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Global Food Security Endline Survey

A GFS Food Futures panel activity

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Executive summary

One hundred and fifty-eight members of the Global Food Security public panel (Food Futures) took part in a survey (the endline survey) conducted between Saturday 27th February and Wednesday 9th March 2016. This was a 26% response rate. This survey replicated a number of questions asked in the baseline survey conducted at the start of the project, between July and December 2015[1]. Questions on panel activities and evaluation questions were added to the endline survey.

Six hundred people were recruited to the Global Food Security public dialogue panel. Panellists were recruited from six locations and, whilst broadly reflective of the population of Britain and Northern Ireland, our quota sampling methodology was not designed to produce a statistically representative sample of the general population. Any inferences to the general population based on results we report should therefore be treated with caution.

It should also 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).

Understanding of global food security

Comparison between the baseline and endline surveys shows a shift in the way that respondents define global food security. In the baseline, global food security was often defined in terms of food safety, but this was less common in the endline, in which more respondents talked about sufficiency of supply and challenges like population growth. This suggests that respondents' knowledge and understanding of the complexity of global food security has grown over the lifetime of the panel.

Perceived importance of the issue

The majority of endline survey respondents identified food security as *'a big issue'* or as *'quite a big issue'* in the UK (68%). Whilst the proportion of those identifying it as '*a big issue*'/'*quite a big issue*' dropped by around 6% compared to the baseline survey, it was higher than in response to the same question asked in the 2012 omnibus survey (58%)[2]. We suggest that the perception of UK food security as an issue may have reduced among the panel as they have learnt more about the global challenges and so put UK food security into a wider context in which it appears less urgent. However, as is common throughout this report, the different samples in the three surveys may offer an alternative explanation. Respondents to all three surveys were highly likely to identify food security as an issue globally, with over 90% of respondents selecting *'a big issue'* or as *'quite a big issue'* in each case.

[1] Many of these questions were drawn from an omnibus survey 'Global Food Security Programme – a survey of public attitudes' run in 2012 by TNS: see http://www.foodsecurity.ac.uk/assets/pdfs/gfs-survey-public-attitudes.pdf

[2] ibid

Factors affecting global food security

Respondents were asked which factors (from a list of 10) they thought may affect food security in the future. The ordering of responses was similar to the baseline, and to the 2012 omnibus, with *'increasing population'* and *'climate change'* the most often selected factors, followed by *'less agricultural land available'*. The most notable change from the baseline was a decrease in the proportion of respondents selecting the six less popular factors. This change might be attributable to respondents having learned more about the challenges of food security and the major factors they perceive as playing a role.

When asked which factor they thought would most affect food security in the future, respondents tended to choose the same factors as in the baseline and the 2012 omnibus survey. Increasing population and climate change were chosen most frequently; the proportion of respondents choosing population growth in the endline survey has increased to 50%, from 37% in the baseline. This may be because population growth has formed a central part of the case for change in the food system, which was the basis of a number of topics that the panel has explored, in line with expert predictions about the need to increase food production to meet the needs of the growing global population in the medium-term.

Attitudes to global food security

When asked about their level of agreement with a range of food security related statements, the vast majority of respondents (93%) agreed that *'we waste too much food in the UK'* (a small decrease from the baseline survey figure of 98%). Similarly, 81% of respondents agreed with the statement *'we already grow enough food in the world – the problem is getting it to those who need it most'*, suggesting that many respondents did not feel that increased production was a priority.

In terms of changing behaviours, the majority of respondents agreed that people should be encouraged to change their diets for health reasons (87% - a decrease from the baseline survey figure of 92%) and to make their diets less resource-intensive (72% - in line with baseline survey). However, a smaller proportion of respondents (30%) agreed that *'people in the developed world should eat less or there won't be enough to go around'*.

A third of respondents felt that food security was more of a problem in developing countries and didn't affect them, while there was limited confidence in the government to ensure food security in the future (23% of endline respondents agreed - a decrease from the baseline survey figure of 28%).

The majority of respondents (78%) felt it is important to know how food is produced (a decrease from 88% at baseline) and 60% of respondents reported reading labels to see how food is produced (a decrease from 63% in the baseline survey). However, less than half of respondents (46%) agreed that they know how the food they eat is produced (a decrease from 52% in the baseline survey - which may be explained by respondents' exposure to new information about food production during the activities, increasing scepticism that they are not fully informed).

Behaviours and attitudes

Respondents were asked to choose from a list of items about what is most important to them when deciding what to buy to eat at home. The pattern of responses matches closely with that of the baseline survey,

suggesting no major differences in the attitudes of the panel towards food choices over the course of the Food Futures panel. The options chosen most frequently are *'eating food that is healthy'* and *'price/value for money/special offers'*; the difference identified in the baseline between older age groups (more likely to choose local food) and younger age groups (more likely to prioritise convenience) was consistent in the endline.

When asked to consider how important it was to them that their food was produced in the UK or the EU, as at the baseline around two-thirds of respondents felt it was quite or very important that food was produced in the UK, compared with around half for the EU.

Topics covered by the panel

In addition to repeating questions from the baseline, the endline survey asked a series of questions relating to topics discussed in projects run over the lifetime of the panel. The topics and questions were:

Insects as animal feed

Almost half of respondents in the endline (48%) would consider eating meat and/or fish fed on insects, but would want more information ahead of making a decision; this is similar to the proportion in the initial insect feed survey.

Urban agriculture

The majority of respondents either 'strongly' or 'slightly' agreed that *'growing more food in towns and cities in the UK/developing nations will contribute to achieving global food security'* (70% 'in the UK' and 71% 'in developing nations'). Although there was no survey in the urban agriculture project, the qualitative analysis of the various activities suggested a similarly high level of support for growing more food in towns and cities as one element of addressing global food security.

Food systems

Over half of respondents felt that the responsibility for working towards global food security lay with *'Governments'* (58%). All other actors were scored considerably lower, with *'Media and advertising'* the actor given the least responsibility (only 1% of respondents). This is in line with the initial views held by participants in the food systems activity: participants commonly started out with the opinion that government should be responsible, but by the end of the food systems workshop, having explored the issues, more tended to see a greater responsibility for individuals, retailers and particularly the media and advertising.

Buying British

When presented with a list of paired characteristics e.g. high price/low price, the majority of respondents in the endline survey associated British food with high quality (91%), high price (80%), easily available (66%), environmentally friendly (70%) and high animal welfare (73%). The most significant difference from the baseline survey was a lower proportion of endline respondents associating British food with being environmentally friendly.

Understanding Consumer Priorities for Food Innovation

There were high levels of agreement that innovation in the food system will contribute to global food security: 82% of respondents agreed 'strongly' or 'slightly' that innovation in the UK will contribute and 84% of respondents agreed 'strongly' or 'slightly' that innovation in developing nations will contribute.

Sustainable intensification

Respondents prioritised *'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*'. 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 1: Introduction

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 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 to inform the future direction of publicly funded food security-related research in the UK. The panel is co-funded by Sciencewise[3].

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, ensuring 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[4].

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.

All panel members were invited to take part in a baseline survey when they joined the panel (between July and December 2015). This survey replicated some questions included in an omnibus survey carried out in 2012[5], and included some new questions. At the end of the project, all panel members were invited to take part in an endline survey (between 27th February and 9th March). This replicated some of the baseline questions, to allow for comparison with the baseline survey and included some new questions on the topics covered in projects over the lifetime of the panel, and to gather evaluation data. Results from the evaluation questions are not included within this report and can be found in the Final Evaluation Report produced by 3KQ.

[3] 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

[4] Locations are: Belfast, Cardiff, Dundee, Harrogate, London, Plymouth.

[5] 'Global Food Security Programme – a survey of public attitudes' run in 2012 by TNS: see http://www.foodsecurity.ac.uk/assets/pdfs/gfs-survey-public-attitudes.pdf

1.1. Methodology

The endline survey comprised 43 questions, of which the majority were taken from the baseline survey. This has enabled us to draw comparisons between the findings from the two surveys. However, these comparisons need to be treated with caution, given the difference in respondent numbers between the two surveys, the differences in survey structure e.g. number and ordering of questions and the unrepresentative nature of the sample. The demographic profile of respondents to the endline survey matches that of the panel as a whole fairly closely, though the endline sample has a slight over-representation of female respondents and those in the highest education level, and a slight under-representation of those in the lowest education level and in the youngest age group (full demographic charts are presented in Appendix A). Levels of participation from those in the oldest age group, and the education level 'other' have increased proportionally from the baseline, something we discuss later in this report.[6] All interpretations of differences between findings in the two surveys are speculative only, and draw on our knowledge of the wider panel activities. The full set of endline survey questions is presented in Appendix B.

The survey was completed online by 158 members of the public panel. All panel members were invited to take part in the endline survey and were incentivised £5 for taking part. Attempts were made to encourage panel members to take part in the survey by sending email reminders ahead of the closing date. The smaller number of respondents to the endline survey in comparison to the baseline survey (489) could be a result of the shorter time period in which the endline survey was run. The baseline survey was run throughout the recruitment period, over a period of 6 months, whereas the endline survey was run over a period of 11 days. Alternatively, this smaller number of respondents could demonstrate fatigue towards the panel activities at the end of the project, compared to the start.

There were six duplicate responses to the survey (i.e. two responses from the same individual): in each case the earliest response was used.

No weighting has been applied to the findings. Note that figures have been rounded up to the nearest whole number, and as a result not all charts may add up to 100%. For this reason and for clarity when reading, we have pulled out figures from charts in the explanation of the findings. Where appropriate we have tested for statistically significant differences in responses relating to demographic criteria: this means that we examined whether it is likely that a difference in responses by a particular group would occur by chance[7]. All reported findings are significant to 95% confidence level, unless otherwise stated in footnotes throughout the document which clarify exactly what has been compared and to what confidence level it is statistically significant, whilst ensuring the main text is as clear and concise as possible.

We have not provided statistical results based on a comparison of the baseline and endline surveys, given the differences between the two samples and the difference in the survey questions asked. However, we have provided commentary and illustrations comparing the two: we advise that these are considered cautiously.

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[6] The demographic profile of the sample that completed the endline survey is shown in appendix A, alongside the equivalent demographic profile of the baseline survey, for comparison.

[7] Statistical tests used were Z-tests.

Chapter 2: Results

2.1. Understanding of global food security

The first question asked respondents an open-ended question about their understanding of global food security (see Figure 1 for some of the main themes).

By far the most common theme, mentioned by nearly all respondents, was sufficiency of food supply. Respondents spoke about the need to produce enough food for everyone, or to increase food production in order to provide enough food. This was considerably higher than the findings from the baseline survey.

'Having enough food to sustain the population.' Endline survey respondent

A large percentage of respondents specified that global food security included the question of access to and availability of food. Many respondents stated that this meant ensuring all of the world's population had access to food, or that food was distributed to everyone. Again, this was considerably higher than the findings from the baseline survey, where access to food was a minor consideration.

'To ensure that everyone on the planet has access to sufficient and nutritious food.' Endline survey respondent

Sustainability was also mentioned by many respondents, who stated that global food security meant protecting the environment and producing food in a sustainable way. This was somewhat higher than the findings from the baseline although some of this difference may be explained by difficulties in determining the way in which respondents used the term 'sustainable' – for example, some respondents may have been referring to economic sustainability rather than environmental sustainability.

'Ensuring food supplies for the future, in a sustainable way - not polluting the earth.' Endline survey respondent

Many respondents in the endline survey mentioned food standards or safety in their responses, stating that global food security meant ensuring the safety of food for consumption or ensuring that food production meets regulated standards of food hygiene and safety. However, this proportion was lower than in the baseline survey.

Many endline respondents saw a future dimension to global food security, stating that global food security was about producing enough food for future populations.

'Ensuring there will be enough food for the world in the future.' Endline survey respondent

Respondents in the endline survey mentioned health considerations e.g. that food should be healthy or nutritious; the origin of food e.g. knowing where food has come from; ethical production e.g. protecting livelihoods of farmers or protecting animal welfare; generic comments about security; or information e.g. traceability of foods or knowing what is in food. A small minority of respondents were unsure what 'global

food security' means – though the proportion had dropped considerably, compared to findings from the baseline survey.

Figure 1 – Clustering of themes in responses to question 'what does 'global food security' mean to you?'

2.2. Perceived importance of food security

Respondents were asked to indicate how much of an issue they believed food security to be in the world, and then in the UK.

The majority of respondents in both the baseline and endline surveys identified food security as *'a big issue'* or *'quite a big issue'* both in the world and in the the UK.

The proportion of those who felt that food security is 'a big' or 'quite a big' issue in the UK has dropped, from 74% in the baseline to 68% in the endline. We hypothesise that as participants have explored more of the issues around global food security they perceive the issue as relatively less pressing in the UK and therefore score it as less of an issue at endline.

The proportion of those who feel that food security is *'a big issue'* in the world has decreased slightly between the baseline survey (59%) and the endline survey (54%). The proportion of those viewing it as *'quite*

a big issue' has increased correspondingly: 36% in the baseline to 43% in the endline, suggesting a similar trend to the UK, for which the mechanism is unclear.

In the endline survey, those in the 56-65 yrs age group were significantly more likely than those between the ages of 26-55 yrs to state that food security in the UK is *'not that much of an issue'*.

Those who had Level 1 qualifications (e.g. GCSEs Grade D-G or BTEC Level 1) were significantly more likely than other educational qualification groups to state that food security is *'a big issue'* in the UK.

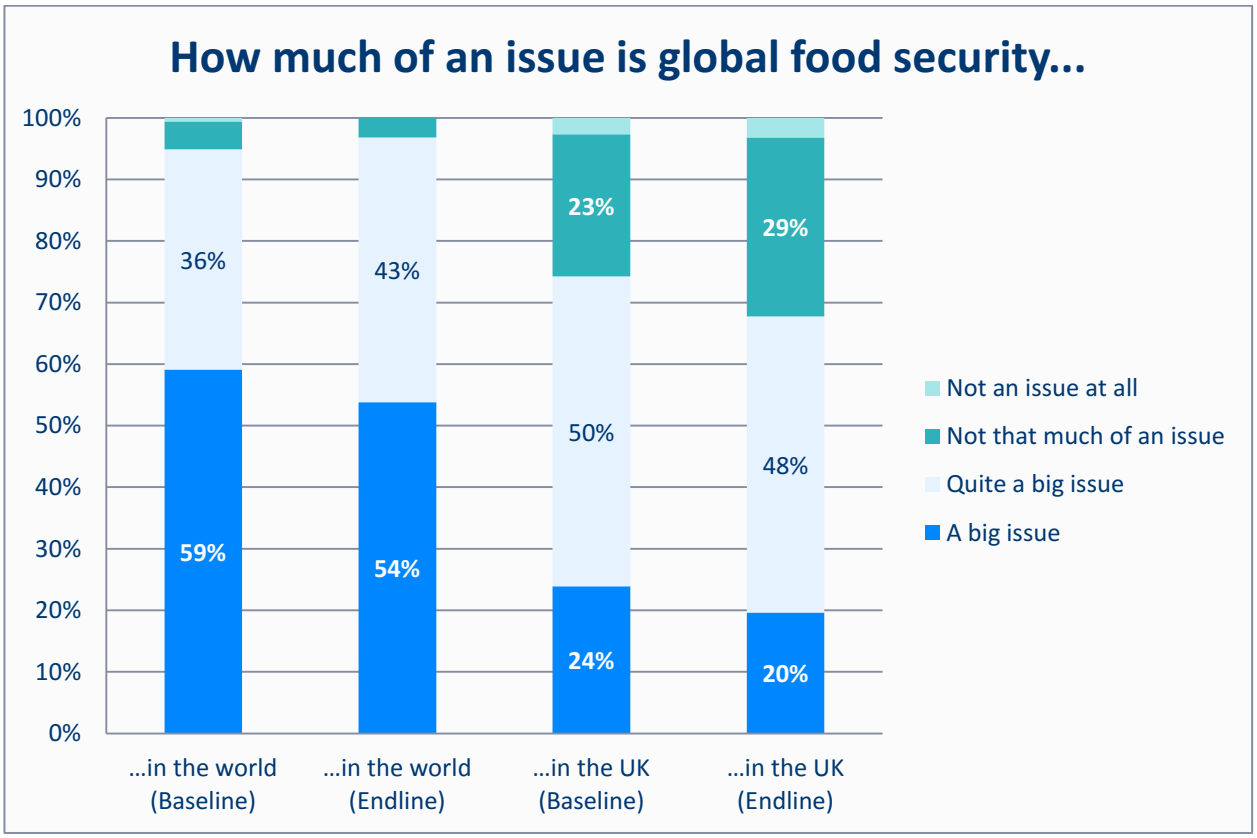


Figure 2 - Scale of global food security challenge: UK and world, baseline (n=489) and endline (n=158) comparison

2.3. Factors affecting global food security

Respondents were asked which factors (from a list of 10) they thought would affect food security, and subsequently to prioritise one factor they thought would have the most effect on food security.

The vast majority of respondents feel that *'increasing population'* would affect food security (92%), alongside *'climate change'* (84%). Less than half of respondents feel that *'transport costs'* and *'people becoming wealthier and eating more resource intensive diets'* would affect food security (47% and 32% respectively).

The relative ordering of the factors was largely the same in both the baseline and the endline surveys (see figure 3), although in the baseline survey each factor was chosen more frequently. This may be explained by the fact that respondents had taken part in many activities across the dialogue at the point of the endline survey and may have been more discriminating in their choices than they were at the baseline (where most factors were scored highly).

In the endline survey, those in the 66+ yrs age group are significantly less likely than respondents in other age groups to choose *'Politics and the global economy'* as a factor which would affect food security,[8].

Those in the 18-25 yrs age group are significantly less likely than those between the ages of 26-65 yrs to choose *'Overfishing'* as a factor which would affect food security[9]. Only 27% of those in the youngest age group select *'Overfishing'* as a factor, compared to 60% of those in age group 26-40 yrs and 63% of those in age group 56-65 yrs. Selecting *'Overfishing'* was related significantly to education level, with those in the Level 4+ educational group (e.g. BTEC Higher, Degree, Masters etc) significantly more likely than those with no qualifications to choose this as a factor[10].

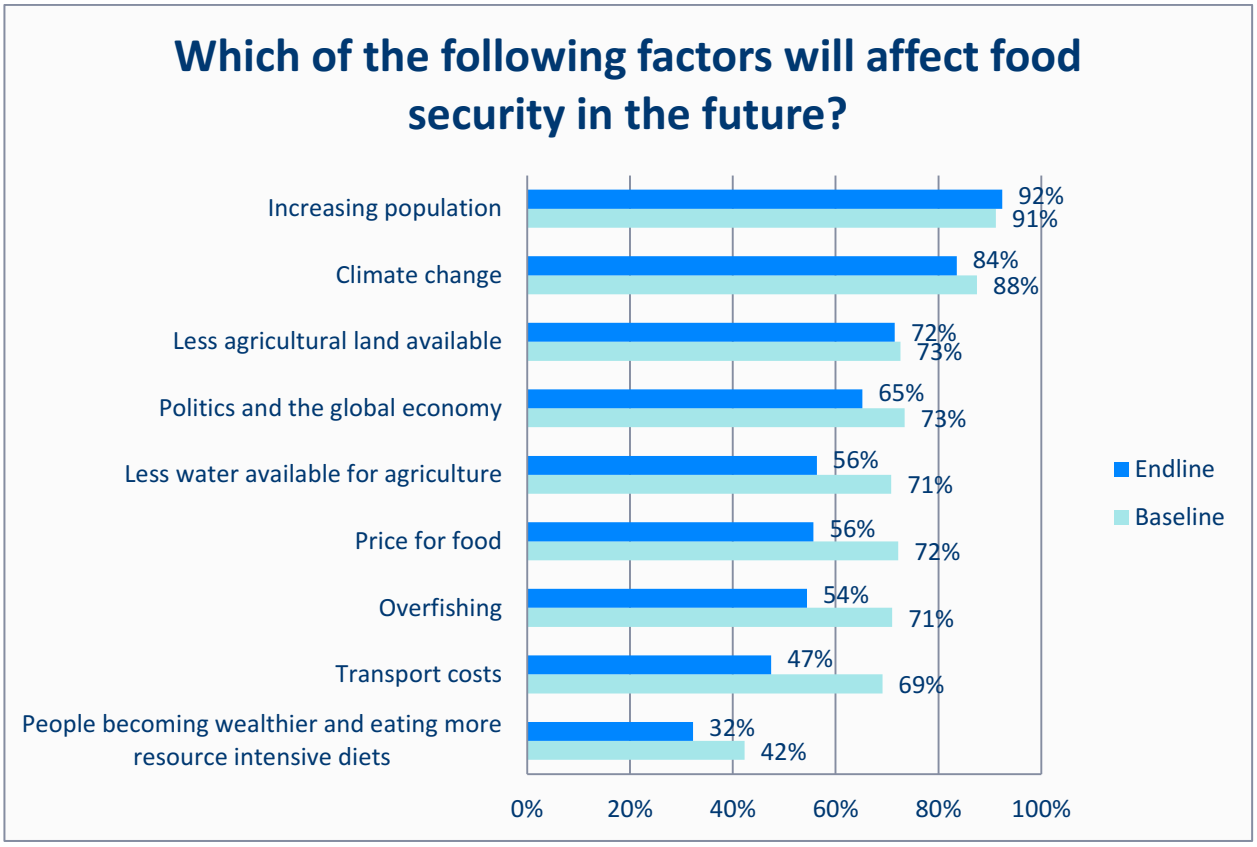


Figure 3 - factors affecting food security in the future, baseline (n=489) and endline (n=158) comparison.

Respondents were asked to select which factor they thought had the most effect on food security. The two factors selected most frequently by respondents as affecting food security were also the ones which were prioritised as most important. Half of respondents selected *'Increasing population'* as the factor which would

[8] Significant to 95% confidence level when compared to those in age group 41-55 yrs and to 90% confidence level when compared to those in age groups 26-40 yrs and 56-65 yrs.

[9] Significant to 95% confidence level when compared to age group 26-40 yrs and to 90% confidence level when compared to those between the ages of 41-65 yrs.

[10] Significant to 95% confidence level or to 90% confidence level when compared to those with 'other' qualifications including apprenticeships.

have the most effect on food security. This is an increase on findings from the baseline survey, where 37% of respondents prioritised this factor (see figure 4). This is followed by *'climate change'*; in the endline survey, 20% of respondents feel this would have the most effect on food security – which is a slight increase from the baseline survey (where the figure was 18%).

Those in the age group 56-65 yrs were significantly more likely than respondents in any other age group to select *'Increasing population'* as the factor with the most effect on food security[11], with 79% of respondents in this age group selecting this option, compared to just 27% of respondents in the 18-25 yrs age group. In contrast, those in the 18-25 yrs age group were significantly more likely than those in the 56-65 yrs age group to select *'Climate change'* as the factor which has the most effect on food security. 40% of those aged between 18-25 yrs feel that *'Climate change'* is the most important factor, compared to just 5% of those aged between 56-65 yrs. It is possible that this difference is due to the fact that population growth may have been a more prevalent topic of media discourse than climate change for this 'baby boomer' generation, whilst climate change is a more prevalent issue in the media for younger generations. However, it should be noted that 20% of respondents from the oldest age group 66+ yrs chose *'Climate change'* as the factor with the most effect on food security, suggesting age alone may not explain the differences.

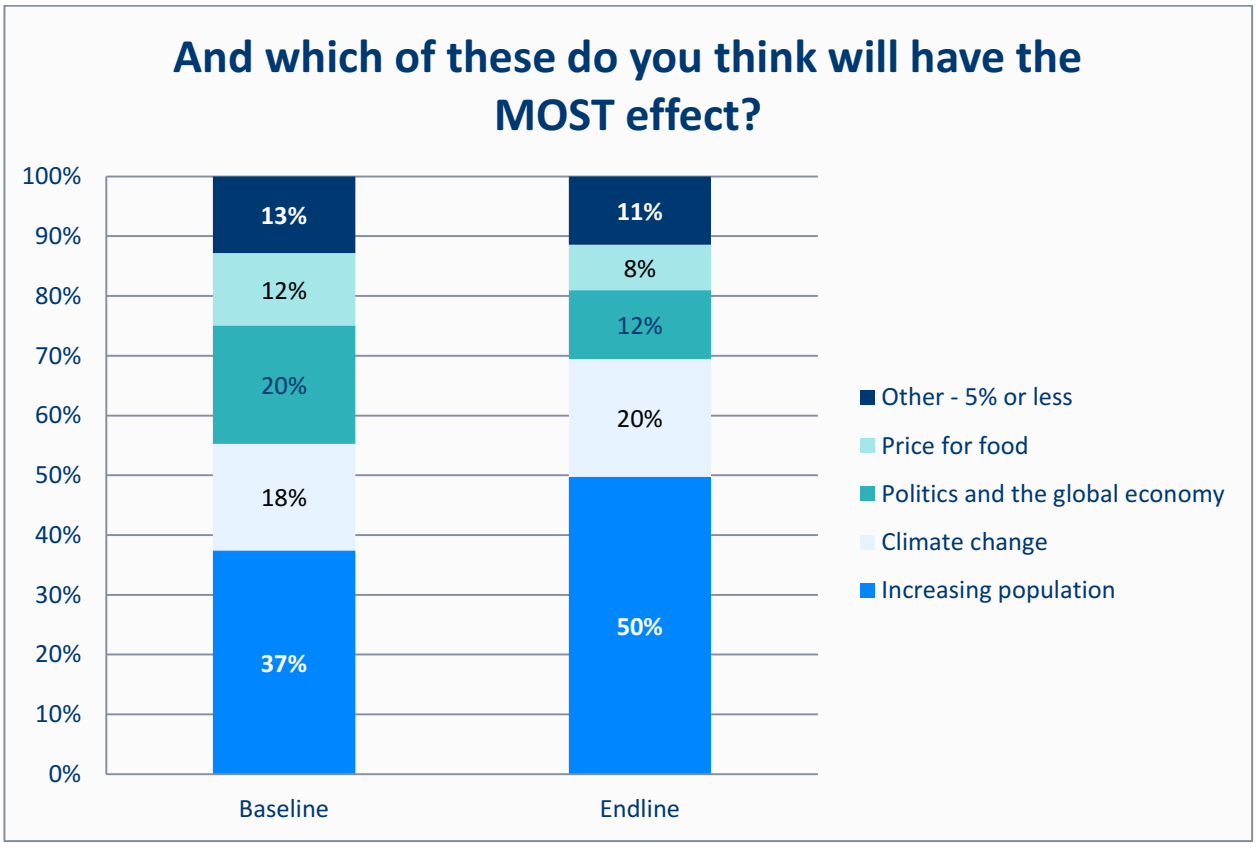


Figure 4 - factor with most effect, baseline (n=489) and endline (n=158) comparison

[11] Significant to 95% confidence level when compared to all age groups except 26-40 yrs which is significant to 90% confidence level.

2.4. Attitudes to global food security

Respondents were asked to indicate the extent to which they agree or disagree with a series of statements about global food security issues. The questions and statements were presented in a randomised order to each respondent. The results are shown in figure 5.

The highest level of agreement was with the statement *'We waste too much food in the UK'* in response to which 79% of respondents 'strongly agree'. This is followed by *'We already grow enough food in the world - the problem is getting it to those who need it most'* (48% strongly agree) and *'People should be encouraged to change their diets to eat food that is good for their health'* (47% strongly agree).

The strongest level of disagreement was with the statement *'Food security doesn't really affect me - it's more a problem in developing countries'* to which 23% of respondents chose 'strongly disagree'. This is followed by *'I am confident that our government will take the necessary steps to make sure there is enough food in the future'* (19% strongly disagree).

Those in the age groups 66+ and 41-55 yrs were significantly more likely than those in the two youngest age groups to strongly disagree with the statement *'Food security doesn't really affect me - it's more a problem in developing countries'*, whilst women were more likely than men to 'slightly disagree' with the statement.

Those in the age group 66+ yrs were also significantly more likely than those in the age group 26-40 yrs to strongly agree with the statement *'I am confident that our government will take the necessary steps to make sure there is enough food in the future'*[12].

Men are significantly more likely than women to strongly disagree with the statement *'Developed countries such as the UK need to eat less or there won't be enough food to go around'*, with 21% of men strongly disagreeing with the statement compared to just 5% of women.

Finally, those in the age group 18-25 yrs are less likely than those in the age groups 66+ and 41-55 yrs to strongly agree with the statement *'I check the labels on the food I buy to see how it was produced'*[13].

[12] Significant to 90% confidence level.

[13] Significant to 95% confidence level and to 90% confidence level when compared to those in the age group 26-40 yrs.

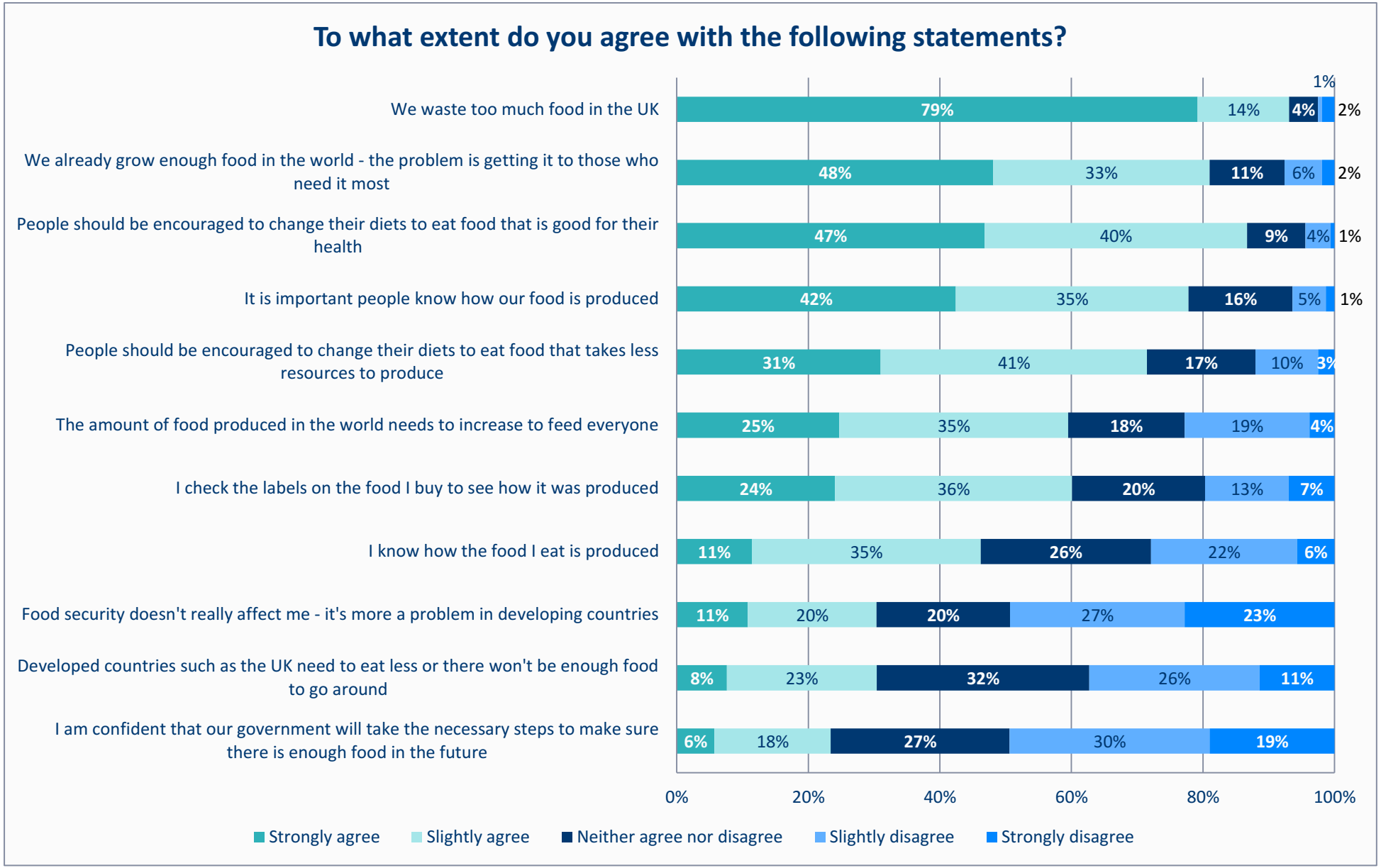


Figure 5 - Extent of agreement or disagreement with statements (n=158)

The findings from the endline survey are largely consistent with the baseline survey. However, the change in responses to the statement *'People should be encouraged to change their diets to eat food that is good for their health'* has been more marked. This is presented in Figure 6. There is a decrease in the proportion of respondents in the endline survey who strongly agree with the statement.

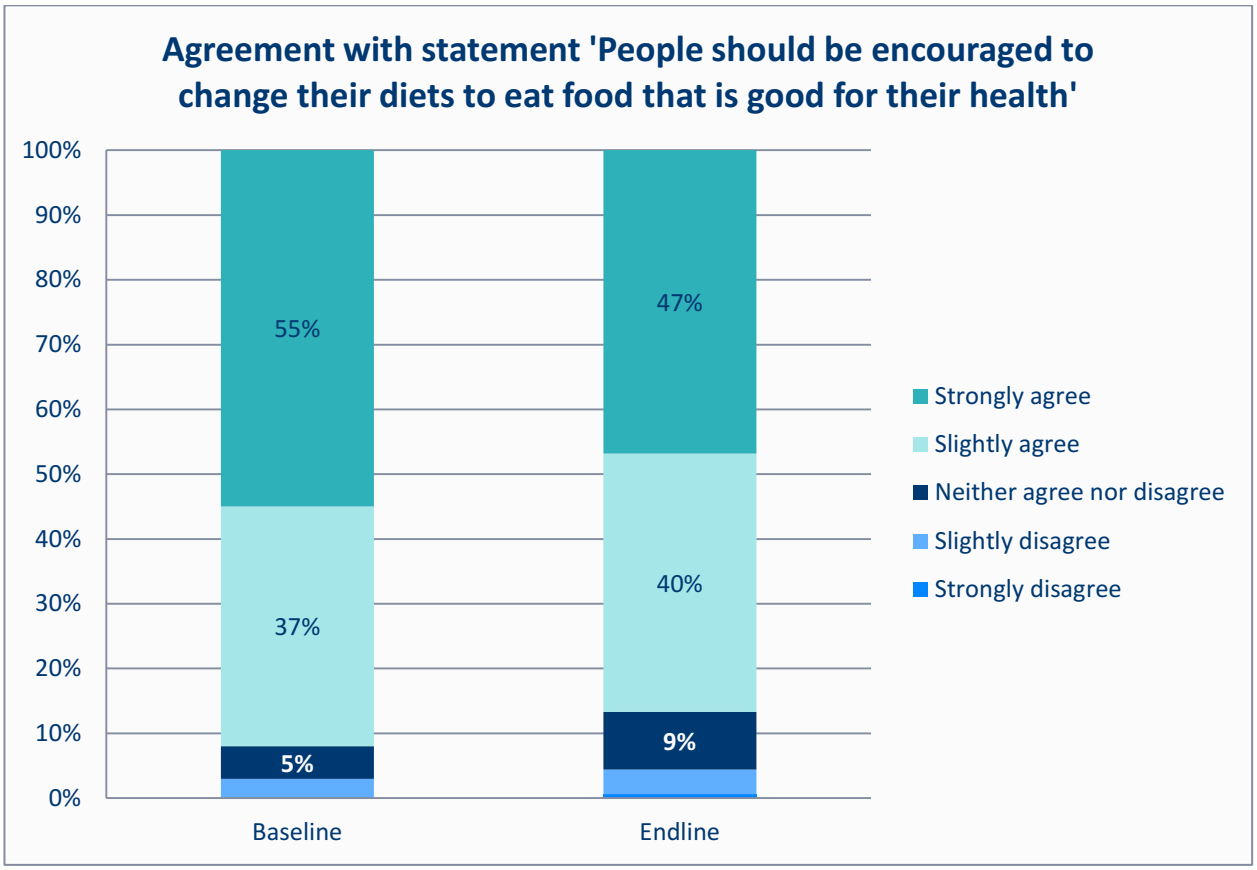


Figure 6 - Agreement with statements, baseline (n=489) and endline (n=158) comparison

2.5. Behaviours and attitudes

Respondents were asked some questions about their attitudes and behaviours towards their own food purchasing and consumption.

The first question in this section asked participants which factors were important to them when buying food to eat at home, choosing from a pre-determined list as shown in figure 7 below. *'Price / value for money / special offers'* and *'Eating food that is healthy'* were the most commonly selected options. Older people in the 66+ age group were significantly more likely than respondents in any other age group to select *'Eating food that is healthy'*[14]. Over half of respondents selected *'What I like / what my family likes'*, *'Animal welfare*

[14] Significant to 95% confidence level when compared to those between the ages of 18-40 yrs and to 90% confidence level when compared to all other age groups.

/ free range' and *'Availability in the shops I usually go to'*. Women were significantly more likely than men to choose *'What I like / what my family likes' and 'Animal welfare / free range'* [15].

At the lower end of the scale, *'Organic food'* and *'Special diets'* were chosen the least frequently (by 20% of respondents for each). However, women were significantly more likely than men to choose *'special diets'*[16].

A number of other significant differences emerged amongst respondents:

Those in the 18-25 yrs age group were significantly more likely than all other age groups[17] to choose '*Convenience / speed'*.

Those in the age group 56-65 yrs were significantly more likely than those in younger age groups to choose *'Whether food is in season'*[18]. They were also significantly more likely than those between the ages of 26-55 yrs to choose *'Number of additives or E numbers in food'*[19].

Those in the age group 66 yrs+ were significantly more likely than those in age group 18-25 yrs to choose *'Locally grown food'*. They were significantly less likely than any other age group to choose *'Indulgence / treat'*[20]. This group were also significantly more likely than those between the ages of 18-55 yrs to choose '*Risk of food poisoning'*[21].

The findings from the baseline and endline surveys are very similar (see figure 7). There is a slight reduction in the proportion of respondents who said that *'Eating food that is healthy'* is important to them (73% compared to 81% in the baseline survey, as well as *'Number of additives or E numbers in food'* (37% compared to 43% in the baseline survey) and *'Whether food is in season'* (30% compared to 39% in the baseline survey). However, these changes are all relatively minor.

[15] Significant to 95% confidence level in the first case, and to 90% confidence level in the latter.

[16] Significant to 90% confidence level.

[17] Significant to 95% confidence level when compared to those above the age of 41 yrs and to 90% confidence level when compared to 26-40 yrs age group.

[18] Significant to 95% confidence level when compared to those between the ages of 26-55 yrs and to 90% confidence level when compared to the 18-25 yrs age group.

[19] Significant to 95% confidence level when compared to the 26-40 yrs age group and to 90% confidence level when compared to the 41-55 yrs age group.

[20] Significant to 95% confidence level when compared to the 26-40 yrs age group and to 90% confidence level when compared to age groups 18-25 and 41-55 yrs.

[21] Significant to 95% confidence level when compared to those between the ages of 18-40 yrs and to 90% confidence level when compared to age group 41-55 yrs.

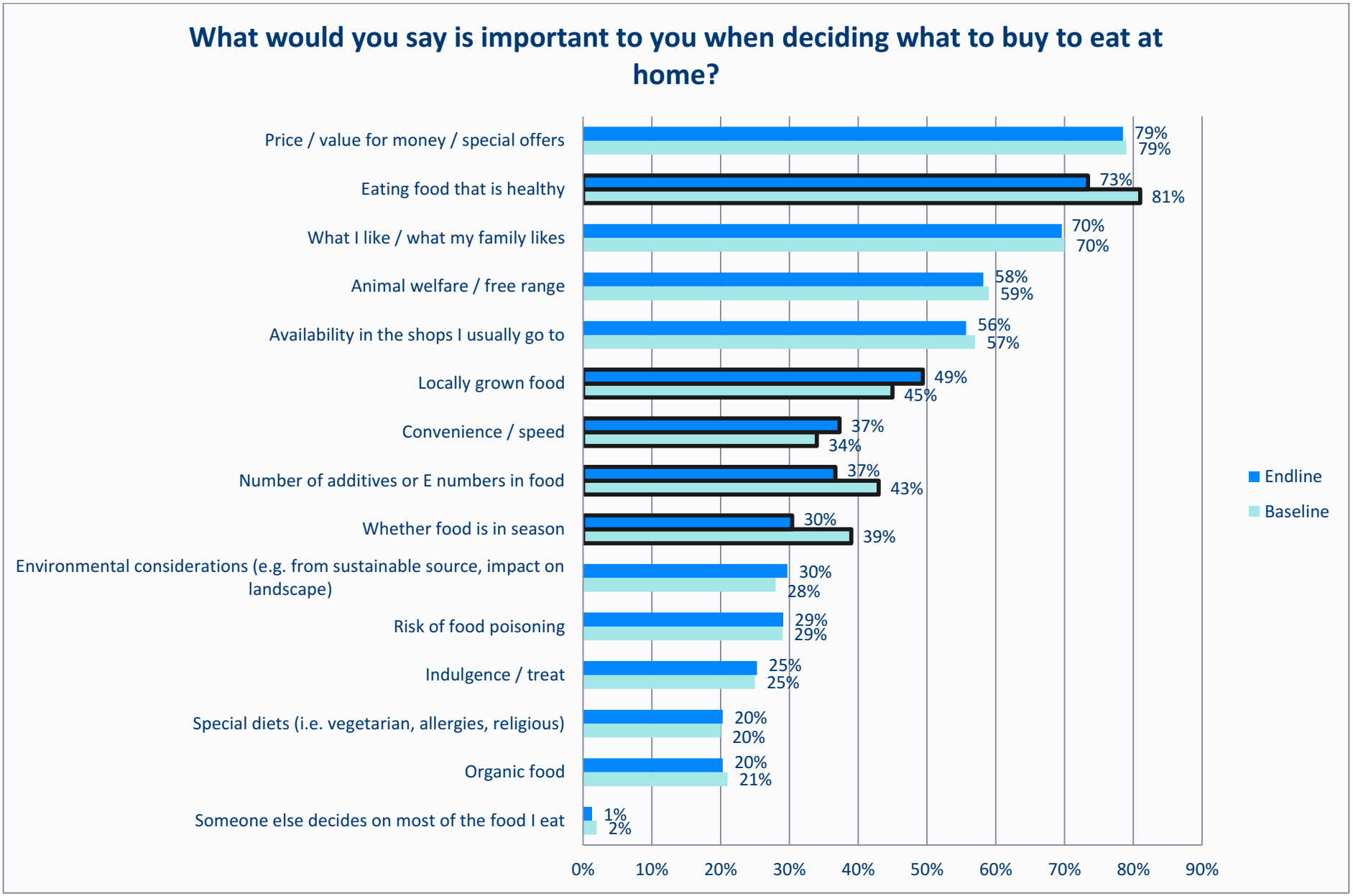


Figure 7 - Deciding what to buy to eat at home, baseline (n=489) and endline (n=158) comparison, bars highlighted for changes over 2%

Respondents were asked how important it is to them where their food is produced: within the UK, the EU and outside the EU. More than half of respondents stated it is 'very' or 'quite' important that their food is produced in the UK (68%). In contrast, half of respondents stated that it is 'not very' or 'not at all' important that their food is produced in the EU (54%) and this figure rose to 81% outside the EU. This is in line with findings from the baseline survey; although slightly fewer respondents felt it was important that their food was produced in the EU (46% thought it was 'very' or 'quite' important, compared to 55% in the baseline). The proportion of respondents saying that it is 'very' important that food is produced in the UK decreased by 12% from the baseline: this may be due to discussions about total global emissions in the food systems activity, where examples were given by specialists that refuted the argument that the most local produce is always the most sustainable, for example in the Food Systems project[22].

Those in the 66+ yrs age group were significantly more likely than the two youngest age groups to feel that it was 'very' important that food was produced in the UK[23], perhaps associating self-sufficiency with traditional British values.

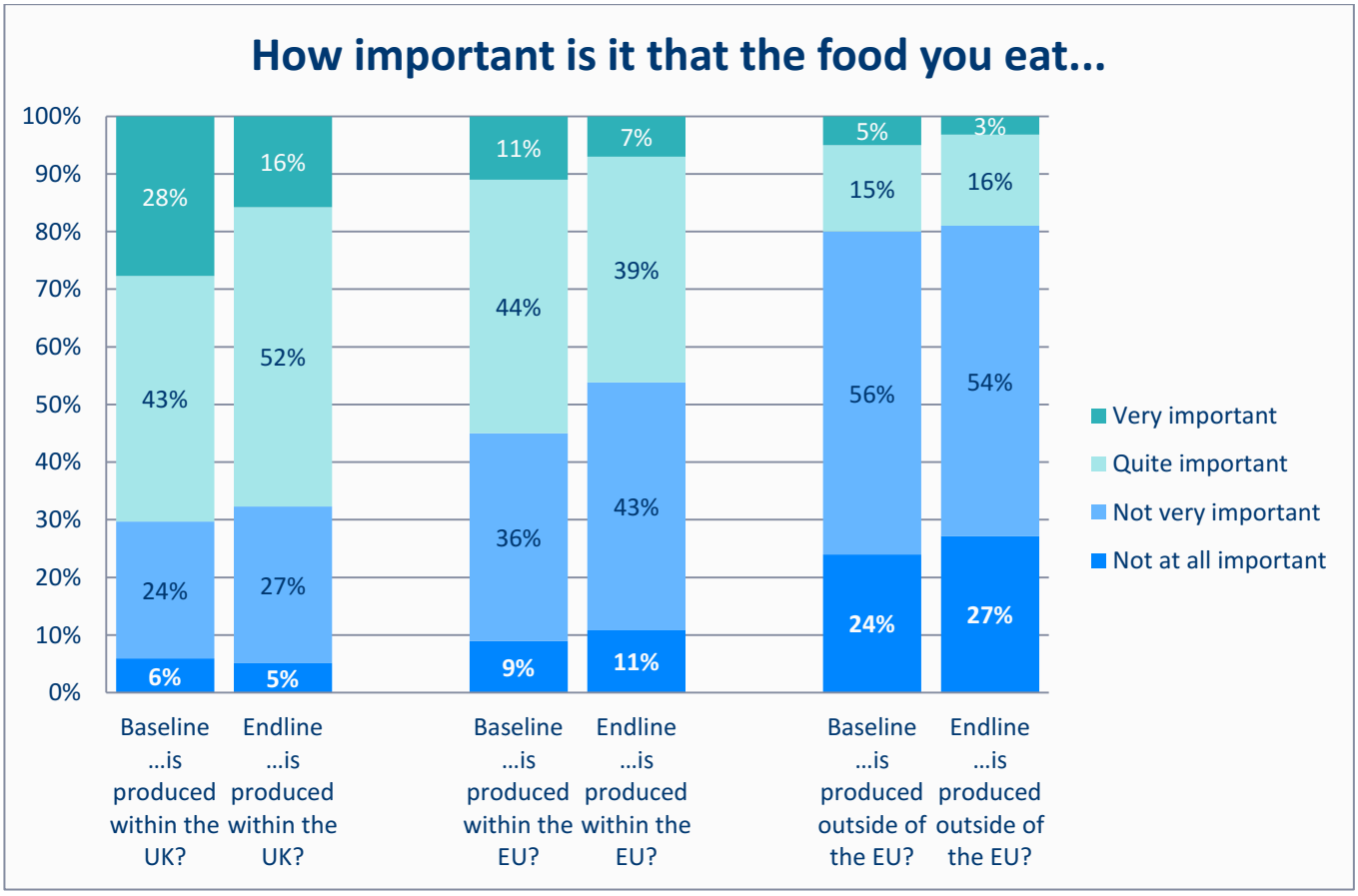


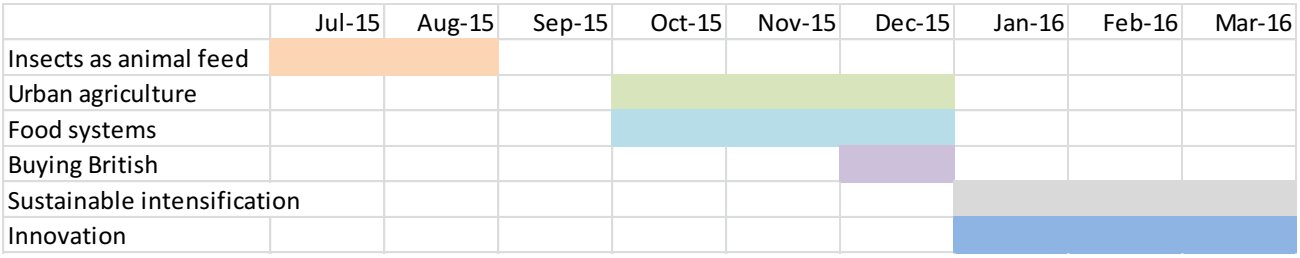
Figure 8 – Importance of where food is produced, baseline (n=489) and endline (n=158) comparison

[22] All reports are available on the GFS website at: http://foodsecurity.ac.uk/programme/activities/public-panel.html

[23] Significant to 95% confidence level for age group 26-40 yrs and to 90% confidence level for age group 18-25 yrs.

2.6. Topics covered by the panel

As well as repeating questions from the baseline survey to look at how views changed over the course of the panel's life, we asked several questions relating to the six GFS-driven topics covered by the panel. Some of the questions in the 'Innovation' section were also repeated from the baseline survey, but presented within the 'Innovation' context in the endline survey. The following timeline shows the relative ordering of the six activities, with the fieldwork time periods marked.



This section discusses each question in turn, with reference to the findings of the activity. However, it is important to note that the results of this survey are not directly comparable with the findings of other activities. Different sets of panel members took part, and the methods were often very different. Where we have compared the two we do so cautiously, to highlight potential for future research rather than to draw definitive conclusions or provide statistical interpretations.

Insects as animal feed

One of the early panel activities was a short survey (of 91 respondents) that explored respondents' views on using insects (and other protein sources) to feed livestock for human consumption. In both the insect feed and endline survey 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.

Almost half of respondents in the endline (48%) would consider eating meat and/or fish fed on insects, but would want more information, a similar proportion to the initial insect feed survey. Some respondents in the endline felt they would consider it if it reduced environmental impact (30%) or the process was made more ethical e.g. avoiding animals being fed the same species feed (22%), a fifth of respondents weren't concerned by what the meat and/or fish they ate were fed on (20%) and some would consider it if it was cheaper (11%). Only 12% of respondents would never consider eating meat and/or fish fed on insects and a small proportion (9%) did not eat meat or fish at all.

The options about reduced environmental impact, being made more ethical or if it was cheaper were selected less often in the endline than in the original insect survey. This is most likely a result of the additional information that was provided to respondents to the initial insect feed survey, given the qualitative data which suggested that more information was the most important factor in this decision. It should be noted that there were fewer respondents to the initial insect feed survey (90 respondents) than the endline survey (158 respondents).

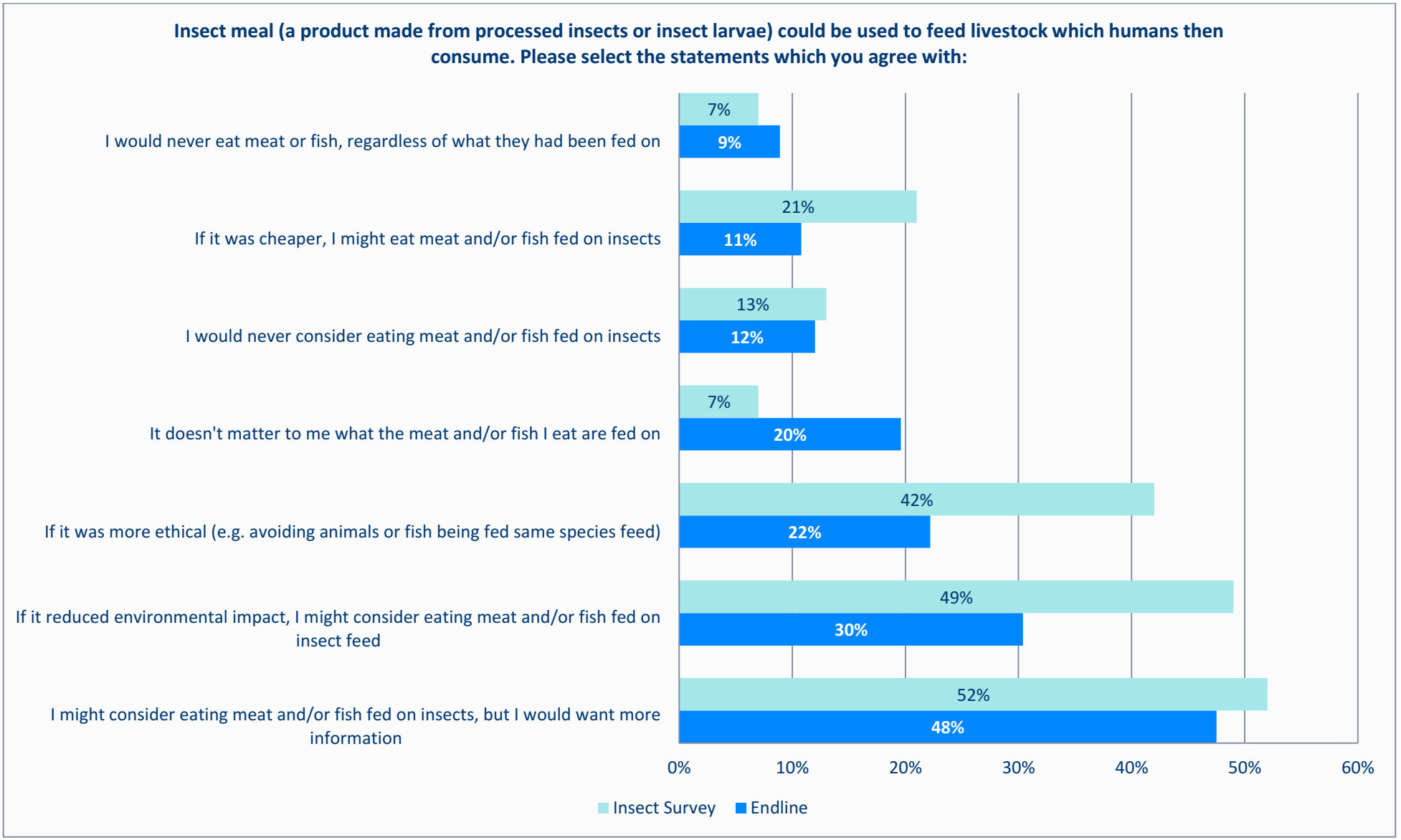


Figure 9 - Opinions on insects as animal feed, insect feed survey (n=90) and endline (n=158) comparison

Urban agriculture

In 2015, 140 members of the panel explored the topic of urban agriculture online in blog posts, forum discussions and individual digital diaries, in which each member of the panel was invited to reflect on the role of urban agriculture. Of these, 43 panel members also took part in offline activities, which comprised two half-day and two full day workshop, held in November and December 2015 in London and Belfast.

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 used.

In the endline survey, respondents were asked whether they felt that urban agriculture contributed to achieving global food security, either by growing more food in towns and cities in the UK or in developing nations. The results are largely similar with regard to the UK and developing nations. The majority of respondents either 'strongly' or 'slightly' agree that *'growing more food in towns and cities in the UK/developing nations will contribute to achieving global food security'* (70% 'in the UK' and 71% 'in developing nations').

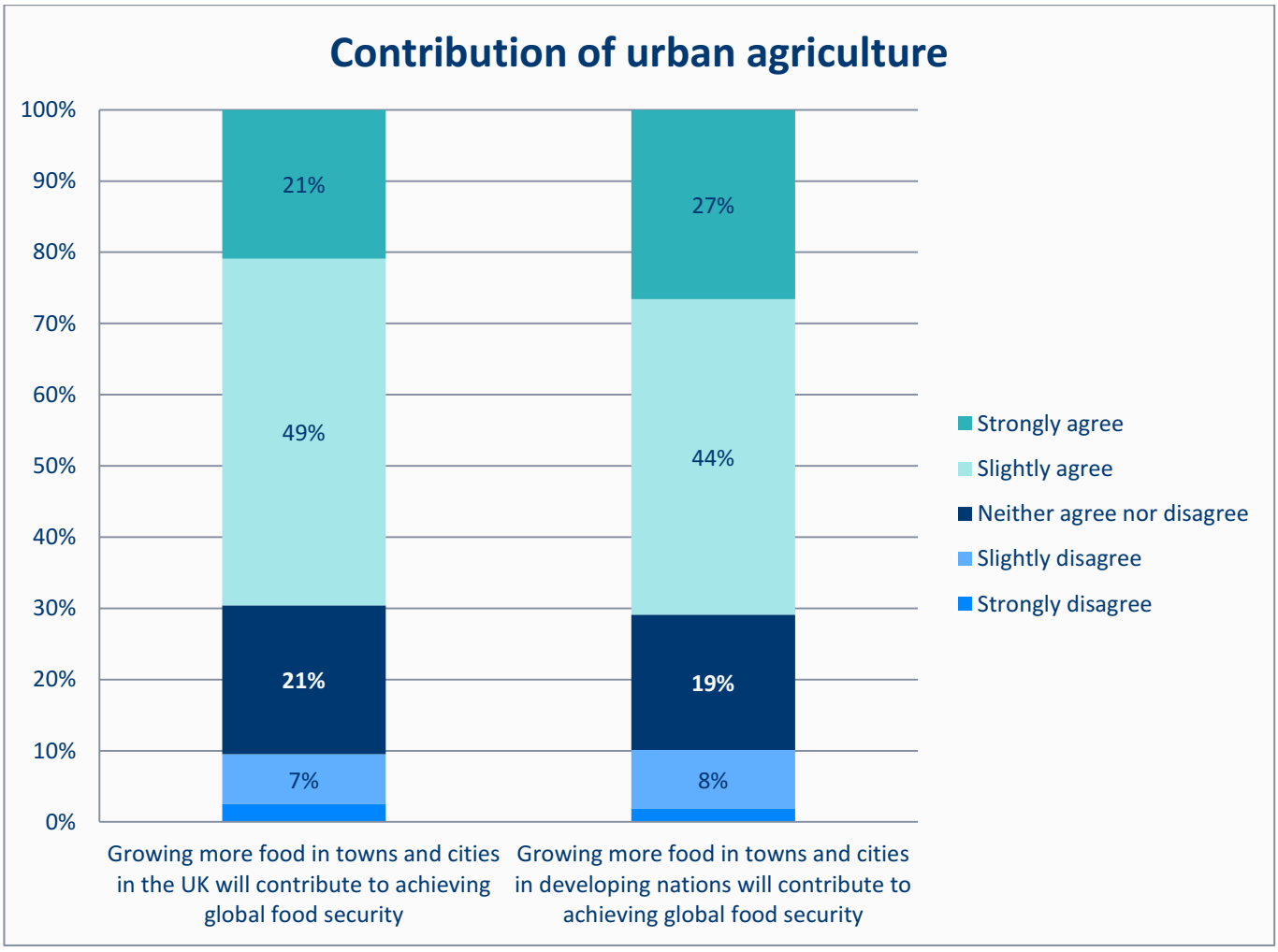


Figure 10 – Contribution of urban agriculture – UK and developing nations (n=158)

In the baseline survey, respondents were asked how much they agreed with a more general statement *'We need to increase the amount of food grown in towns and gardens'* to which 81% of respondents agree 'strongly' or 'slightly'. The difference in levels of agreement between the question at baseline and the questions at endline is likely to be due to the difference in wording between the two questions – at endline, respondents were asked to make a judgement about the contribution of urban agriculture to global food security. As a result, respondents expressing agreement at baseline may have been in favour of increasing the amount of food grown in towns and gardens for a variety of reasons, including community cohesion, self-sufficiency or learning about food production. In comparison, at endline, respondents were only answering based on whether they felt growing more food in towns and cities contributed to global food security.

For more on respondents' views on urban agriculture, see the Urban Agriculture projcet report[24].

Food Systems

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.

The Food Systems project sought to explore with the public how they understand the food system as a complex and interconnected set of actors and actions.

A large part of the Food Systems project was devoted to understanding where participants felt that the responsibility lay for working towards global food security. Respondents to the endline survey were therefore asked to choose from a range of actors in order to answer this question.

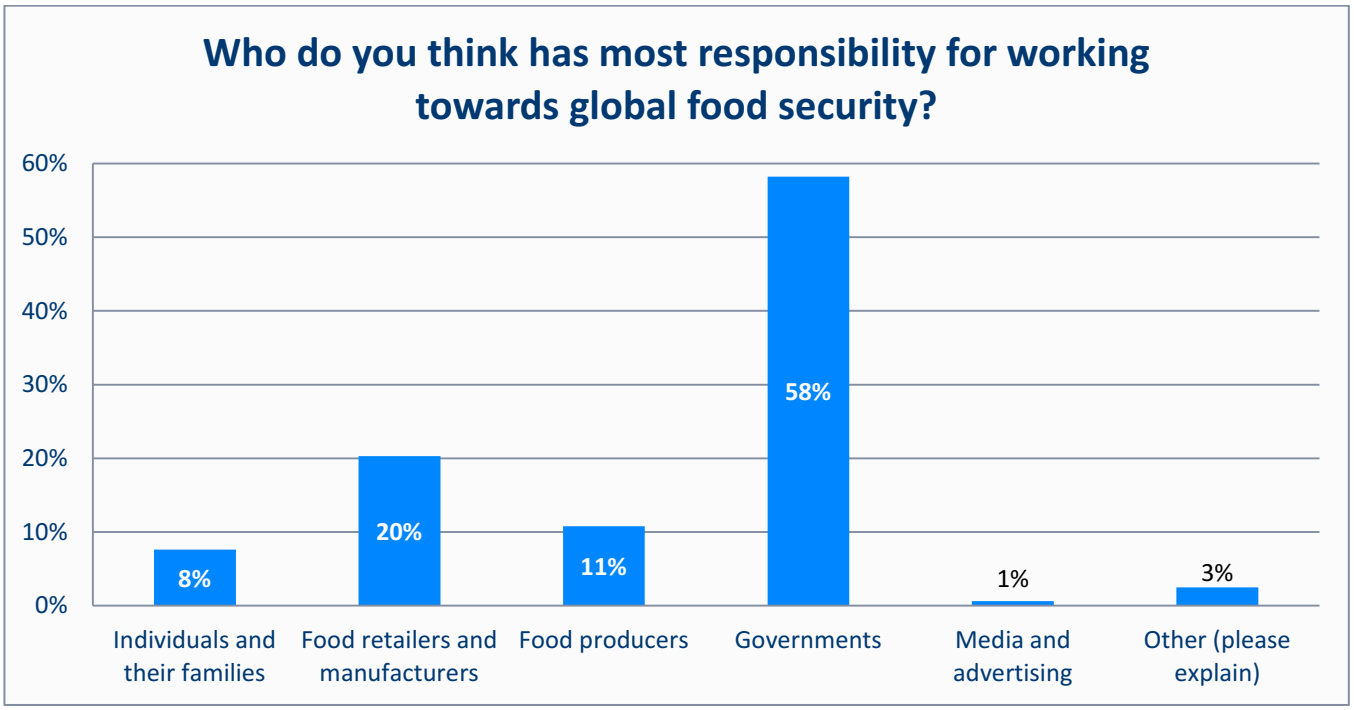


Figure 11 - Responsibility for global food security (n=158)

[24] All reports are available on the GFS website at: http://foodsecurity.ac.uk/programme/activities/public-panel.html

Over half of respondents feel that the responsibility lies with *'Governments'* (58%). All other actors are scored considerably lower, with *'Media and advertising'* the actor given the least responsibility (only 1% of respondents). Those who chose *'Other'* feel that all actors have to play a part.

Those in the 41-55 yrs age group were significantly more likely than those in the 26-40 yrs age group to choose *'Food retailers and manufacturers'.* Those in the 18-25 yrs age group were significantly more likely than those in the 41-55 yrs age group to choose *'Individuals and their families'*[25]. Those who indicated that they had no qualifications were significantly more likely than those with Level 3 qualifications (e.g. AS/A levels) to choose *'Food producers'.*

These results are consistent with the initial views held by participants in the food systems activity: participants commonly started out with the opinion that government should be responsible, but as they explored the issues through discussion, more tended to see a greater responsibility for individuals, retailers and particularly the media and advertising. This suggests that the process of finding out about and considering the way in which the food system worked did have an impact on the way in which participants thought about the food system, from an initial view that government is primarily responsible.

For more on respondents' views on food systems, see the Food Systems project report[26].

Buying British

The final activity-specific question was related to the Buying British activity – a short survey about the characteristics respondents associated with British food, and their buying preferences for it. In both surveys, respondents were asked which qualities they associated with British food, from a selection of paired characteristics e.g. high price/low price.

The majority of respondents associate British food with high quality (91%), high price (80%), easily available (66%), environmentally friendly (70%) and high animal welfare (73%). Of these, the greatest proportion of respondents associate British food with high quality and the lowest proportion associate it with being easily available. The findings in the endline survey were highly consistent with the Buying British survey, with the most significant difference being a lower proportion of endline respondents associating British food with being environmentally friendly – 70% compared to 86% in the Buying British survey (see figure 12). It is possible that participants had, by the time of the endline survey, been exposed to more information about the environmental impacts of food production in the UK, however the change is fairly small and only 45% of the endline respondents had also completed the Buying British survey.

Those in the 18-25 yrs age group are significantly more likely than those in the 56-65 yrs age group to associate British food with being easily available and low animal welfare.

For more on respondents' views on buying British, see the Buying British activity report, available on the GFS website at http://www.foodsecurity.ac.uk/assets/pdfs/ff-buying-british.pdf

[25] Significant to 90% confidence level.

[26] All reports are available on the GFS website at: http://foodsecurity.ac.uk/programme/activities/public-panel.html

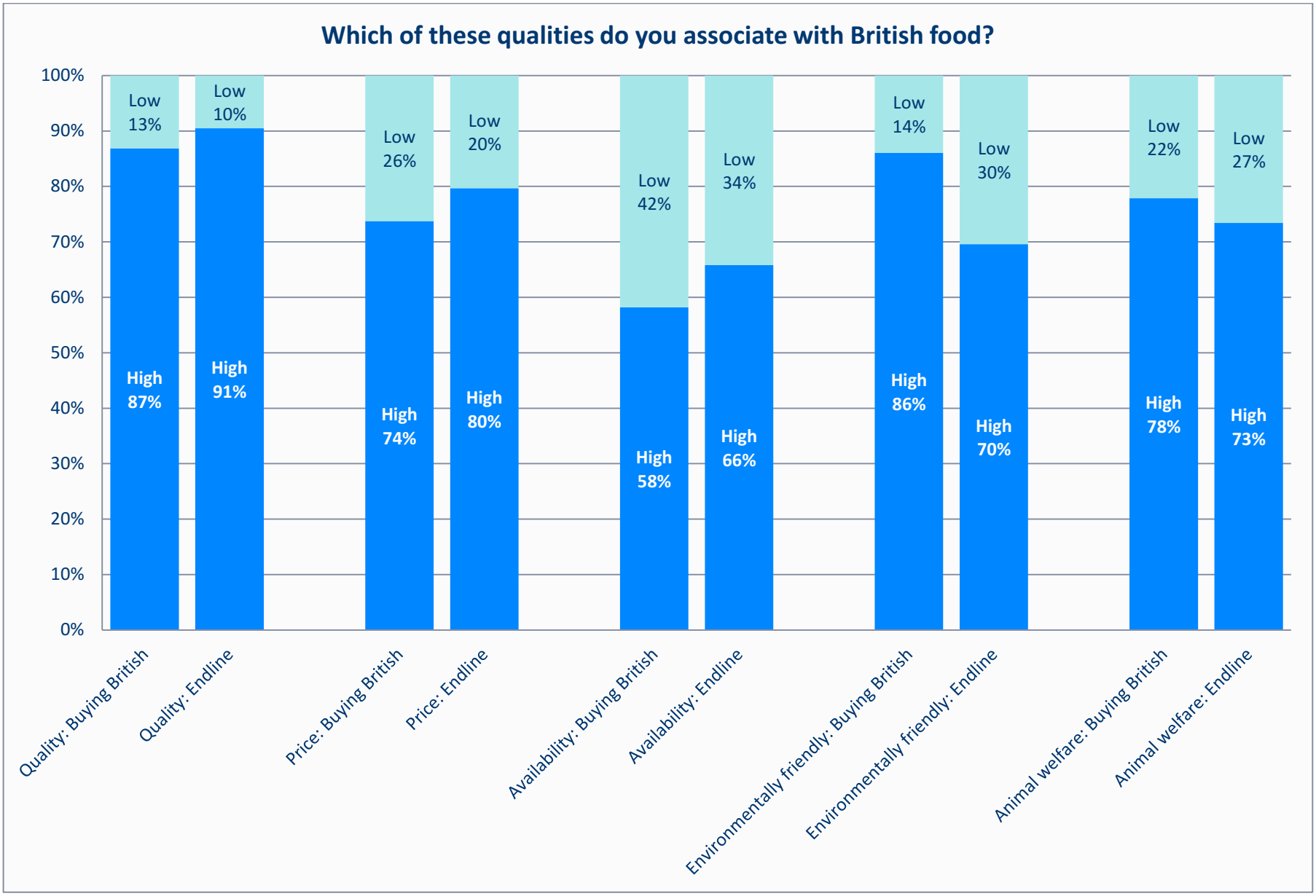


Figure 12 - Perceptions of British food, buying British survey (n=122) and endline (n=158) comparison

Understanding Consumer Priorities for Food Innovation

In 2016 over 100 members of the panel explored the topic of Understanding Consumer Priorities for Food Innovation (henceforth referred to as Innovation) in a series of blogs, an online 'challenge' and face-to-face workshops in Dundee and Harrogate. The aim of the activity was to explore with the public where they would like to see innovations across the food chain, from both a consumer and citizen perspective.

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.

In the endline survey, respondents were asked a series of questions relating to the Innovation activity, including whether they felt innovation will contribute to global food security and the role of science and technology (and GM food specifically) to increasing the world's food supply. The results are shown in figure 13.

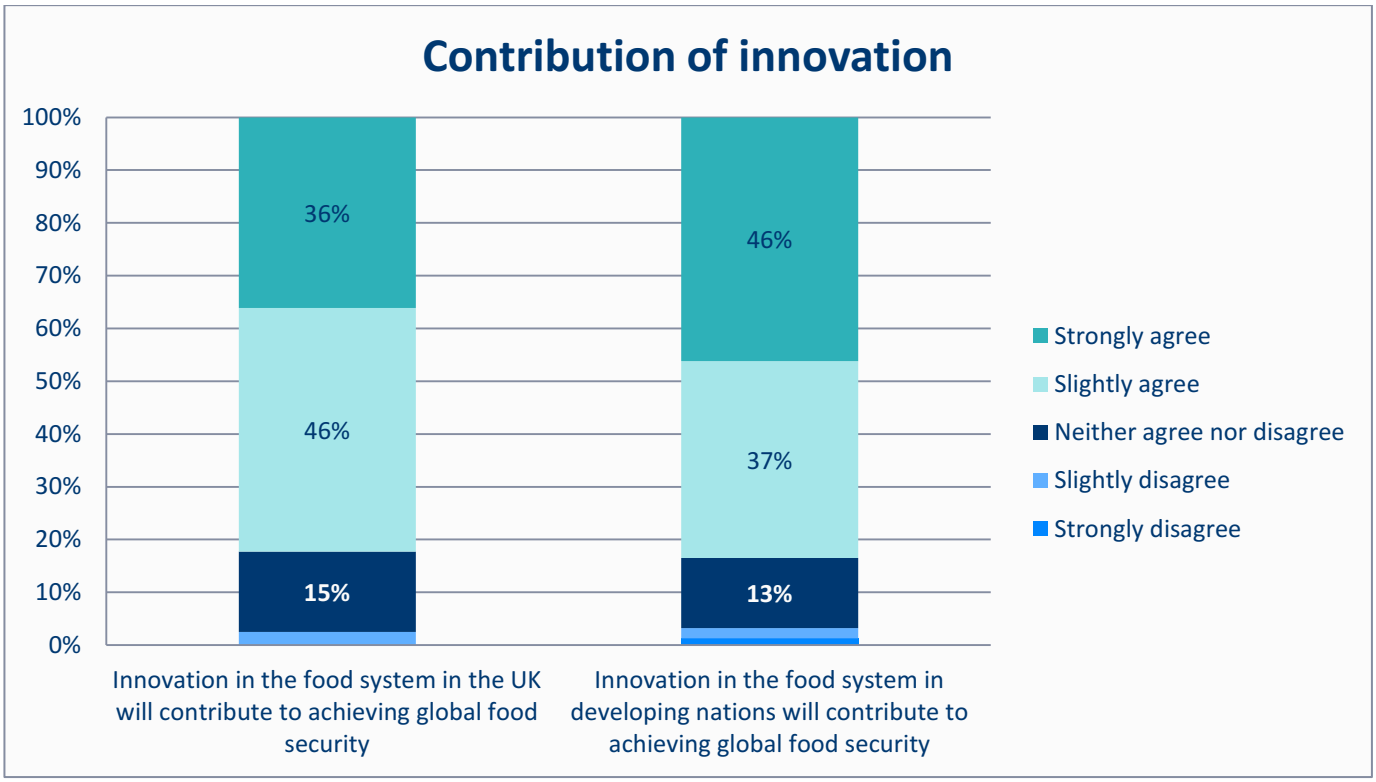


Figure 13 - Contribution of innovation – UK and developing nations (n=158)

There are high levels of agreement that innovation in the food system will contribute to global food security, with 82% of respondents agreeing 'strongly' or 'slightly' that innovation in the UK will contribute and 84% of respondents agreeing 'strongly' or 'slightly' that innovation in developing nations will contribute. There are a higher proportion of respondents (46%) agreeing 'strongly' that innovation in developing nations will contribute to global food security, than for innovation in the UK (36%).

Those in the age group 66+ yrs are significantly more likely than those in the two youngest age groups to 'strongly agree' that innovation in the UK and in developing nations will contribute to global food security[27].

Respondents were asked to what extent they agreed with the statement *'We need to make greater use of science and technology to increase the world's food supply in the future'*. The results are shown in figure 14, where 81% of respondents agree 'strongly' or 'slightly' with the statement (percentages in figure 14 are rounded to nearest whole figure).

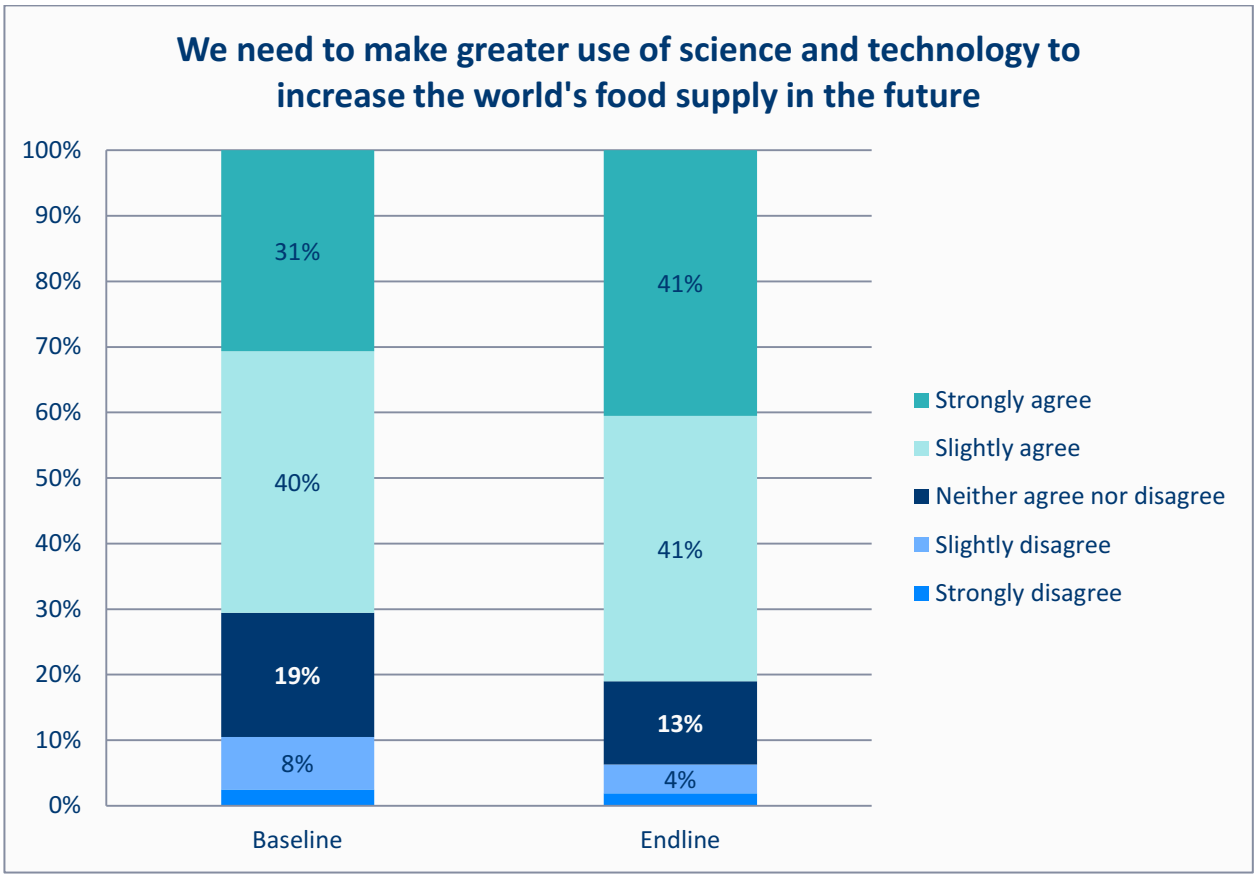


Figure 14 - Role of science and technology, baseline (n=489) and endline (n=158) comparison

Respondents were asked the same question at baseline, where 71% agreed 'strongly' or 'slightly' with the statement and 11% disagreed 'strongly' or 'slightly'. It appears that levels of agreement have increased and levels of disagreement have decreased as people have participated in activities. A plausible explanation for this increase is that participants have become more accustomed to the idea of change in the food system through their interactions with the panel; several topics have dealt with possible technological methods of addressing food security. As the range of different applications for technological innovations that could be employed in the food system has become clearer, their use appears to have become viewed more positively.

[27] For innovation in the UK, this is significant to 95% confidence level in comparison to those between the ages of 18-40. For innovation in developing nations, this is significant to 95% confidence level in comparison to the 18-25 age group and significant to 90% confidence level in comparison to the 26-40 age group.

Finally, in this section of the survey, respondents were asked how important they feel genetically-modified food will be to feeding a growing population in the future.

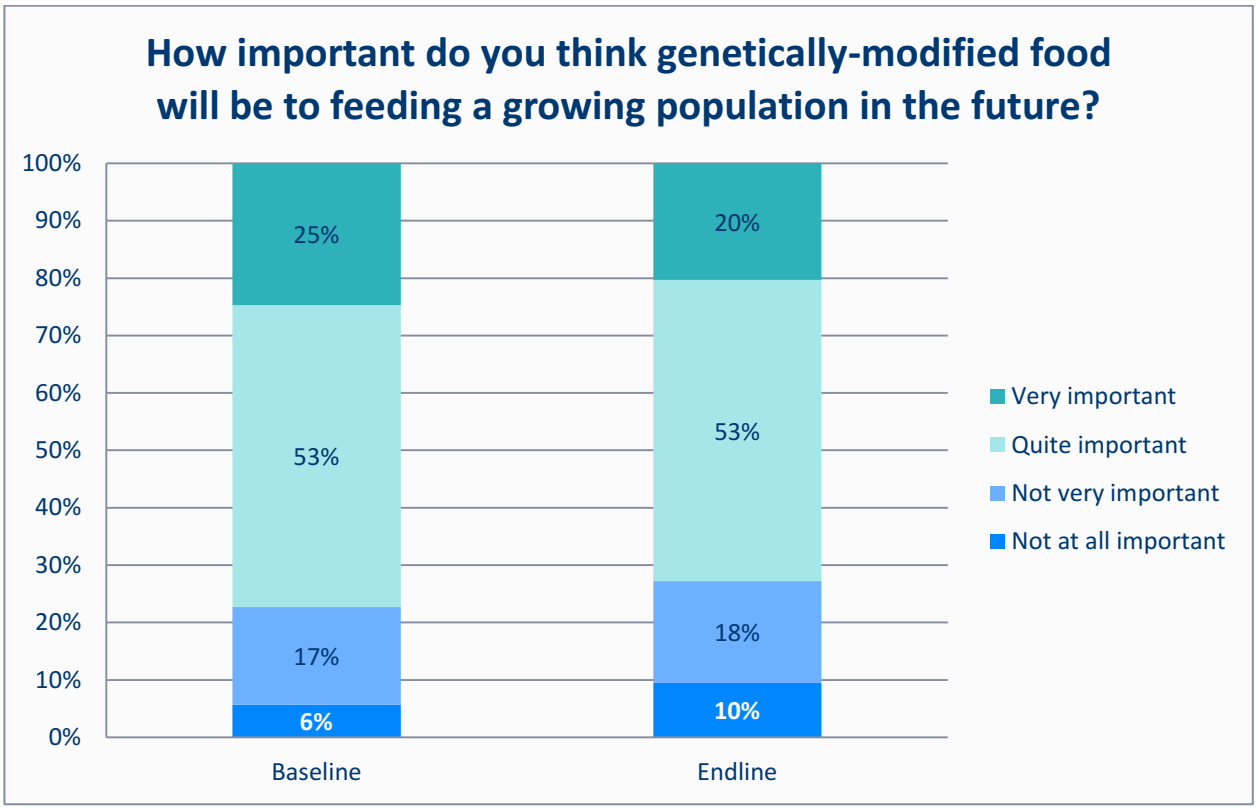


Figure 15 - Importance of GM food, baseline (n=489) and endline (n=158) comparison

Almost three quarters of respondents (73%) feel that GM food will be 'very' or 'quite' important to feeding a growing population in the future. Men are significantly more likely than women to state that GM food will be 'very important'. This is broadly in line with the findings from the baseline survey (where the proportion of agreement was 77% - percentages in figure 15 are rounded to nearest whole number). However, as discussed in the innovation activity report, views on genetically-modified food tended to be more nuanced when participants considered whether they would like to see it used more in the UK and, by implication, in their own diets.

For more on respondents' views on innovation, see the Food Innovation project report[28].

[28] All reports are available on the GFS website at: http://foodsecurity.ac.uk/programme/activities/public-panel.html

Sustainable Intensification

In 2016 around 100 members of the panel explored the topic of sustainable intensification in a survey, interviews and discussion groups. Sustainable intensification is an approach to addressing global food security that focuses on increasing production; it was defined in the activity as sustainably increasing the production of food, combined with improved resource use efficiency and better environmental outcomes.

One of the aspects explored with the panel was around trade-offs: situations where it isn't possible to meet all the potential demands of sustainable intensification and a judgment has to be made about whether to prioritise production, environmental impact, resource use, economic benefits or some other factor. In the endline survey, and the survey during the sustainable intensification activity, we asked respondents to choose one of four factors relevant to food production.

Figure 16 below shows the proportion of respondents who chose each factor in the endline survey and the activity survey: it's important to note here that the two surveys didn't involve the same respondents; only 71 of the 158 endline respondents had also taken part in the activity survey.

The greatest proportion of respondents in both surveys chose *'Producing food more sustainably, in ways that protect the climate, biodiversity and other resources'* (44% in the endline, and 63% in the activity survey), with between 14% and 27% choosing either *'Producing and distributing food in ways that are equitable for all involved'* or '*Producing food in ways that support the economy and farmers'*[29]. In both surveys 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, when discussing these types of trade-offs with participants in other activities, we have found that respondents tended to resolve them differently, with many respondents keen to protect UK farmers' livelihoods (e.g. findings from Food Systems and Buying British activities) and making purchasing decisions based on price. We see this pattern in responses to the earlier endline question *'What would you say is important to you when deciding what to buy to eat at home?'*, where the majority of respondents (79%) choose *'Price / value for money / special offers'*, while only 30% choose *'Environmental considerations (e.g. from sustainable source, impact on landscape)'*.

There are several possible reasons for this difference:

- When asked about food production in the abstract, participants may be thinking at the level of the food system and answering the question what *ought* to be important. In contrast, when we ask questions about what people do or the choices they make (for example, 'what is important to you when deciding what to eat at home?') participants may thinking about what *is* important to them personally, on an individual basis.
- There may be an element of what researchers call 'social desirability' where respondents give the answer they think is most acceptable, in this case prioritising the environment over consumer

[29] In the sustainable intensification activity participants had read a briefing note that gave examples of potential trade-offs involving environmental impacts and implications for farmers, which may have contributed to the higher scores for these items compared to the endline, where the question was asked without any accompanying text.

interests. This might be affected by the research method, so more of a factor in an online survey than in face to face discussions, where the facilitator is able to probe responses to go beyond initial thoughts.

- Respondents may be responding to the issue they think is most urgent rather than important in their lives. So in the UK where food is plentiful and for most people affordable it may not seem 'important', but when faced with trade-offs (as in the discussions) where food may become less affordable, it may seem more important.

For more on respondents' views on sustainable intensification, see the Sustainable Intensification project report[30].

[30] All reports are available on the GFS website at: http://foodsecurity.ac.uk/programme/activities/public-panel.html

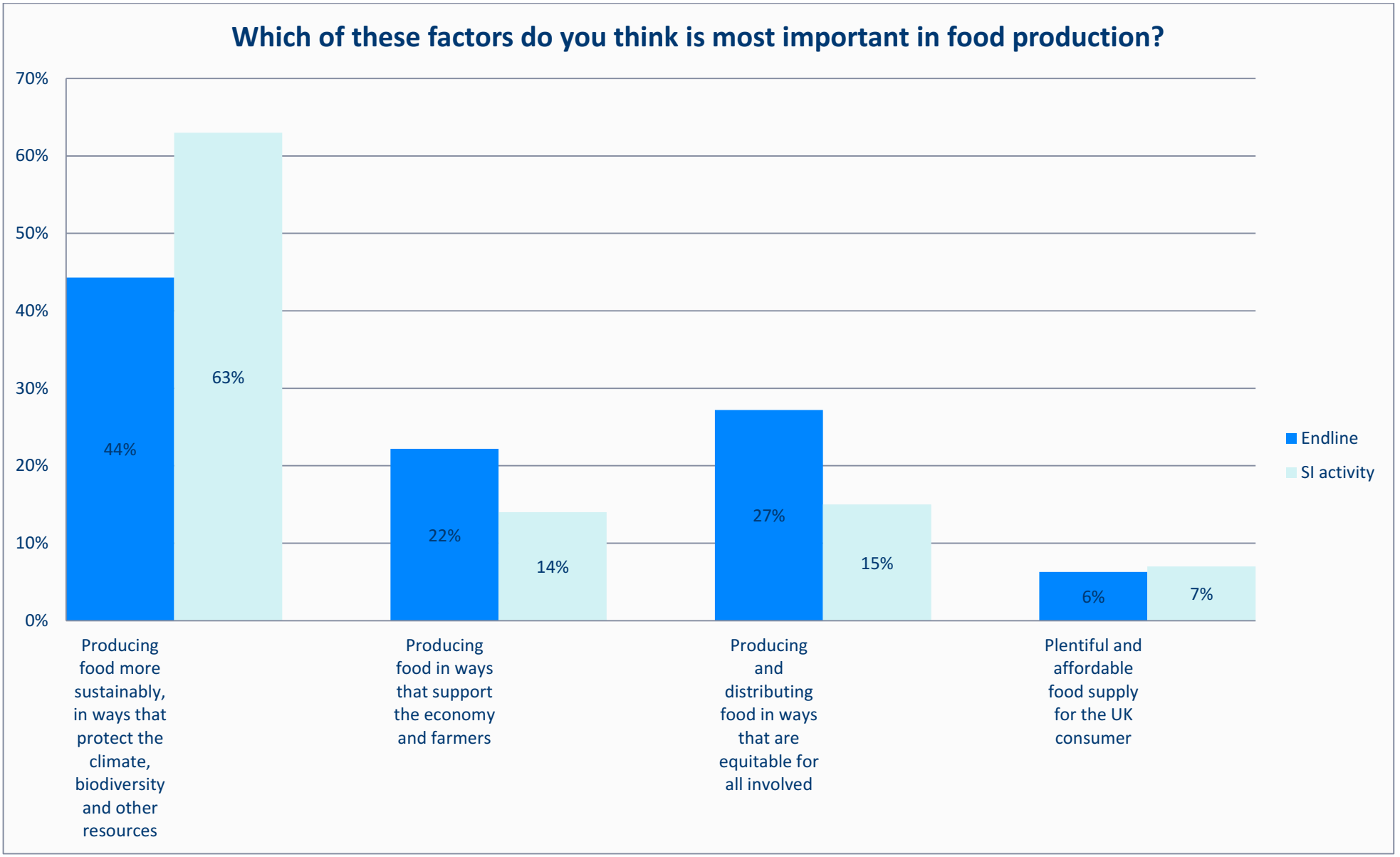


Figure 16 - Sustainable intensification trade-offs (Endline n=158, SI activity n=97)

Appendix A: Demographics

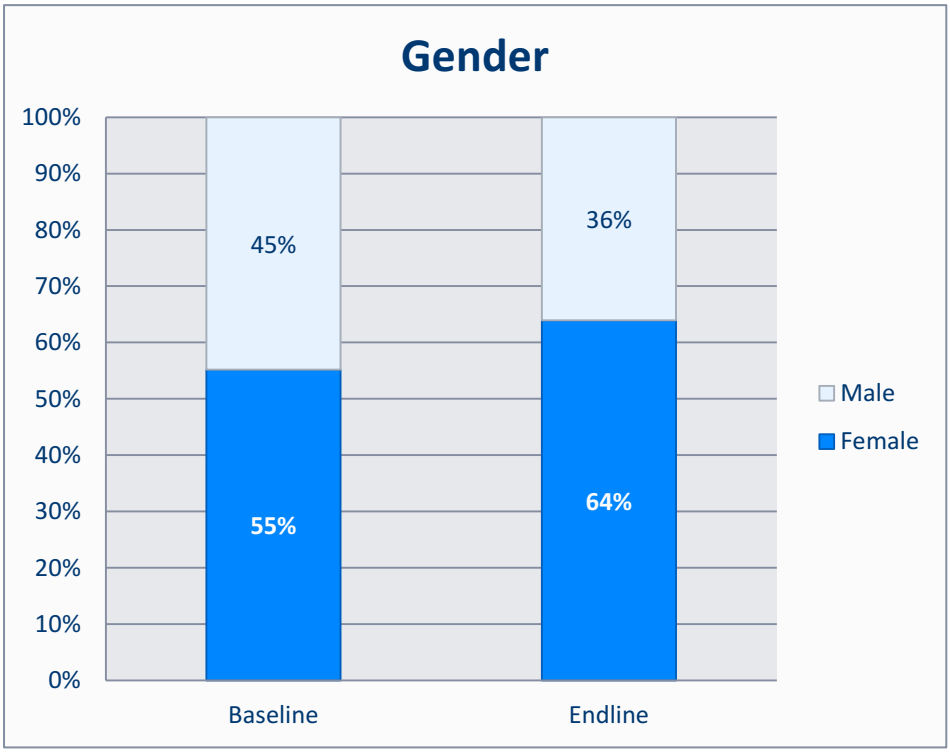


Figure 17 - Gender of respondents (endline n=158, baseline n=489)

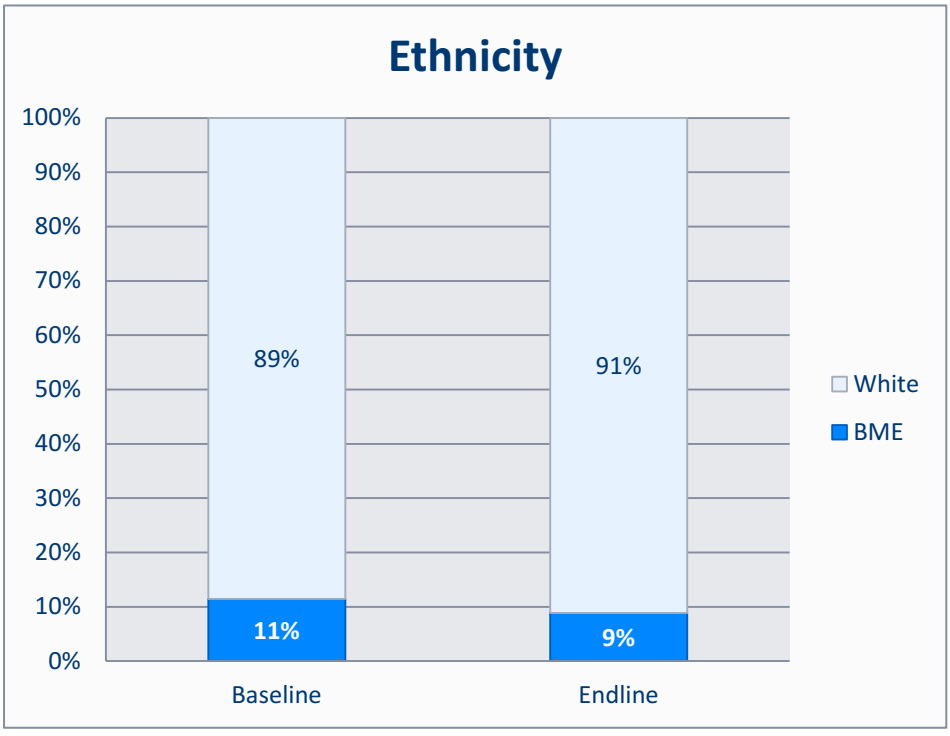


Figure 18 - Ethnicity of respondents (endline n=158, baseline n=489)

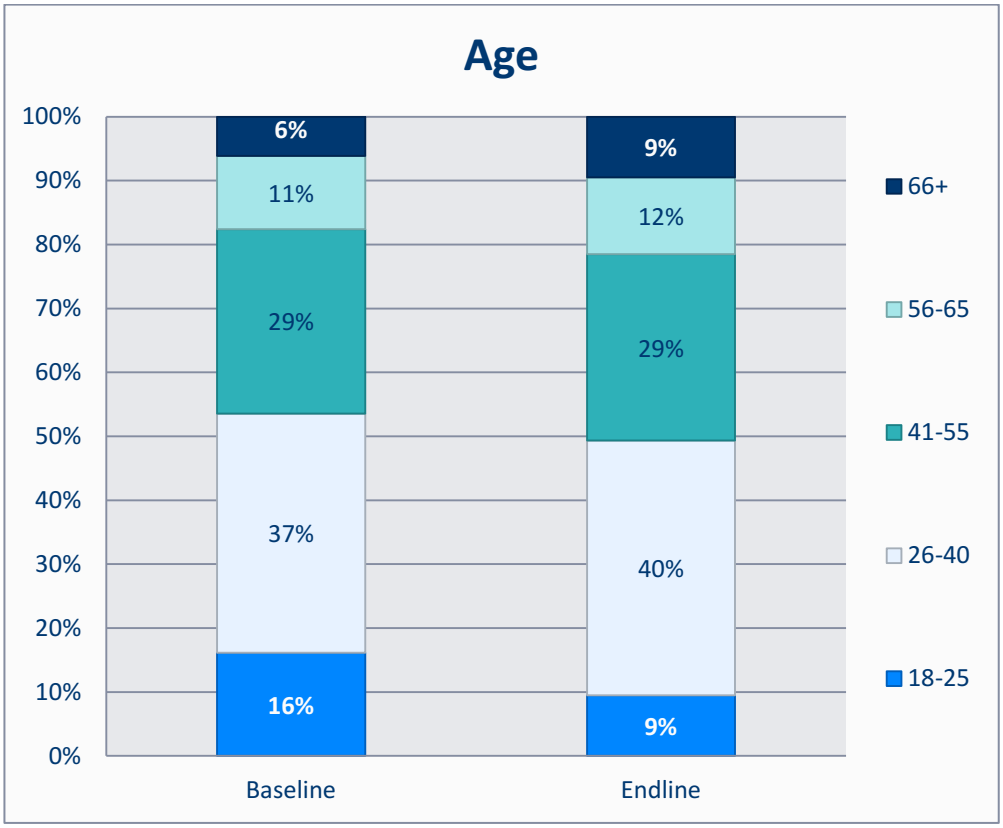


Figure 19 - Age of respondents (endline n=158, baseline n=489)

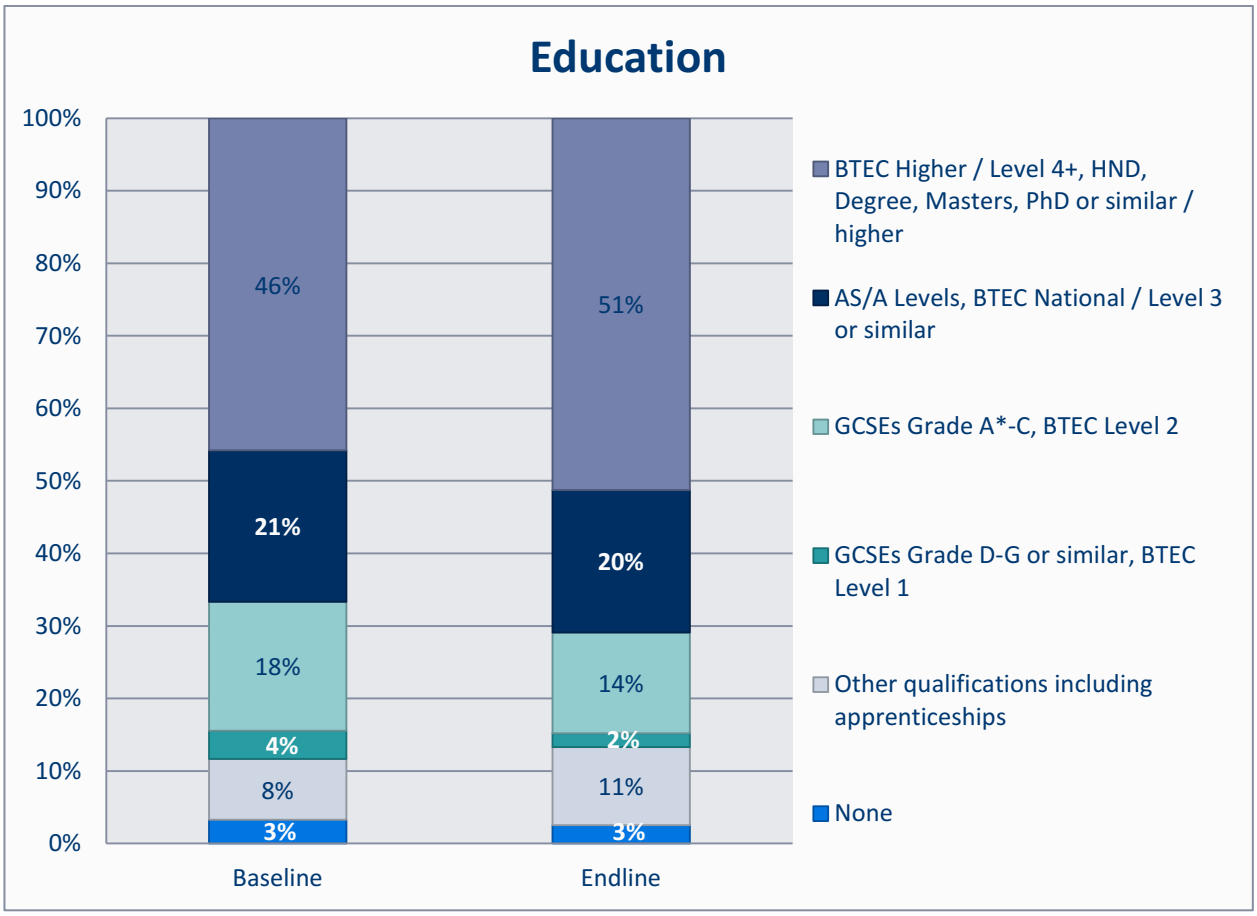


Figure 20 - Education level of respondents (endline n=158, baseline n=489)

Figure 21 - Location of respondents (endline n=158, baseline n=489)

Appendix B: Survey questions

Q1. What does 'global food security' mean to you?

Q2. Global Food Security occurs when everyone has access to safe, affordable and nutritious food, all of the time and in ways the planet can sustain into the future. How much of an issue do you think food security is in the world today?

A big issue

Quite a big issue

Not that much of an issue

Not an issue at all

Q3. How much of an issue do you think food security is in the UK today?

A big issue

Quite a big issue

Not that much of an issue

Not an issue at all

Q4. Which of the following factors will affect food security in the future? *Please select as many as apply*

- Increasing population
- Climate change
- Price for food
- Politics and the global economy
- Transport costs
- Less agricultural land available
- Less water available for agriculture
- Overfishing
- People becoming wealthier and eating more resource intensive diets
- Other

Q5. And which of these do you think will have the MOST effect on food security in the future? *Please select only one*

- Increasing population
- Climate change
- Price for food
- Politics and the global economy
- Transport costs
- Less agricultural land available
- Less water available for agriculture
- Overfishing
- People becoming wealthier and eating more resource intensive diets
- Other

You will now be shown a series of statements, I'd like you to tell me how much you agree or disagree with each statement.

		Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree
Q6	The amount of food produced in the world needs to increase to feed everyone					
Q7	We already grow enough food in the world - the problem is getting it to those who need it most					
Q8	People should be encouraged to change their diets to eat food that takes less resources to produce					
Q9	Food security doesn't really affect me - it's more a problem in developing countries					
Q10	I am confident that our government will take the necessary steps to make sure there is enough food in the future					

Q11	We waste too much food in the UK					
Q12	Developed countries such as the UK need to eat less or there won't be enough food to go around					
Q13	People should be encouraged to change their diets to eat food that is good for their health					
Q14	I know how the food I eat is produced					
Q15	It is important people know how our food is produced					
Q16	I check the labels on the food I buy to see how it was produced					

Q17. What would you say is important to you when deciding what to buy to eat at home? *Please select as many as apply*

Animal welfare / free range

Availability in the shops I usually go to

Convenience / speed

Eating food that is healthy

Environmental considerations (e.g. from sustainable source, impact on landscape)

Risk of food poisoning

Indulgence / treat

Locally grown food

Number of additives or E numbers in food

Organic food

Price / value for money / special offers

Special diets (i.e. vegetarian, allergies, religious)

What I like / what my family likes

Whether food is in season

Someone else decides on most of the food I eat

No particular influence

In general, how important is it to you that the food you eat…

		Very important	Quite important	Not very important	Not at all important
Q18	…is produced within the UK?				
Q19	…is produced within the EU?				
Q20	…is produced outside of the EU?				

You will now be shown a series of statements, I'd like you to tell me how much you agree or disagree with each statement.

		Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree
Q23	Growing more food in towns and cities in the UK will contribute to achieving global food security					
Q24	Growing more food in towns and cities in developing nations will contribute to achieving global food security					

And how much do you agree or disagree with each of these statements?

		Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree
Q25	Innovation in the food system in the UK will contribute to achieving global food security					
Q26	Innovation in the food system in developing nations will contribute to achieving global food security					

Q27	We need to make greater use of science and technology to increase the world's food supply in the future					

Q28. How important do you think genetically-modified food will be to feeding a growing population in the future?

Very important

Quite important

Not very important

Not at all important

Q29. Which of these factors do you think is most important in food production?

Producing food more sustainably, in ways that protect the climate, biodiversity and other resources

Producing food in ways that support the economy and farmers

Producing and distributing food in ways that are equitable for all involved

Plentiful and affordable food supply for the UK consumer

Q30. Who do you think has most responsibility for working towards global food security?

Individuals and their families

Food retailers and manufacturers

Food producers

Governments

Media and advertising

Other (please explain)

Q31. Insect meal (a product made from processed insects or insect larvae) could be used to feed livestock which humans then consume. The following statements describe some people's attitudes towards eating animals and/or fish that have been fed on insects. Please select the statements which you agree with:

It doesn't matter to me what the meat and/or fish I eat are fed on

I might consider eating meat and/or fish fed on insects, but I would want more information

If it reduced environmental impact, I might consider eating meat and/or fish fed on insect feed

If it was more ethical (e.g. avoiding animals or fish being fed same species feed)

If it was cheaper, I might eat meat and/or fish fed on insects

I would never consider eating meat and/or fish fed on insects

I would never eat meat or fish, regardless of what they had been fed on

Q32. Which of these qualities do you associate with British food? Please select one from each pair.

High quality

Low quality

High price

Low price

Easily available

Limited availability

Environmentally friendly

Environmentally damaging

High animal welfare

Low animal welfare

Q33. Overall, how satisfied have you felt with your involvement in the panel?

Not at all satisfied

Not very satisfied

Fairly satisfied

Very satisfied

Q34. What would have improved your experience of the panel?

Q35. Please tell us if there are any types of activities you would have liked more or less of during your time with the panel. (Tick as many as you like)

	I would have liked more of this activity	I would have liked less of this activity
Online discussions/forums		
Online surveys		
Face to face meetings or discussions		
Films/cartoons/infographics		
Written information		
Online diaries/solo activities		
Online challenges/competitions		
Feedback of results and impacts		

Q36. Are there any other types of activity you would have liked more or less of?

I would have liked more of…

I would have liked less of…

Q37. Which topic did you find most interesting? Please select one option.

Insects in animal feed

Food systems

Urban agriculture

Buying British

Innovation

Sustainable intensification

Not sure

Other (please explain)

Q38. Are there any other topics related to food security you would have liked to cover in panel activities?

Yes

No

Not sure

If yes, please tell us what these are:

Q39. What did you think of the amount of interaction you had with specialists during the panel process? (By specialists, we mean people involved in food security policy or research rather than the Food Futures team who ran the panel.)

I would have liked much more interaction

I would have liked a little more interaction

It was about right

I would have liked a little less interaction

I would have liked a lot less interaction

Q40. Tell us the most important thing that has changed for you as a result of taking part in the panel. (This could be something you learned, a change in views, or something you will do differently.)

Q41. If you had the opportunity to participate in an activity like this in the future, how likely would you be to participate?

Not at all likely

Not very likely

Fairly likely

Very likely

Q42. If you communicated with other people about food security as a result of taking part in the panel, how did you do this? (Tick as many as you like.)

Face to face – casual conversations

Face to face – organised meeting (e.g. school or community group)

Phone or text

Email

Social media

Did not communicate with friends and family

Other (please explain)

Q43. Do you have any other comments about your experience with the panel?