

# Chapter 8: Sustainable diets, meat alternatives and genetic technologies

## Introduction

The FSA's vision as set out in the [2022-2027 strategy](#) is a food system in which 'food is healthier and more sustainable', accounting for the growing priorities of dietary health and sustainability for the UK Government, Welsh Government, Northern Ireland Executive, and for consumers.

The [Department for Environment, Food and Rural Affairs \(Defra\)](#) has a broad remit and plays a major role in increasing the sustainability, productivity and resilience of the agriculture, fishing, food and drink sectors, enhancing biosecurity at the border and raising animal welfare standards. In addition, [Defra oversees the regulation](#) of genetic technologies such as genetically modified organisms (GMO) and gene edited (GE) organisms.

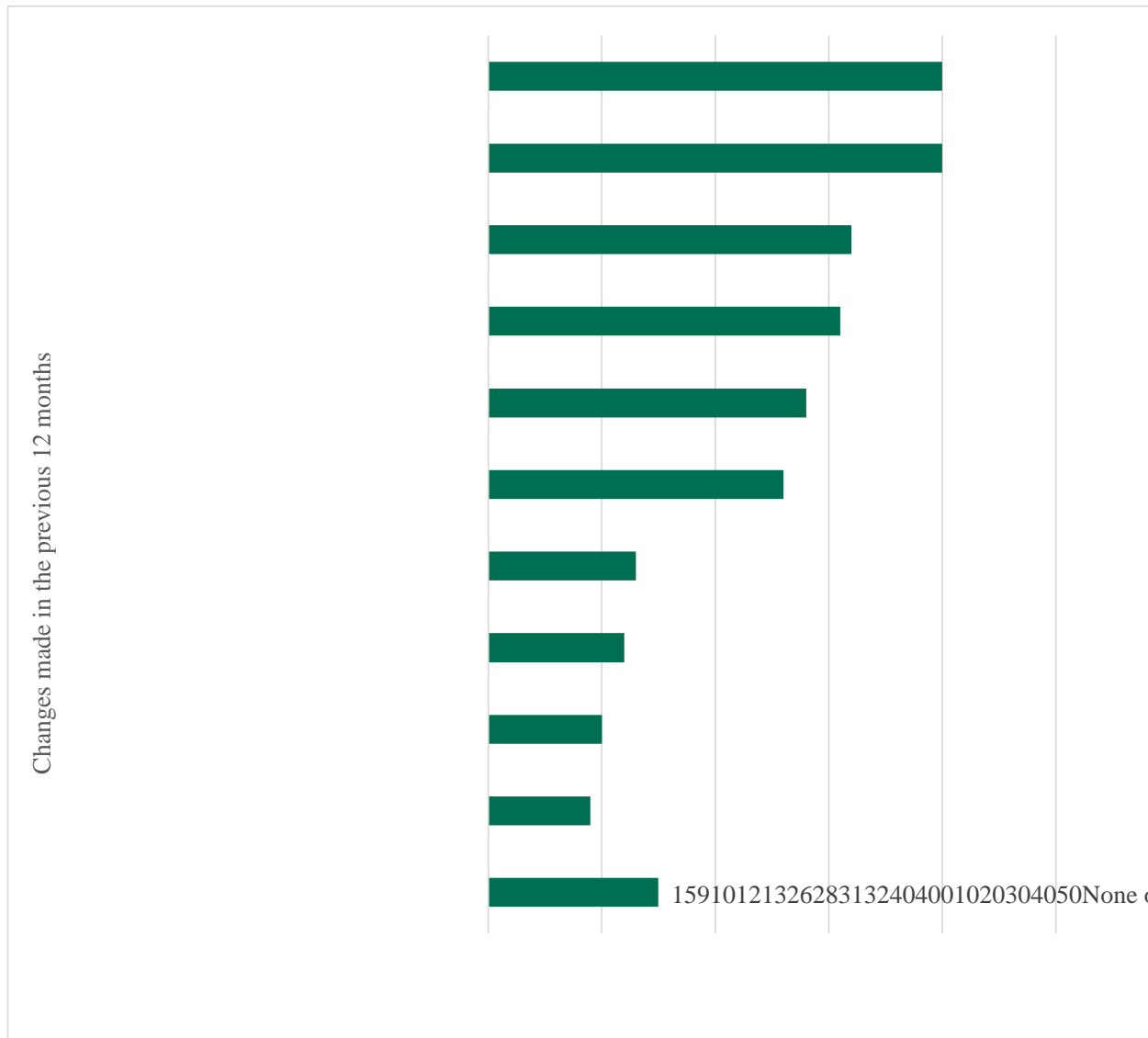
This chapter provides an overview of respondent knowledge, attitudes and behaviours relating to sustainable foods, meat alternatives and genetic technologies. Defra co-funded questions in this chapter which relate to the environmental impact and sustainability of food.

## Changes to eating habits and food-related behaviours

### Figure 25. Changes which respondents had made in the previous 12 months

Change to table and accessible view

Change to chart view



Changes made in the previous 12 months	Percentage of respondents
Stopped eating meat or poultry or fish completely	2
Started buying foods that have been produced with minimal water usage and / or minimal deforestation	4
Started buying foods grown organically	8
Started buying animal products with high welfare standards	9
None of these	15
Started buying sustainably sourced fish	9

Changes made in the previous 12 months	Percentage of respondents
Started buying fair trade products	10
Started growing fruit and/or vegetables"	12
Eaten/drank less dairy	13
Started buying locally produced food or food that is in season"	26
Eaten less meat, poultry or fish	28
Started buying foods with minimal or no packaging"	31
Started eating more fruit and/or vegetables"	32
Started minimising food waste	40
Eaten less processed food	40

Download this chart

[Image .csv](#)

Source: Food and You 2: Wave 4

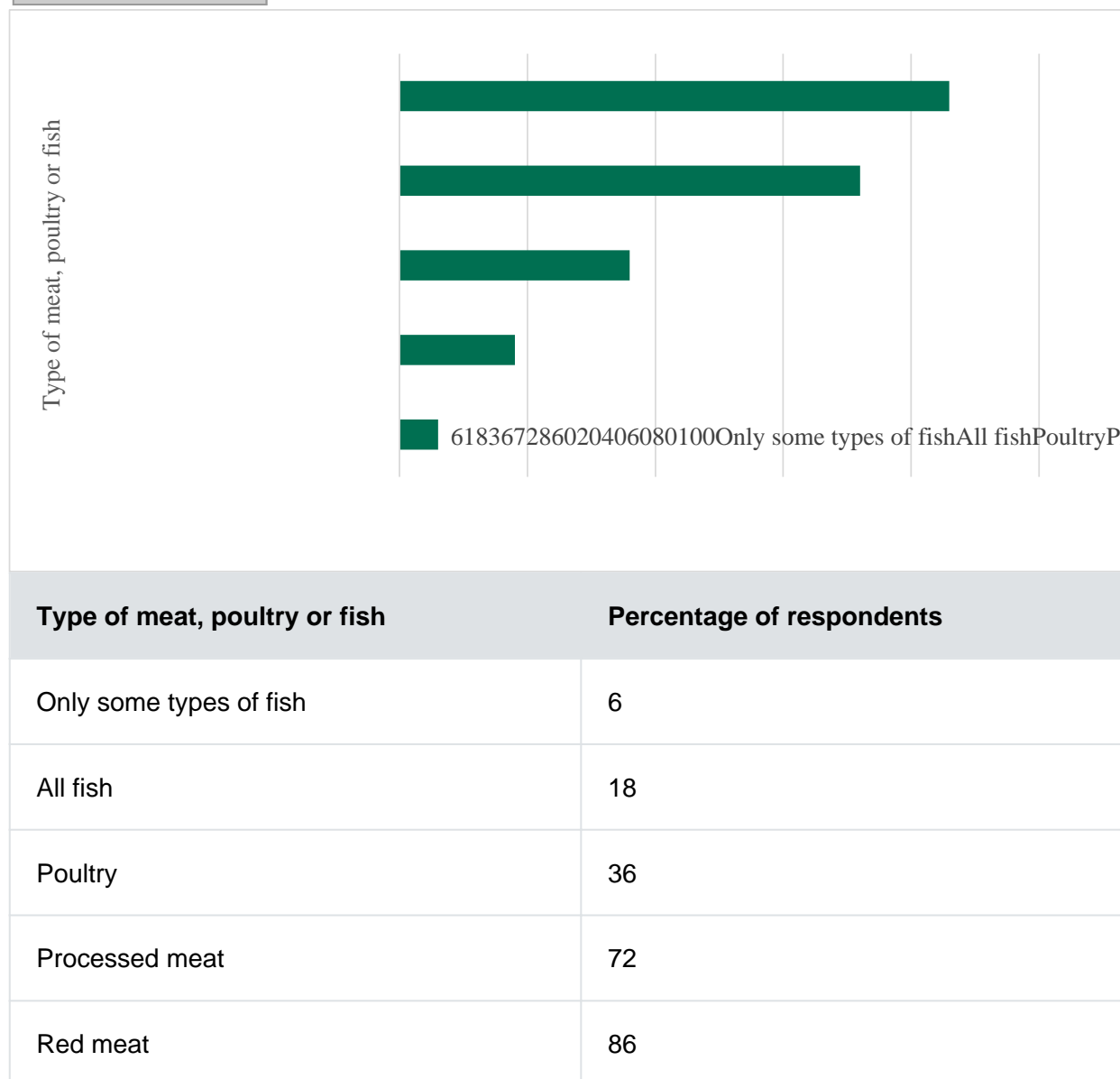
Respondents were asked, from a list of options, which, if any changes they had made in the previous 12 months. The most common changes reported by respondents were that they had eaten less processed food (40%) and started minimising food waste (40%). Almost a third of respondents reported that they had started eating more fruit and vegetables (32%), started buying food with minimal or no packaging (31%) and/or had eaten less meat, poultry, or fish (28%) in the previous 12 months. Around a quarter (26%) of respondents reported that they had started buying locally produced food or food that is in season. However, 15% of respondents reported that they had not made any of the listed changes in the previous 12 months (Figure 25) ([footnote 1](#)).

## Meat, poultry and fish: changes in consumption habits

**Figure 26. Types of meat, poultry or fish which respondents had eaten less of in the previous 12 months**

Change to table and accessible view

Change to chart view



Download this chart

[Image](#) [.csv](#)

Source: Food and You 2: Wave 4

Respondents who reported that they had eaten less meat, poultry, or fish in the previous 12 months were asked which types of products the changes related to. Of these respondents, most respondents (86%) had eaten less red meat (for example, beef, pork, or lamb) and 72% had

eaten less processed meat (for example, chicken nuggets, ham, bacon) in the previous 12 months. Over a third (36%) of respondents reported that they had eaten less poultry and 18% of respondents reported that they had eaten less of all types of fish, with 6% eating less of only some types of fish in the previous 12 months (Figure 26) [\(footnote 2\)](#).

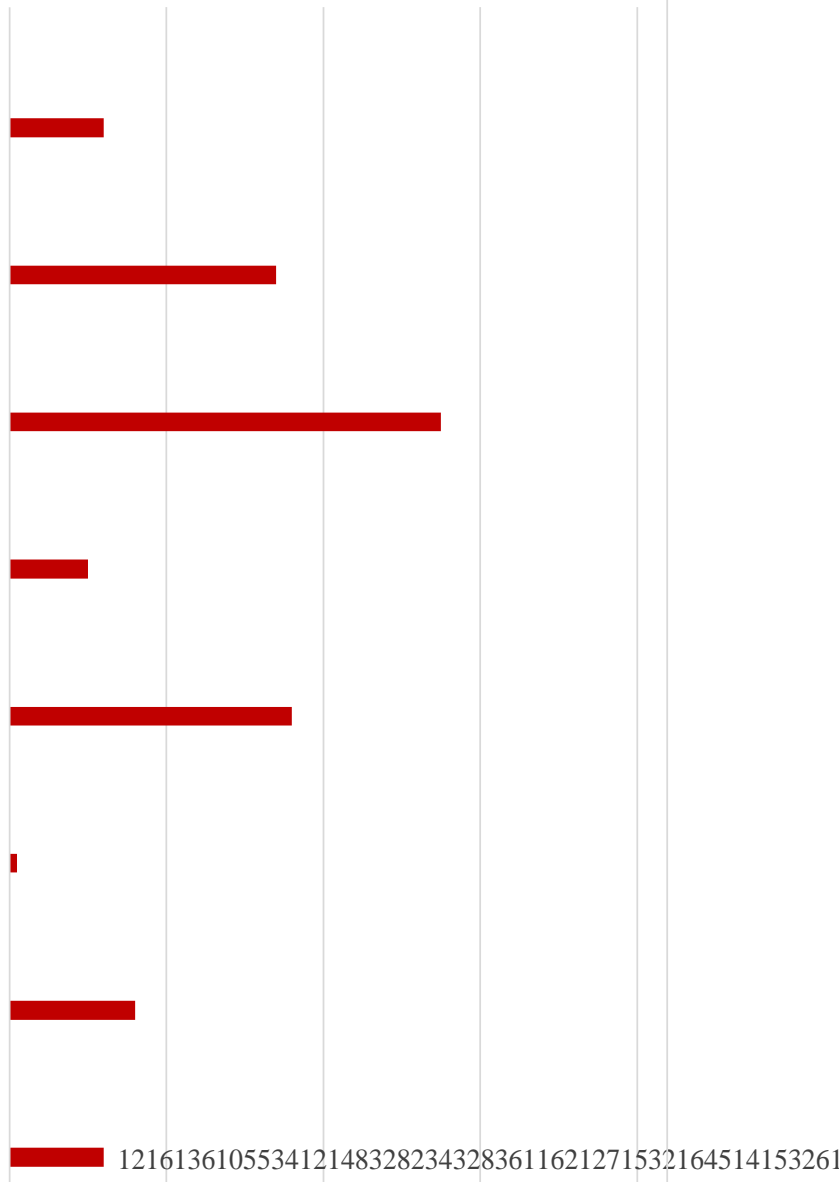
## Reasons of changes in consumption habits

**Figure 27. Health was the most common reason to have eaten less processed foods, processed meat, red meat, dairy and/or eggs**

Change to table and accessible view

Change to chart view

Reason for eating less of the specified food



Processed foods

Processed meat

Red meat

Dairy/Eggs

Poultry

■ Fish

**Reason for eating less of the specified food**

**Fish**

**Poultry**

**Dairy/Eggs**

**Red meat**

**Processed meat**

**Processed foods**

Because other people in my household or my friends have reduced their consumption / don't eat this product	12	14	11	14	14	7
For financial reasons	16	8	6	15	7	7
Because of the bad or unpleasant physical reaction	1	3	21	3	4	8
For animal welfare reasons	36	28	27	26	24	10
Because I wanted a change	10	23	15	19	18	19
For environmental or sustainability reasons	55	43	32	55	36	20
Because of concerns about where the product comes from	34	28	16	16	24	32
For health reasons	12	36	45	57	69	75

Download this chart

[Image .csv](#)

Source: Food and You 2: Wave 4

Respondents who reported that they had eaten less processed food, red meat, process meat, poultry, fish or dairy and/or eggs in the previous 12 months were asked, which, if any of the given options, were the reasons that they had eaten less of that product. The most common reason to have eaten less processed food (75%), processed meat (69%), red meat (57%), dairy and/or eggs (45%) were for health reasons (for example, to be more healthy or lose weight). The most common reason to have eaten less fish (55%) or poultry (43%) was for environmental or sustainability reasons (for example, impact on climate change). Respondents were more likely to report that they had eaten less dairy and/or eggs (21%) because of the bad or unpleasant physical reaction eating dairy and/or eggs causes compared to other foods (for example, 1% of respondents had eaten less fish because of the bad or unpleasant physical reaction it causes) (Figure 27) [\(footnote 3\)](#).

## **Food related changes which respondents are willing to try**

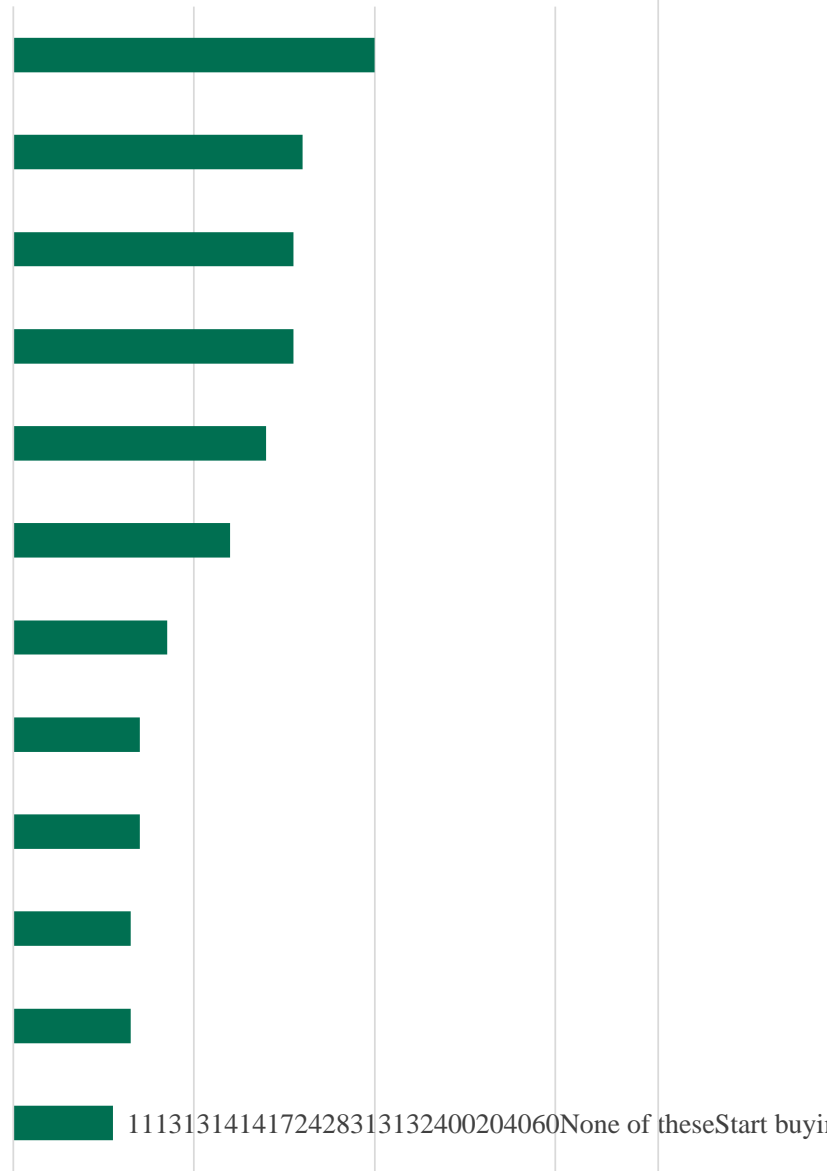
### **Figure 28. Changes which respondents were willing to try in the following 12 months**

Change to table and accessible view

Change to chart view



Type of change respondent would be willing to try



Type of change	Percentage of respondents
Other	2
Stop eating meat or poultry or fish completely	4
Don't know	7
Start growing fruit and/or vegetables	11

Type of change	Percentage of respondents	
Start buying foods grown organically	11	
None of these	11	
Eat/drink less dairy, e. g. milk, cheese, butter or eggs	12	
Start buying sustainably sourced fish	13	
Replace dairy products with plant-based alternatives such as soya	oat or almond milk"	13
Start buying Fairtrade products	14	
Start buying animal products with high welfare standards"	14	
Start buying foods that have been produced with minimal water usage and/or minimal deforestation"	17	
Eat less meat or poultry or fish	24	
Start buying locally produced food or food that is in season"	28	
Start minimising food waste	31	
Start eating more fruit and/or vegetables	31	
Start buying foods with		

Type of change	Percentage of respondents
minimal or no packaging"	32
Eat less processed food	40

Download this chart

[Image](#) [.csv](#)

Source: Food and You 2: Wave 4

Respondents were asked which, if any, of a given list of changes, they were willing to try in the following 12 months. The most common change that respondents reported that they were willing to try was to eat less processed food (40%). Around a third of respondents reported that they were willing to start buying food with minimal or no packaging (32%), start minimising food waste (31%) or start eating more fruit and/or vegetables (31%) in the following 12 months. However, 11% of respondents reported that they would not be willing to try any of the changes listed in the following 12 months (Figure 28) [\(footnote 4\)](#).

## Meat alternatives

Meat alternatives are meat-free products that may be eaten instead of meat, such as seitan or vegetarian sausages and burgers (for example, Quorn, Linda McCartney, or Beyond Meat products).

### Meat alternative consumption

Respondents were asked if they had ever eaten meat alternatives. Around a third (32%) of respondents reported that they had eaten meat alternatives, 21% of respondents reported that they used to eat meat alternatives but no longer do and 39% of respondents reported that they had never eaten meat alternatives [\(footnote 5\)](#).

Of the respondents who currently eat meat alternatives, 34% reported eating meat alternatives 2-3 times a week or more often (for example, every day, most days, 2-3 times a week), 45% reported eating meat alternatives occasionally (i.e., about once a week, 2-3 times a month) and 21% reported eating meat alternatives about once a month or less often (i.e., about once a month, less than once a month) [\(footnote 6\)](#).

Respondents who reported that they currently eat meat alternatives were asked why they eat meat alternatives from a list of options. The most common reasons were for environmental or sustainability reasons (41%), for animal welfare reasons (35%) and for health reasons (35%) [\(footnote 7\)](#).

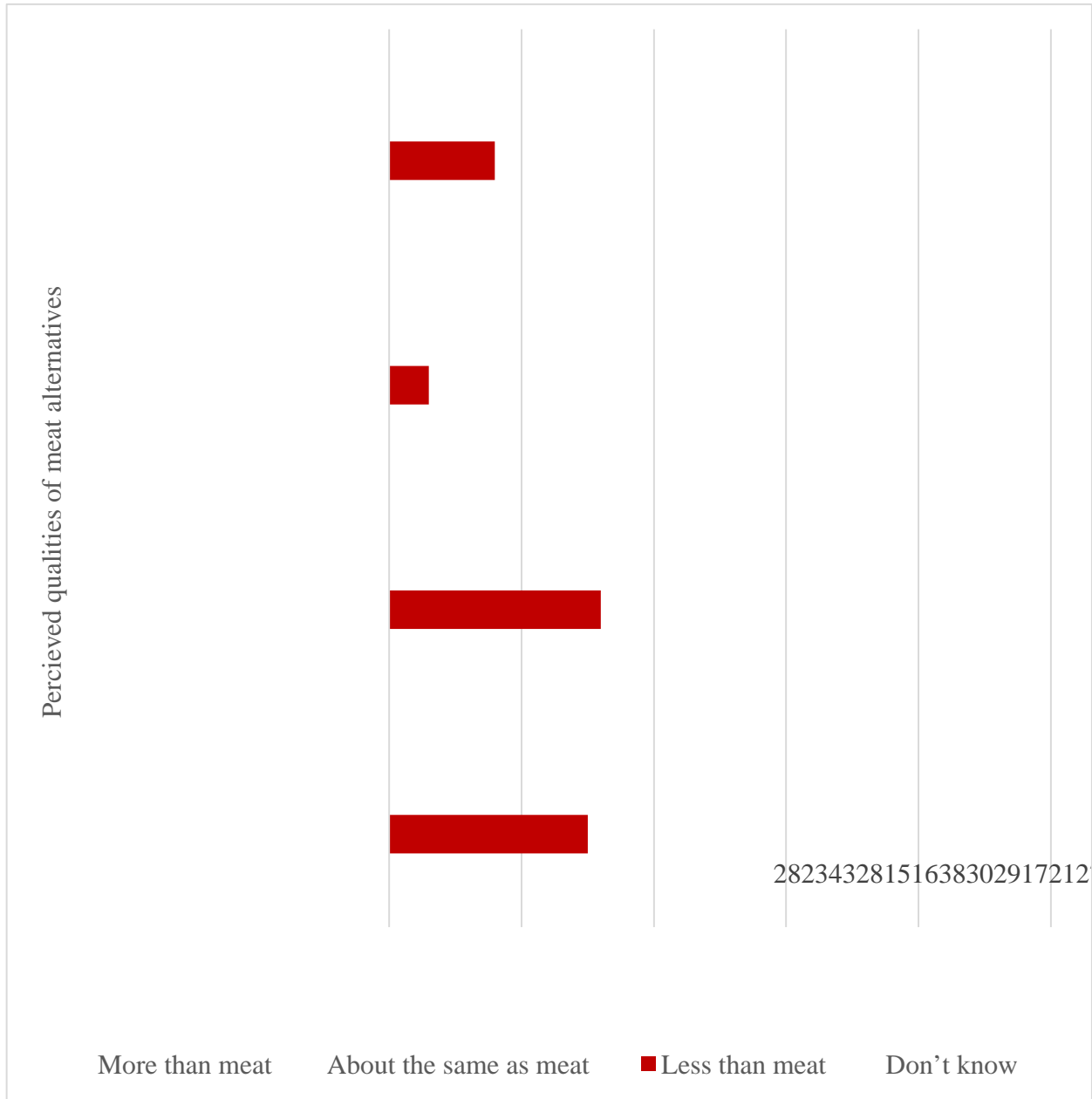
### Perceptions of meat alternatives compared to meat

**Figure 29. Around 4 in 10 respondents think that shop-bought meat alternatives are more environmentally friendly**

# than meat

Change to table and accessible view

Change to chart view



2823432815163830291721273336420102

Perceived qualities of meat alternatives	Don't know	Less than meat	About the same as meat	More than meat
Healthy	28	15	30	27
Expensive	23	16	29	33

Perceived qualities of meat alternatives	Don't know	Less than meat	About the same as meat	More than meat
Refrigerated shelf-life	43	3	17	36
Environmentally friendly	28	8	21	42

Download this chart

[Image .csv](#)

Source: Food and You 2: Wave 4

Respondents were asked how they think meat alternatives compared to meat on several qualities including environmental impact, shelf life, cost, and healthiness. Around 4 in 10 respondents thought that meat alternatives were more environmentally friendly (42%) and would last longer in the fridge (36%) compared to meat. However, many respondents did not know how meat alternatives compare to meat when considering how long refrigerated shop-bought meat alternatives last (43%), how environmentally friendly (28%), healthy (28%) and expensive (23%) shop-bought meat alternatives are (Figure 29) [\(footnote 8\)](#).

## Willingness to try lab-grown meat

'Lab-grown meat' is grown in a laboratory from the cells or tissue of a live animal such as a cow, without having to kill the animal.

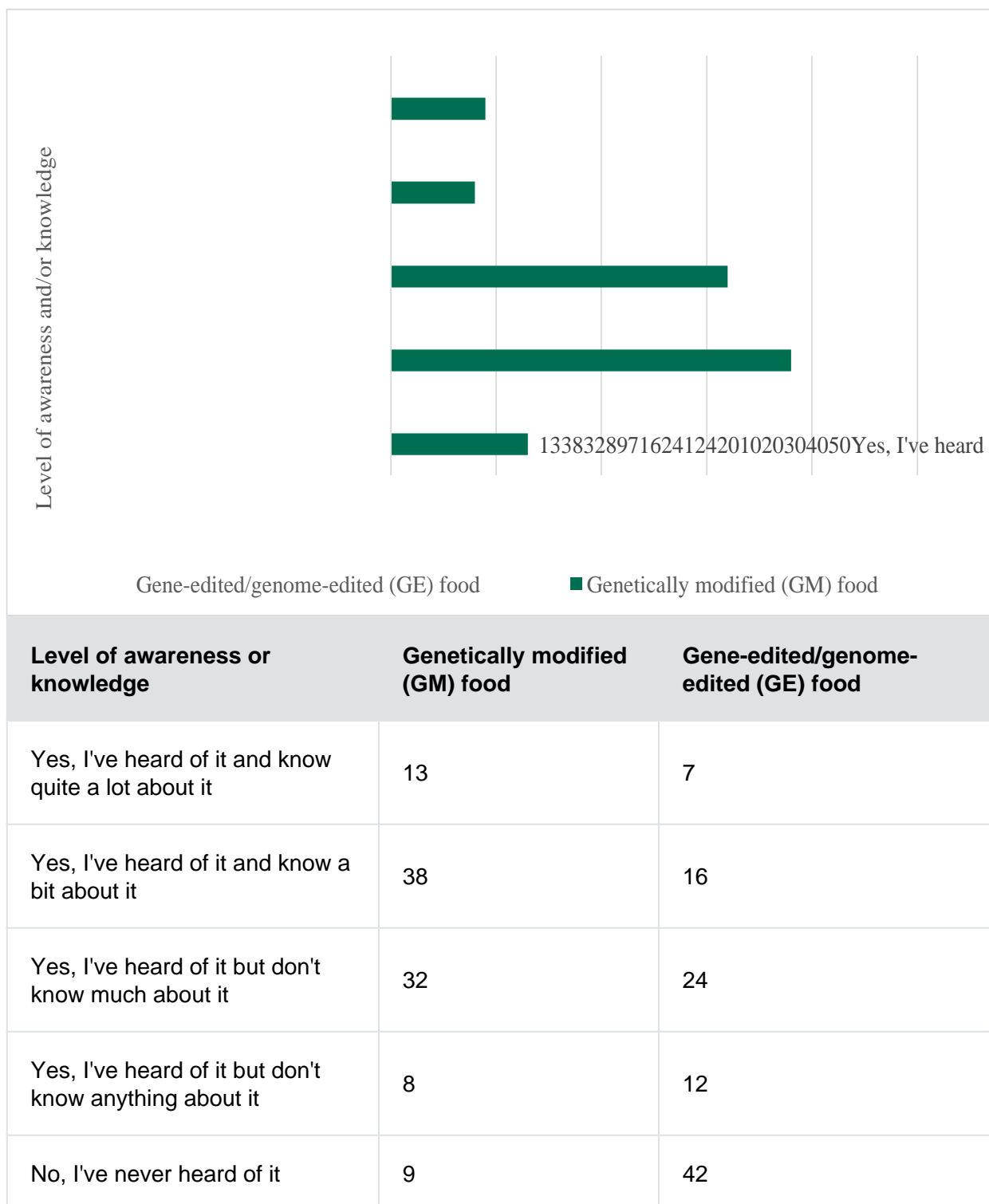
Respondents were asked if they would like to try including lab-grown meat in their diet if it became available in this country. Almost 3 in 10 (28%) respondents reported that they would like to try lab-grown meat (for example, 9% would definitely like to try; 18% probably would try) and around 6 in 10 (59%) would not (for example, 21% would probably not like to try, 38% would definitely not like to try). However, 14% of respondents reported that they didn't know whether they would like to try including lab-grown meat in their diet [\(footnote 9\)](#).

## Awareness of gene edited (GE) and genetically modified (GM) and gene edited/genome edited (GE) food

### Figure 30. Awareness and knowledge of genetically modified (GM) food is greater than that of gene-edited / genome-edited (GE) food

Change to table and accessible view

Change to chart view



Download this chart

[Image .csv](#)

Source: Food and You 2: Wave 4

Respondents were asked if they had ever heard of genetically modified (GM) food and gene-edited or genome-edited food. Respondents reported greater awareness and knowledge of genetically modified (GM) food than gene-edited or genome-edited food (GE). For example, 42% of respondents had never heard of GE food and 9% of respondents had never heard of GM food (Figure 30) [\(footnote 10\)](#).

1. Question Which, if any, of the following changes have you made in the last 12 months? Responses: Stopped eating meat or poultry or fish completely, Eaten less meat or poultry or fish, Eaten/drank less dairy, Eaten less processed food, Started eating more fruit and/or vegetables, Started minimising food waste, Started growing fruit and/or vegetables, Started buying animal products with high welfare standards, Started buying fair trade products, Started buying locally produced food or food that is in season, Started buying foods with minimal or no packaging, Started buying foods that have been produced with minimal water usage and / or minimal deforestation, Started buying foods grown organically, Started buying sustainably sourced fish, Other, None of these, Don't know. Base= 4786, all online respondents, and those answering the 'Eating at Home' postal questionnaire.
  
2. Question What types of meat, poultry and/or fish have you eaten less of in the last 12 months? Responses: Red meat, e.g. beef, pork or lamb; Processed meat, e.g. chicken nuggets, ham, bacon, sausages, salami; Poultry, e.g. chicken, turkey, duck; All fish; Only some types of fish; I haven't eaten less meat, poultry and/or fish in the last 12 months. Base= 1308, all online respondents and those who completed the 'Eating at Home' postal questionnaire who have eaten less meat, poultry and/or fish in the last 12 months.
  
3. Question: You have said that you have eaten less ...A/B/C/D/E/F... in the last 12 months. Which of the following reasons, if any, explain why you chose to make this change? A) red meat B) processed meat, C= poultry, D=fish, E= dairy and/or eggs, F= processed foods. Responses: For animal welfare reasons, For environmental or sustainability reasons, e.g. impact on climate change, For financial reasons, e.g. cost of meat or reduced income, For health reasons, e.g. to be more healthy or lose weight, For religious reasons, Because of the bad or unpleasant physical reaction eating A/B/Ccauses me (e.g. food intolerance), Because of concerns about food poisoning, Because other people in my household or my friends have reduced their A/B/C consumption or don't eat meat, Because of advice from friends or family, Because of advice from celebrities or influencers, Because of concerns about where meat comes from, Because I wanted a change, Due to pregnancy, None of these. Base A = 908, B= 755, C=389, D=255, E=497, F=1550, all online respondents who have eaten less A/B/C /D/E/F in the last 12 months.
  
4. Question: Which, if any, of the following changes are you willing to try in the next 12 months? Responses: Stop eating meat or poultry or fish completely, Eat less meat or poultry or fish, Eat/drink less dairy for example milk, cheese, butter or eggs, Eat less processed food, Replace dairy products with plant-based alternatives such as soya, oat or almond milk, Start eating more fruit and/or vegetables, Start minimising food waste, Start growing fruit and/or vegetables, Start buying animal products with high welfare standards, Start buying fair trade products, Start buying locally produced food or food that is in season, Start buying foods with minimal or no packaging, Start buying foods that have been produced with minimal water usage and / or minimal deforestation, Start buying foods grown organically, Start buying sustainably sourced fish, Other, None of these, Don't know. Base= 4786, all online respondents, and those answering the 'Eating at Home' postal questionnaire.
  
5. Question: Have you ever eaten meat alternatives? Responses: Yes, I currently eat meat alternatives; Yes, I used to eat meat alternatives but I don't now; No, I have never eaten meat alternatives; I have never heard of meat alternatives; Don't know. Base= 4786, all online respondents, and those answering the 'Eating at Home' postal questionnaire.
  
- 6.

Question: How often do you eat meat alternatives? Responses: Every day, Most days, 2-3 times a week, About once a week, 2-3 times a month, About once a month, Less than once a month, Don't know. Base= 1411, all online respondents and those who completed the 'Eating at Home' postal questionnaire who currently eat meat alternatives.

7. Question: Which of the following reasons, if any, explain why you choose to eat meat alternatives? Responses: For animal welfare reasons; For environmental or sustainability reasons, for example impact on climate change; For financial reasons, for example cheaper than meat; For health reasons, for example to be more healthy or lose weight; For religious reasons; Because I don't eat meat; Because of concerns about food poisoning; Because another person has cooked meat alternatives for me or I've cooked them for others; Because of advice from friends or family; Because of advice from celebrities or influencers; Because I like the taste ; Because of concerns about where meat comes from; Because I wanted a change; Due to pregnancy; Other reason; None of these; Prefer not to say. Base= 1126, all online respondents who currently eat meat alternatives
  
8. Question: In general, how A/B/C/D do you think shop-bought meat alternatives are/last compared to meat? A) healthy B) environmentally friendly C) expensive D) long do you think refrigerated. Responses: A/B/C - More...A/B/C...than meat, About the same as meat, Less...A/B/C...than meat, Don't know. D - Meat alternatives last longer than meat in the fridge, Meat alternatives last about the same time as meat in the fridge, Meat alternatives don't last as long as meat in the fridge, Don't know. Base= 3645, all online respondents excluding those who have never heard of meat alternatives.
  
9. Question: Would you like to try including lab-grown meat in your diet, if it became available in this country? Responses: I definitely would like to try this, I probably would like to try this, I probably would not like to try this, I definitely would not like to try this, Don't know. Base= 3745, all online respondents.
  
10. Question: Have you ever heard of...A/B? A) Genetically modified (GM) food? B) Gene-edited or genome-edited food? Responses: Yes, I've heard of it and know quite a lot about it; Yes, I've heard of it and know a bit about it; Yes, I've heard of it but don't know much about it; Yes, I've heard of it but don't know anything about it; No, I've never heard of it. Base= 5796, all respondents.