenting what a typical family would eat during the course of a week.
- Forum posts
  - “Do you know where your food comes from” – participants shared the geographical origin of the products they used to cook their dinner, all entries were pinned on a map to produce a record of the panels food miles (see figure 2 below).

### Figure 1 Food map



“Food on TV” – forum space where participants shared their thoughts and recommendations for food related programmes.

## Chapter 3: Overview of the findings

### 3.1. Introduction

In this chapter we provide a summary of the themes that recurred throughout the Food Futures panel, being raised in most, if not all of the individual projects. We then look at the high level findings from the eight individual projects.

The first large-scale project was on Food Systems which provided participants with a broad overview of the supply chain. We found this to be a useful introduction that equipped participants with sufficient knowledge of the main elements of the food systems and served as a basis for their subsequent involvement with the remaining of the topics.

As the projects progressed, participants became increasingly more confident in navigating the challenges related to food security and offering solutions. We also observed cross-learning as participants referred to knowledge acquired in one project when taking part in subsequent projects. For example, aquaponics<sup>3</sup> (first introduced in the Urban Agriculture project) and overfishing (first introduced in the Food Systems projects) were mentioned in a number of activities. While this reflects the success of the panel mechanism in enabling participants to develop familiarity and confidence with the range of food security issues we also found that it did not work for all participants. Of the 600 panel members who were originally recruited we found that most activities involved a core of around 200 – 300 regular users. For more on panel participation see the learning report<sup>4</sup>.

### 3.2. Recurrent themes

Most panel members saw food security as an important issue, but one relevant – at least at present - primarily to developing countries. For the UK, it was seen as a potential future problem, rather than a current pressing problem. This view might have affected their preferences for social solutions (such as reducing waste and changing diets) over increases in food production to tackle the food security challenge, though arguments were also often made about the importance of addressing inequality in the food distribution.

The food system is complex and the impact of changes in one part of the system is difficult to anticipate. As the Food Futures projects continued, participants tended to grow more familiar with these complexities, and more confident about discussing the interdependences in the system and suggesting solutions to some of the challenges presented in the projects.

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<sup>3</sup> A system of aquaculture where crops' roots are submerged into water and receive their nutrients from the waste produced by farmed fish.

<sup>4</sup> All reports are available on the GFS website at: <http://foodsecurity.ac.uk/programme/activities/public-panel.html>

Most participants expressed preference for approaches that would respect the different needs of different demographic groups and/or geographical regions. For example, approaches targeting the health and lifestyle needs of older consumers would differ from those catering for the needs of children. It was often felt that a single approach would not be successful given the variety of purposes food fulfils (social, economic, health).

Across all six activities, five themes tended to recur: animal welfare, food waste, food education, food technology and environmental impact. Whilst there was some variation in the way these themes emerged in individual projects, views on the whole remained stable over the course of the panel.

- **Animal welfare:** this was identified consistently by participants as a “red line” issue and something on which they would be unwilling to compromise. Participants felt that people have a moral obligation to look after the animals and provide them with high quality care. In addition to the ethical argument, some participants also underlined that products from livestock reared in good conditions tasted better. Even those participants, who mentioned that there is scope for relaxation of the current standards, insisted that any revision should still guarantee the good treatment of the animals.
  - Animal welfare is a good example of an issue where the topics participants were most concerned about were not necessarily those specialists felt were most relevant or likely to occur. Reductions in animal welfare were not seriously suggested in any of the activities, nonetheless it was a prominent topic of discussion among participants and one which there was strong consensus on.
  - Prominent areas of potential concern were animal welfare, health risks and costs of new technologies. It is important to note that the activity presented participants with a wide range of potential trade-offs, and the issues which participants were most concerned by (e.g. animal welfare or impacts on areas of the UK valued for tourism) are not necessarily those most likely to occur.
- **Food waste:** this was a prominent topic and formed the focus of numerous discussions. The interest in this issue seemed to be prompted by a popular television programme and other media focus on the topic<sup>5</sup>. Participants were angry at the amount of food wasted across all stages of the food system: from producers to retailers to consumers. Supermarkets were seen as bearing most of the blame for waste, primarily because of their requirements that produce meets strict cosmetic standards. Participants’ strong focus on food waste led at times to them suggesting that addressing this would be sufficient to address the challenges of global food security, a perception that specialists disagreed with in several of the projects.

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<sup>5</sup> Hugh's War on Waste - <http://www.bbc.co.uk/programmes/b06nzt5g>, first broadcast on 2<sup>nd</sup> November 2015

- **Food education:** many participants felt that consumers had lost connection with the food they buy and eat. Participants tended towards nostalgia at times, tending to perceive earlier generations as making healthier food choices. Education was often seen as the solution to solving problems of food waste and food-related disease. In general, participants suggested that the more information they have, the more empowered they feel as consumers. This view is perhaps complicated by three points:
  - Participants rarely identified themselves as needing education, tending to focus on children and future generations.
  - The government is seen as having ultimate responsibility for ensuring the food system is safe and balanced: participants were unwilling to place too much responsibility on consumers.
  - Participants often acknowledged that they do not read the information provided on packaging or, if they do read it, are unsure what it means or how it might or should impact on their food choices. This was often exacerbated by the volume of information.
- **Food technology:** participants' views on the use of technology differed, depending on where in the food supply chain it might be used, the type of technology involved and the potential benefits to them as consumers or society more widely. Whilst technological solutions were seen as more easily scalable than social ones, they tended to be trusted less than social innovations such as behaviour change. Arguments illustrating some scepticism about the use of technology in the food system often highlighted concepts such as 'naturalness', 'meddling with nature' and pointed to previous assurances of food safety having been proved incorrect such as the DDT pesticide.

Overall technology perceived to be efficient, modern and to deliver outputs seen as fresh and healthy (such as aquaponics) was widely accepted whereas technology seen as meddling with nature (such as scientifically developed crops<sup>6</sup>) have evoked mixed views. The cost of technology was also frequently discussed with participants expressing concerns that it may lead to increase in food prices.

Participants were also more willing to accept technological solutions for solving the problems 'other people' experience, for example consumers in developing countries, due to the perception that technology has greater scale, reach and speed compared to social and behavioural interventions. However it seemed that participants were not always ready to accept the same innovations in their own food.

- **Environment:** many participants were concerned about the impact that potential solutions to food security might have on the environment, and recognised that

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<sup>6</sup> For the purpose of this project, the term scientifically developed crops included both genetically and conventionally modified crops

environmental factors were, in part, driving the challenges of achieving food security. However, in trade-offs, they tended to prioritise social, economic or animal welfare interests above environmental concerns.

### 3.3. Project specific findings

#### 3.3.1. Baseline Survey

What did we do?	Method	Unique participants
<p>A survey asking a range of questions:</p> <ul style="list-style-type: none"> <li>• Understanding and perceived importance of global food security</li> <li>• Views on the factors affecting global food security</li> <li>• Behaviours and attitudes towards food and the food system</li> </ul> <p>The baseline survey repeated many questions from an earlier 2012 omnibus survey, and many of the baseline questions were asked again in the endline survey (at the close of the project) to understand how respondents views might have changed through the panel</p>	Survey	489 respondents (82% response rate)

The baseline survey identified that most respondents had not heard of global food security (around nine out of ten people) and it was commonly thought to be an issue of food safety, as well as sufficiency of supply and less frequently of sustainability of production. Food security was thought to be a big or quite big issue globally by the vast majority of respondents (95%), and in the UK by somewhat less (74%). Respondents typically thought that global food security was most affected by population growth and climate change, with a range of other factors such as politics and the global economy chosen less frequently. The main difference between respondents in the baseline and the 2012 survey was that the public panel respondents tended to be more concerned about food security: this may be because the panel members tend to have an existing interest in food.

The baseline survey asked a wide range of questions about behaviours and attitudes around food and food security. When thinking about what is important to them when deciding what to buy to eat at home respondents most frequently chose 'eating food that is healthy' and 'price/value for money/special offers'; special diets and environmental considerations were some of the least chosen options. This corresponded with a high proportion of respondents indicating that it was important to them that food is 'good for your health'. Other highlights included a very high proportion of respondents reporting that they waste only a small amount of food each week, and a majority of participants agreeing that it was important to change

diets to reduce resource use and that enough food is already grown in the world. There were more mixed views on questions about using science and technology to increase the world's food supply. The most negative response was to the question about confidence in the UK government taking steps to ensure food security: just 26% agreed with this statement.

### 3.3.2. Insects as Animal Feed<sup>7</sup>

What did we do?	Method	Unique participants
<p>A short survey that explored respondents' views on using insects (and other protein sources) to feed livestock for human consumption. Respondents were given an explanation of insect meal: a product made from processed insects or insect larvae which could be used to feed livestock which humans then consume. They were then presented with statements describing various attitudes towards eating animals and/or fish that have been fed on insects and asked to select which statement/s they agreed with. To allow for comparison, respondents were also asked to share their views on other types of animal feed such as feather feed (a method of cooking and grinding down poultry feathers) and meat and bone feed.</p>	Survey	91

Insects feed was seen as more acceptable than feather feed or meat and bone feed. Only 13% of respondents reported that they would never consider eating animals (or animal products) fed on insects.

Respondents' comments suggested that suspicion around insect feed could be linked to a lack of information rather than to an outright refusal to consider this as an option. And for some the reduced environmental impact was enough to sway them.

### 3.3.3. Food Systems<sup>8</sup>

What did we do?	Method	Unique participants
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<sup>7</sup> All reports are available on the GFS website at: <http://foodsecurity.ac.uk/programme/activities/public-panel.html>

<sup>8</sup> All reports are available on the GFS website at: <http://foodsecurity.ac.uk/programme/activities/public-panel.html>



<p>In 2015 a total of 178 members of the panel took part in a series of activities about the food system, this was a wide-ranging topic that explored the roles of different actors, and how the food system might need to change to achieve global food security.</p> <p>The Food Systems project sought to explore with the public their understanding of the food system as a complex and interconnected set of actors and actions.</p>	<p>Blog posts, forum discussions, online chat, online case studies, workshops in Plymouth and Cardiff</p>	<p>178 participants</p>
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Throughout this project, participants were increasingly able to draw connections between their own food experiences (the food they bought and ate) and the wider food system (how food was produced and by whom). However they were best able to do this through specific aspects of the food system and tangible aspects such as household food waste and individual diets were more prominent in their discourse than more distant aspects such as global trade and the impact of climate change.

The Food Systems project looked at the levels of responsibility of different actors in the food system:

***Citizens, consumers and families:*** When thinking about the roles and responsibilities of individuals most participants saw health as the main responsibility and motivator for individual behaviour. Along with price, which recurred through the discussions as a prominent motivating factor, health was the issue most likely to prompt participants to call for change in the food system. However the focus was very much on domestic concerns, particularly obesity. When it came to consumer responsibility for environmental impacts of food production, participants were much less likely to consider these impacts as necessitating change in the food system, and when they did it was more likely to be considered at the government or the level of large commercial enterprises than the individual.

***Governments and other public bodies:*** Participants' starting point tended to be that governments should be responsible for the food system. Some assumed that the GFS programme is a governmental body with direct responsibility for food security. As the project continued, other actors emerged as having power and influence, particularly large commercial entities, and the limit of government power over these was discussed. Education and awareness raising were seen as the most appropriate forms of new government intervention in the food system, enabling consumers to make healthier and more sustainable choices. However, there were complex discussions and mixed views about the extent to which government should extend its control over the food system from food safety to sustainability, for example.

***Retailers, manufacturers and supermarkets:*** Retailers are seen as having significant influence on consumers, through the products they make available and market, and on producers through the supply chain on which producers depend. This makes them, in



participants' views, particularly powerful. Participants' were often sceptical at first about the extent to which retailers and manufacturers would be willing to prioritise global food security over financial interests. Food security challenges they could address included the formulation of healthy products and addressing food waste. As these actors were seen in the context of the food system as a whole, views grew more nuanced, and participants identified that consumers have some power over and responsibility for influencing these actors through purchasing power.

**Producers:** These were the actors referenced least often in the project, and participants rarely volunteered in depth views on the sustainability or otherwise of production methods. Where participants did discuss producers they tended to think of individual farmers, in contrast with manufacturers and retailers where they tended to think of large businesses. Participants tended to feel sympathetic to producers who were felt to have limited power to effect change, but this did not necessarily translate into a feeling that UK consumers should make changes or sacrifices on behalf of producers. There was a common assumption among participants that food production in developing countries was likely to be more 'natural' than in the UK, and that it was produced primarily by independent farmers rather than large businesses. Participants developed more complex views on intensive agriculture as part of global trade through discussions with specialists.

**Media, advertisers, researchers and scientists:** This group was seen as one with the most power, primarily because of their role as intermediaries between consumers and the food system. Themes that recurred in discussion of their power included concerns about the consistency and accuracy of health and sustainability information given in the media, and by product advertisers. This lack of consistency made messages encouraging positive behaviour less persuasive.

In terms of trade-offs between health, environment and ethical considerations participants often assumed that the major trade-off would be price to the consumer. They were by and large much more willing to accept trade-offs where the negative impacts accrued to organisations, in particular businesses, rather than individuals. The tension between individual choice and collective responsibility was also widely discussed, with participants expressing varied views on the extent to which appropriate solutions to the global food security challenge should, or must, involve actions which restrict the ability of individuals to make choices which adversely affect their own, or others' interests.

### 3.3.4. Urban Agriculture<sup>9</sup>

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<sup>9</sup> All reports are available on the GFS website at: <http://foodsecurity.ac.uk/programme/activities/public-panel.html>

What did we do?	Method	Unique participants
In 2015 over 100 members of the panel explored the topic of urban agriculture. Throughout the activity, participants explored some of the issues associated with food production and supply for a growing urban population, and new technologies and approaches that might be required.	Blogs, forum discussions, individual digital diaries (in which each member of the panel was invited to reflect on the role of urban agriculture); poll; workshops in Belfast and London	140 participants

At the start of the project, many participants questioned whether urban agriculture is relevant to the UK. This seems to have been driven in part by participants' belief that the UK has a substantial amount of agricultural land and in part their view that instead of producing more we should learn how to waste less and distribute what we have better.

Participants identified different roles for urban agriculture in the UK, with these being informed by different views of its aim. While some saw the aim in terms of productivity, and raised concerns about the possible scale of urban agriculture never being sufficient to become cost-effective; others felt it should have an educational role, helping people to learn about where their food comes from and how to value it better.

Five approaches to urban agriculture were included in the project materials. Views on each of them are presented below.

- **Aquaponics** was received very positively, being seen as efficient, self-sufficient and clean. The primary advantages identified were low water requirements, minimal use of pesticides, the closed nature of the system, whereby nutrients are recycled and the possibility of siting projects in abandoned building and underground spaces. Main areas of concern were the cost of setup and the potentially high energy use. Participants reacted very positively about the health and efficiency benefits of growing crops using non-soil based approaches such as aquaponics. These benefits appeared to be more important than any perceived break away from the 'naturalness' associated with soil based approaches.
- Participants felt that the scarcity of suitable land and competition for available land could impact on the viability of **commercial and community garden approaches**. While the social benefits of community gardens were seen as sufficient to gain them a place in the urban system regardless of land scarcity, commercial gardens were seen as viable only if productivity were sufficiently high.
- Animal welfare and the impact of livestock on urban residents' quality of life were the main issues in discussions of **commercial and community farms**. Community farms were seen as having educational benefits, but the time and labour involved in caring for animals was seen as a potential disadvantage. Animal welfare was often seen as a 'red line', marking acceptable from unacceptable approaches, with the countryside being seen as the 'proper' place to raise animals, and the urban context as impractical

and cruel. The smell and noise of slaughterhouses on urban sites was another area of concern.

The potential for urban agriculture to educate and inform people about how their food is produced was seen as an important benefit across all strands of the dialogue. Bringing food production closer to where people live and helping them to engage with different agricultural approaches could, participants thought, encourage them to make positive changes to their diets, such as eating more fruit, vegetables, fungi and seasonable produce. They also considered that their appreciation of food would grow and their willingness to waste it would decrease.

Some participants argued that if urban agriculture used public resources such as land, then they would expect the projects to be owned and run by the community while others thought that private enterprises would be better managed and have higher productivity.

Most participants tended to locate urban agriculture approaches in currently unused spaces such as rooftops, vacant warehouses and underground spaces, perhaps reflecting their concerns about land scarcity and housing shortages. Other factors that informed participants' choices were the ownership model and the type of produce farmed. Approaches with strong community benefits were welcomed in public places, but commercial approaches were seen as less acceptable in these contexts.

Overall when considering what type of produce could be farmed in cities, participants tended to favour high-yield produce with short growing/rearing times that could be sold at a premium. The type of approach also influenced participants' views. For example, in low tech approaches such as community gardens and farms, which usually rely on volunteers, participants tended to favour low maintenance produce that would be less time consuming to produce. High and medium tech approaches such as aquaponics were usually associated with high value produce that could offset the high running and set-up costs.

### 3.3.5. Buying British<sup>10</sup>

What did we do?	Method	Unique participants
A short survey about the characteristics respondents associated with British food, and their buying preferences for it. In the survey respondents were asked which qualities they associated with British food, from a selection of paired characteristics.	Survey	122 survey participants

<sup>10</sup> All reports are available on the GFS website at: <http://foodsecurity.ac.uk/programme/activities/public-panel.html>

British food is seen by survey participants as having a number of positive features which make it an attractive choice: quality of produce, production standards and environmental impacts. Whilst respondents want to buy British food and support British farmers, price differentials between British produce and imported produce can make this difficult. Food provenance is less influential than price, health and family preferences on purchasing decisions. .

### 3.3.6. Understanding Consumer Priorities for Food Innovation<sup>11</sup>

What did we do?	Method	Unique participants
<p>In 2016 over 100 members of the panel explored the topic of innovation. The aim of the activity was to explore with members of the public panel where they would like to see innovations across the food chain, from both a consumer and citizen perspective.</p> <p>Throughout the activity, participants explored their priorities for innovation, as well as the factors which influence their priorities and who they think benefits from innovation.</p>	<p>Blogs, an online ‘challenge’ and workshops in Dundee and Harrogate</p>	<p>114 participants</p>

For this project, the context in which an innovation is considered impacts on its focus: where food shortage is a problem, prioritising increased yields and efficiency of the innovation is important, whilst in economically developed countries, the goal should be to reduce food waste, change consumers’ food habits and optimise health.

Social and behavioural innovations were seen as preferable to technological innovations, primarily because the former are seen as less likely to have unintended negative consequences, particularly on physical health or the environment. The benefits of social innovations, such as increased awareness and educational interventions, were seen as longer lasting than those of technological innovations, such as fortifying food, which were sometimes perceived as faddish or quick fixes.

Technological innovations were seen as more easily scalable, and hence more likely to affect large scale change. They were also seen as solutions to problems faced by others, rather than those relevant in the UK. Another reason that could explain why fewer ideas involving technologies were considered by participants could be participants’ low levels of familiarity with non- information and communication technologies (ICT).”

<sup>11</sup> All reports are available on the GFS website at: <http://foodsecurity.ac.uk/programme/activities/public-panel.html>

**Five** main factors influenced how participants prioritised innovations:

- **Beneficiaries of food innovation** – *is there a clear benefit for consumers and/or wider society?*
- **Certainty of benefit** – *how certain could participants be that the intended consequences would be realised?*
- **Likely scale of impact** – *what is the potential reach and scale of the positive impacts of a new food innovation?*
- **Feasibility and likelihood of the new food innovation being bought to market** – *how would an innovation work in practice and what would it cost?*
- **Balance of innovation types** – *as the project progressed, participants started to identify innovations that had both technological and social premises.*

In terms of innovations participants would like to see in the food system, the following were suggested:

- **Health and Wellbeing innovations:** changing food preferences and habits towards healthier choices, reducing the cost of healthy food, and improving the nutritional content of food – particularly around sugar and salt content in processed food.
- **Sustainability and Ethical innovations:** reducing food and packaging waste, addressing unsustainable and unethical industry practices and improving the livelihoods of farmers and others working in the food supply chain.
- **Authenticity and Trust:** knowing what happens to food in the supply chain, fixing misleading product claims and making product labelling less confusing
- **Lifestyle:** meeting the lifestyle needs of different demographic groups, making food consumption more sociable and reducing the time it takes to prepare meals.

### 3.3.7. Trade-offs in Future Food Systems – Consumer Perspectives<sup>12</sup>

What did we do?	Method	Unique participants
<p>In 2016 around 100 members of the panel explored the topic of sustainable intensification. Sustainable intensification is an approach to addressing global food security that focuses on increasing production; it was defined in the project as:</p> <p>Sustainably increasing the production of food, combined with improved resource use efficiency</p>	<p>Survey, one-to-one interviews and discussion groups (one held online and one held face-to-face in London)</p>	<p>108 participants</p>

<sup>12</sup> Ibid.

and better environmental outcomes.

Many participants tended to support the concept of **sustainable intensification** but were worried about some of its potential implications. Prominent areas of concerns were animal welfare, health risks and costs of new technologies.

Even though many participants were positive about the use of sustainable intensification, it was not most people's preferred approach to address the food security challenge. For most participants the priority for addressing the food security challenge was **reducing food waste**. This finding is consistent with other project activities where food waste formed the focus of many discussions. **Changing diets** to less resource intensive foods was the second most preferred approach for the UK and third for the world. Some, however, were sceptical about the feasibility of such approaches, indicating that they would struggle to reduce their own meat consumption.

Participants were overall reluctant to prioritise environmental sustainability when it was posed against economic, societal or animal welfare interests.

Many participants felt that the **financial interests of farmers** should be protected, often expressing their disquiet at the imbalance of power that exists between supermarkets and farmers.

Converting **more land** (such as uplands) into agricultural land was on balance more supported than **intensifying production in areas that are already used for farming**. Recurring concerns across comments on both methods were the increased risk of flooding and the impact on wildlife with a strong emphasis on bees. It should be noted that the December 2015 flooding in Scotland and the north of England had been covered extensively in the media prior to this panel activity, which may have had an effect on participants' comments. On the option of turning a bigger part of the countryside into farm land, some were worried that rural areas would lose their appeal to tourists.

Participants were open to the idea of using **new types of technology** in agriculture but expressed mixed views about the use of **scientifically modified crops**<sup>13</sup>. Whereas participants recognised the need for building an efficient and resilient food system, they had concerns about the long-term safety implications of the modified crops. Some also felt uneasy about consuming food they thought would not be natural.

In terms of level of responsibility for ensuring that food is produced sustainably, the participants expressed the following views:

- **Farmers** have been consistently regarded by participants as the actor with the least influence in the food system, and the most deserving of public sympathy.

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<sup>13</sup> For the purpose of this project, the term scientifically developed crops included both genetically and conventionally modified crops

- The role imagined for **government** tended to be largely one of oversight: enforcing standards, legislation, regulation and monitoring their implementation. Some participants also called for greater government-led regulation of supermarkets to ensure lower levels of waste and more equitable relationships with food producers.
- While participants often felt that **supermarkets** were responsible for problems in the food system, such as food waste and limits to farmers' income, there were few suggestions about how sustainable intensification might remedy this.
- The majority of participants were receptive to **agri-business** (large multinational companies with big budgets for research and development) as an important actor in sustainable intensification but some were sceptical of the willingness of large commercial enterprises to act in the public interest.
- Participants, particularly in the discussion groups, were prepared to consider a situation in which they would be happy to have **less choice as consumers**. They felt that the burden on consumers to decide between ranges of products with different sustainability credentials could be too much, and saw restricting choice as a way to shift the burden to institutions like governments. They felt that government was better equipped to evaluate the many factors relevant to sustainability than consumers, and should remove the least sustainable options (although they were rarely specific about a mechanism for this).

### 3.3.8. Endline Survey

What did we do?	Method	Unique participants
<p>The final project for the panel was a survey, similar to the baseline survey, to understand participants' views at the end of the panel. All panel members were invited to complete the survey, which asked questions about:</p> <ul style="list-style-type: none"> <li>• Understanding and perceived importance of global food security</li> <li>• Views on the factors affecting global food security</li> <li>• Behaviours and attitudes towards food and the food system</li> <li>• Topics covered by the panel: one or more questions on each of the six topics above</li> </ul>	Survey	158 respondents (26% response rate)

Respondents to the endline survey were more likely than respondents in the baseline survey to identify global food security with sufficiency of supply and population growth than with food safety, suggesting that their understanding of the issue had changed through the panel.

There were subtle changes to the perceived importance of global food security: it was seen as slightly less important in the UK compared to the baseline, but importance globally remained similar. This may reflect respondents finding out more about global challenges and seeing UK food security issues as relatively less important. It should be noted that many more respondents completed the baseline survey than the endline survey (baseline: 489; endline: 158). The majority of those responding to the endline survey had also completed the baseline survey (153 of 158 respondents).

When asked about the factors affecting global food security respondents in the endline survey gave similar answers to the baseline: with population increase and climate change the most selected factors, followed by 'less agricultural land available'. The proportion of respondents choosing these three options stayed broadly similar to the baseline, but the less common factors (e.g. transport costs, overfishing) were chosen less often. We hypothesise that this is because participants were reflecting those topics (like population change) which have been discussed most through the panel, and were less likely to choose topics that had not been discussed in detail.

Responses to questions about attitudes and behaviours towards food security were broadly consistent with the baseline survey, participants still tended to agree that there is enough food produced in the world, and that too much food is wasted in the UK. As in the baseline only around a quarter of respondents agreed with the statements 'food security doesn't really affect me – it's more a problem in developing countries' and 'I am confident that our government will take the necessary steps to make sure there is enough food in the future'. There were no major changes to reported food behaviours (e.g. the factors respondents considered when buying food) relative to the baseline survey, although the evaluation report suggests that some respondents did suggest they had changed their behaviour because of participating in the panel.

The questions on each of the topics covered by the panel found broadly consistent views to those given in the activities:

- **Insects as animal feed:** Respondents to the endline were somewhat less open to consuming livestock fed on insects, we think this is most likely because the insect feed survey gave respondents more information and uncertainty is the key barrier to willingness to eat new foods.
- **Urban agriculture:** As with the activity findings, the endline survey found that the majority of respondents feel that growing more food in towns and cities can contribute to global food security, in both the UK and the rest of the world.
- **Food systems:** Respondents to the endline survey were asked about responsibility for change in the food system. Over half of respondents (58%) thought the main responsibility is with governments. This is in line with initial views in the food systems activity, however participants in the activity tended to shift to a view of shared responsibility as they deliberated on the issues.
- **Buying British:** The endline survey found that respondents tend to view British food as high quality, high price, easily available, environmentally friendly and with high animal



welfare standards. However somewhat more respondents in the endline survey felt that British food was associated with high environmental impacts.

- **Food innovation:** A large majority of respondents agreeing strongly or slightly that innovation in the food system would contribute to food security in the UK (82%) and globally (84%). This is coupled with a majority (82%) agreeing that ‘we need to make greater use of science and technology to increase the world’s food supply in the future’. This general support is consistent with the qualitative findings of the innovation activity, although there was more concern about particular high tech innovations like genome editing than the general figures suggests.
- **Sustainable intensification (SI):** Endline respondents were asked to prioritise four statements about the food system. As with the SI survey the most commonly chosen option was ‘Producing food more sustainably, in ways that protect the climate, biodiversity and other resources’ (44%), although this was a decrease from a survey run in the sustainable intensification activity, where the figure was 63%. In the endline and the SI activity survey, the least prioritised option was ‘Plentiful and affordable food supply for the UK consumer’ suggesting that respondents prioritise the environmental impact over the UK consumer’s access to sufficient and affordable food. However, this was not consistent with findings from other endline survey questions such as ‘What would you say is important to you when deciding what to buy to eat at home?’, where respondents tended to prioritise price/cost above other factors such as environmental considerations.

## Chapter 4: Evaluation and learning

The Food Futures panel was designed with two sets of objectives : to explore public views on food security in order to inform GFS decision making, and to trial and learn about the effective use of public panels for public dialogue and engagement.

The online panel model, while common in market research, is a relatively new approach for science and technology dialogue, so this project offered an extended opportunity for iterative learning about online engagement methods and tools and the interaction between online and face-to-face engagement. We used qualitative, quantitative and deliberate approaches, in mixed-methods projects and as individual tools. The Food Futures panel was a genuinely innovative approach to engagement. Learning about the process was of great importance and value, both to the continued improvement of this project and to any future projects.

To capture the learning we have acquired throughout the engagement programme as well as the progress against the originally set aims, we produced a learning report in January 2016, after nine months of the panel's life and delivery of several projects. This was supplemented with an additional chapter at the close of the project in March 2016.<sup>14</sup> The learning report looked at every stage of the project and drew out useful lessons for using a mix of online and offline engagement activities. We studied carefully both the successes and the setbacks and compiled a list of recommendations for future projects.

Some of the most important learning points that emerged are:

- We have found that using online and face to face methods in combination has worked well as each channel has its own benefits. Online methods are quick to set up once the topic is agreed and enable participants to participate when convenient to them, therefore allowing a greater number of participants to participate. They have also been useful in increasing participants' familiarity with new topics before workshops, resulting in more informed discussions during the workshops. Face to face methods, while more expensive and limited by geography, offer more in-depth and responsive interactions between participants and with specialists particularly when compared to the discussions on the online forums.
- We have found from the interviews with Panel members that there a number of elements that have worked well regardless of channel: interaction with specialists (particularly in workshops due to the more immediate responses specialists are able to give to member questions), interactive activities (where members are asked to interact with each other or with family members), visually attractive stimulus materials and 'sticky' content (e.g. interesting facts and stories). These elements should be actively designed into all activities online and offline.

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<sup>14</sup> All reports are available on the GFS website at: <http://foodsecurity.ac.uk/programme/activities/public-panel.html>

- We have found that there are significant differences in participation between certain demographic groups: participation is lowest among the youngest age group (18-25) and members with lower education levels. These differences in participation replicate similar patterns to participation rates reported for other online panels (with the exception that we have not observed any differences by gender)<sup>15</sup>.

Our learning report sits alongside the evaluation report prepared by the independent evaluators at 3KQ<sup>16</sup>. 3KQ have provided formative input throughout the public panel both verbally and through interim learning reports (internal use only), to maximise the potential and learning of the public panel. The major points captured in these reports are reflected in the Final Evaluation Report.

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<sup>15</sup> See for example, Wales, Cotterill & Smith, 2010, Smith, John & Sturgis, 2012 and further discussion in chapter 5 of the learning report.

<sup>16</sup> All reports are available on the GFS website at: <http://foodsecurity.ac.uk/programme/activities/public-panel.html>

## Appendix A: List of specialists involved in the project

Activity	Specialist	Involvement
<b>Food Systems</b>	Tim Benton, Global Food Security Champion	Interviewed for stimulus video
<b>Food Systems</b>	Malcolm Clark, Sustain	Interviewed for case study: sugar
<b>Food Systems</b>	Martin Caraher, City University	Interviewed for case study: fried chicken
<b>Food Systems</b>	Simon Davies, Harper Adams University	Interviewed for case study: oily fish and attended workshop in Plymouth
<b>Food Systems</b>	Jackie Young, Devon and Cornwall Food Association/Environmental Scientist	Attended Plymouth workshop
<b>Food Systems</b>	Evangelia Kougiumoutzi, GFS	Attended Plymouth workshop
<b>Food Systems</b>	Steve Garrett, Cardiff Food Council	Attended Cardiff workshop
<b>Food Systems</b>	Barbora Adlerova, MSc University of Cardiff	Attended Cardiff workshop
<b>Food Systems</b>	Angelina Sanderson Bellamy, University of Cardiff	Attended Cardiff workshop
<b>Food Systems</b>	Dave O’Gorman, GFS	Attended Cardiff workshop
<b>Urban Agriculture</b>	Andre Viljoen, Research Initiatives Leader, Architecture and Interior Architecture, School of Art Design and Media, University of Brighton	Scoping interview
<b>Urban Agriculture</b>	Greg Keeffe, Professor of Sustainable Architecture, Queens University Belfast	Online question and answer sessions

<b>Urban Agriculture</b>	Chiara Tornaghi, Research Fellow in Urban Food Sovereignty and Resilience, Coventry University	Online question and answer sessions
<b>Urban Agriculture</b>	Jim Monaghan, Principal Lecturer - Fresh Produce Research Centre, Harper Adams University	Online question and answer sessions
<b>Urban Agriculture</b>	Geoff Thomson, Ulster Farmers Union, Animal Health and Welfare Policy Committee and Pork and Bacon Policy Committee Poultry Policy	Attended Belfast half day workshop
<b>Urban Agriculture</b>	Hayley Smith, University of Nottingham, 3rd Year PhD Plant Science	Attended Belfast half day workshop
<b>Urban Agriculture</b>	Laura Vickers, Crop Production and Agronomy Lecturer, NERC KE Fellow in Horticulture, Harper Adams University	Online question and answer sessions, attended: Belfast half day workshop, Belfast full day workshop, London full day workshop
<b>Urban Agriculture</b>	Andy Jenkins, PhD. Candidate, Queen's University Belfast	Attended Belfast full day workshop
<b>Urban Agriculture</b>	Marina Chang, Research Fellow, Coventry University	Attended London half day workshop
<b>Urban Agriculture</b>	Kate Parkes, Senior Scientific Officer, Farm Animals Department, Science Group, RSPCA	Attended London half day workshop
<b>Urban Agriculture</b>	Chungui Lu, Head of Centre for Urban Agriculture, University of Nottingham	Attended London half day workshop
<b>Urban Agriculture</b>	Robert Biel, Development Planning Unit, University College London	Attended London full day workshop
<b>Urban Agriculture</b>	Paul Smyth, Designer/Director/Cofoun	Dalston FARM case study interview, Attended London

	der at Something & Son and the FARM: shop	full day workshop
<b>Urban Agriculture</b>	Ulf Hackauf, Environmental Technology & Design Department of Urbanism, TU Delft	City Pig Farm case study interview
<b>Urban Agriculture</b>	Siobhan Craig, Founder of GROW NI	GROW NI case study interview
<b>Understanding Consumer Priorities for Food Innovation</b>	Peter Lillford, University of Birmingham	Expert interview to inform problem framework
<b>Understanding Consumer Priorities for Food Innovation</b>	Simon Branch, Goldenfry Foods	Expert interview to inform problem framework
<b>Understanding Consumer Priorities for Food Innovation</b>	Patrick Mulvany, Food Ethics Council	Expert interview to inform problem framework
<b>Understanding Consumer Priorities for Food Innovation</b>	Stephen Parry, Knowledge Transfer Network	Expert interview to inform problem framework
<b>Understanding Consumer Priorities for Food Innovation</b>	Ian Noble, PepsiCo	Interviewed for stimulus video
<b>Understanding Consumer Priorities for Food Innovation</b>	Richard Bramley, farmer and NFU	Attended Harrogate workshop
<b>Understanding Consumer Priorities for Food Innovation</b>	Phillip Davis, Stockbridge Technology Centre	Attended Harrogate workshop
<b>Understanding Consumer Priorities for Food Innovation</b>	Iain Ferguson, Co-op	Attended Harrogate workshop
<b>Understanding Consumer Priorities for Food Innovation</b>	Teresa Belmar, Unilever	Attended Harrogate workshop
<b>Understanding Consumer Priorities for Food Innovation</b>	Gesa Reiss, North Yorkshire and East Riding Enterprise Partnership	Attended Harrogate workshop
<b>Understanding Consumer Priorities for Food Innovation</b>	Pete Ritchie, Nourish Scotland	Attended Dundee workshop
<b>Understanding Consumer Priorities for Food Innovation</b>	Catherine Tsang, Abertay University	Attended Dundee workshop

<b>Understanding Consumer Priorities for Food Innovation</b>	Alberto Fiore, Abertay University	Attended Dundee workshop
<b>Understanding Consumer Priorities for Food Innovation</b>	Serena Broadway, Knowledge Transfer Network	Attended Dundee workshop
<b>Trade-offs in Future Food Systems – Consumer Perspectives</b>	John Hall, West Sussex Growers Association	Scoping interview
<b>Trade-offs in Future Food Systems – Consumer Perspectives</b>	Mike Wray, Fera Science Ltd	Scoping interview
<b>Trade-offs in Future Food Systems – Consumer Perspectives</b>	Tim Williams, Farming Futures, University of Aberystwyth	Scoping interview, face to face and online events
<b>Trade-offs in Future Food Systems – Consumer Perspectives</b>	Sam Durham, National Farmers Union (NFU)	Scoping interview, face to face and online events
<b>Trade-offs in Future Food Systems – Consumer Perspectives</b>	Tara Garnett, Food Climate Research Network, University of Oxford	Scoping interview
<b>Trade-offs in Future Food Systems – Consumer Perspectives</b>	John Crawford, Rothamsted Research	Scoping interview
<b>Trade-offs in Future Food Systems – Consumer Perspectives</b>	Richard Tiffin, Reading University	Scoping interview, online event
<b>Trade-offs in Future Food Systems – Consumer Perspectives</b>	Caroline Drummond, LEAF	Scoping interview
<b>Trade-offs in Future Food Systems – Consumer Perspectives</b>	Andrew Burgess, Produce World	Scoping Interview
<b>Trade-offs in Future Food Systems – Consumer Perspectives</b>	Dave Hughes, Syngenta	Scoping interview, face to face and online events

<b>Trade-offs in Future Food Systems – Consumer Perspectives</b>	Patrick Mulvany, Food Ethics Council	Scoping (by email)
<b>Trade-offs in Future Food Systems – Consumer Perspectives</b>	Evangelia Kougioumoutzi, GFS	Face to face event