

THE ROLE OF IMAGERY IN CONSUMER PERCEPTIONS OF CULTURED MEAT

Understanding the impact of lab-based and
food-based images on consumer perceptions
of cultured meat



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INTRODUCTION

The production of meat and animal-based products through the use of cellular agriculture has the potential to help to solve or mitigate many of the world's most challenging problems. By sourcing meat directly at the cellular level, without the need to breed, raise, and slaughter animals, cultured meat has many potential benefits in terms of health, animal welfare, and the environment. However, cultured meat will only become a reality if it is accepted by consumers. The way that cultured meat is described can have a great influence on consumer acceptance and perception.¹ Studies show that a scientific description results in lower acceptance levels than non-scientific descriptions.² At the same time, most images that are currently used to depict cultured meat are comprised of laboratory settings, petri dishes, and blue medical gloves.

Given that a large proportion of the population has never heard of cultured meat,³ to what extent do the images currently portraying cultured meat influence consumer sentiment?

This report aims to help understand the impact of images, whether lab-based or food-based, on consumer perceptions of cultured meat. The report looks into consumer understanding of cultured meat and people's sentiment towards cultured meat based on different image exposure, thus providing clear recommendations to brands and media alike when it comes to presenting cellular-agriculture products to the public.



1. Bryant C and Dillard C (2019) The Impact of Framing on Acceptance of Cultured Meat. *Front. Nutr.* 6:103. doi: 10.3389/fnut.2019.00103
2. Ibid
3. Ashkan Pakseresht, Sina Ahmadi Kaliji, Maurizio Canavari, Review of factors affecting consumer acceptance of cultured meat, *Appetite*, Volume 170, 2022, 105829, ISSN 0195-6663, <https://doi.org/10.1016/j.appet.2021.105829>

EXECUTIVE SUMMARY

Media coverage of cultured meat has dramatically increased in recent years, alongside the rapid developments and breakthroughs that have been made in the field of cellular agriculture. The majority of the images that are currently used to portray cultured meat consist of petri dishes and blue medical gloves in a laboratory setting. It is also important to note that existing photos on stock-photo sites that are tagged as "cultured" or "lab-grown" meat are usually images of conventionally produced meat placed in petri dishes, giving the public an inaccurate idea of what actual cultured meat looks like.

ProVeg conducted a survey of 750 UK-based respondents in order to understand how lab-based and food-based images influence consumer perceptions of cultured meat.

A poor or - or non-existent - understanding of cultured meat. Similarly to previous research, our survey indicates that the majority of respondents have a poor understanding of cultured meat. 57% of the 750 participants surveyed showed no understanding at all of cultured meat, while 15% had the wrong understanding of the term, for example stating that it was "plant-based" or that it was meat which is cooked or prepared differently. Respondents also show a neutral understanding of cultured meat. After categorising responses by sentiment, 90% of respondents presented a neutral understanding of cellular agriculture. The current low levels of awareness and the neutral understanding around cultured meat mean that there is still plenty of room for informing the public, normalising the concept, and making it more well-known and attractive.



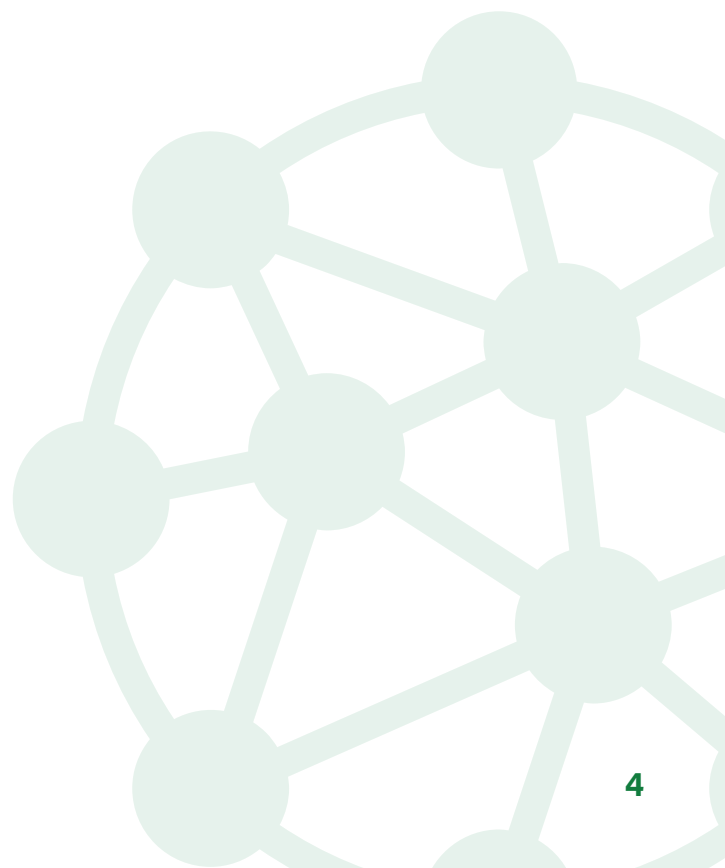
Lab-based pictures are the images that are predominantly associated with cultured meat. When exposed to both lab-based and food-based images, a majority of survey respondents stated that they most frequently see lab-based pictures associated with cultured meat. This confirms the fact that lab-based images are currently the most used in media coverage of cultured meat. Our survey shows that respondents think that both lab-based and food-based images can portray cultured meat accurately. ProVeg encourages journalists and companies to use pictures of final products that give the public a more realistic idea of what cultured meat actually looks like.



Source: Upside Foods

Food-based pictures lead to more positive sentiment towards cultured meat. Respondents who were shown food-based images view cultured meat as more appealing, tasty, nutritious, and affordable, compared to those who were shown lab-based images. When it comes to taste, 35.5% of respondents who were shown lab-based images and 47.4% of respondents who were shown food-based images agreed or strongly agreed that cultured meat was tasty. Similarly, when it comes to perceptions around nutrition and affordability, respondents who were shown food-based images were slightly more likely to agree or strongly agree that cultured meat is nutritious and affordable (54% and 40.5% respectively), compared to those who were shown lab-based images (51% and 37% respectively).

Strong likelihood of trying and purchasing cultured meat. Respondents indicated a strong likelihood of trying and purchasing cultured meat regularly, as well as replacing conventional meat with cultured meat, regardless of the images presented. In our sample, 62% of respondents who were shown lab-based images and 62% of respondents who were shown food-based images said that they were likely or very likely to try cultured meat. 38.5% of respondents who were shown lab-based images and 36% of respondents who were shown food-based images stated that they were likely or very likely to regularly purchase cultured meat. 41% of respondents who were shown lab-based images and 37% of respondents who were shown food-based images said that they were likely or very likely to replace conventional meat with cultured meat.



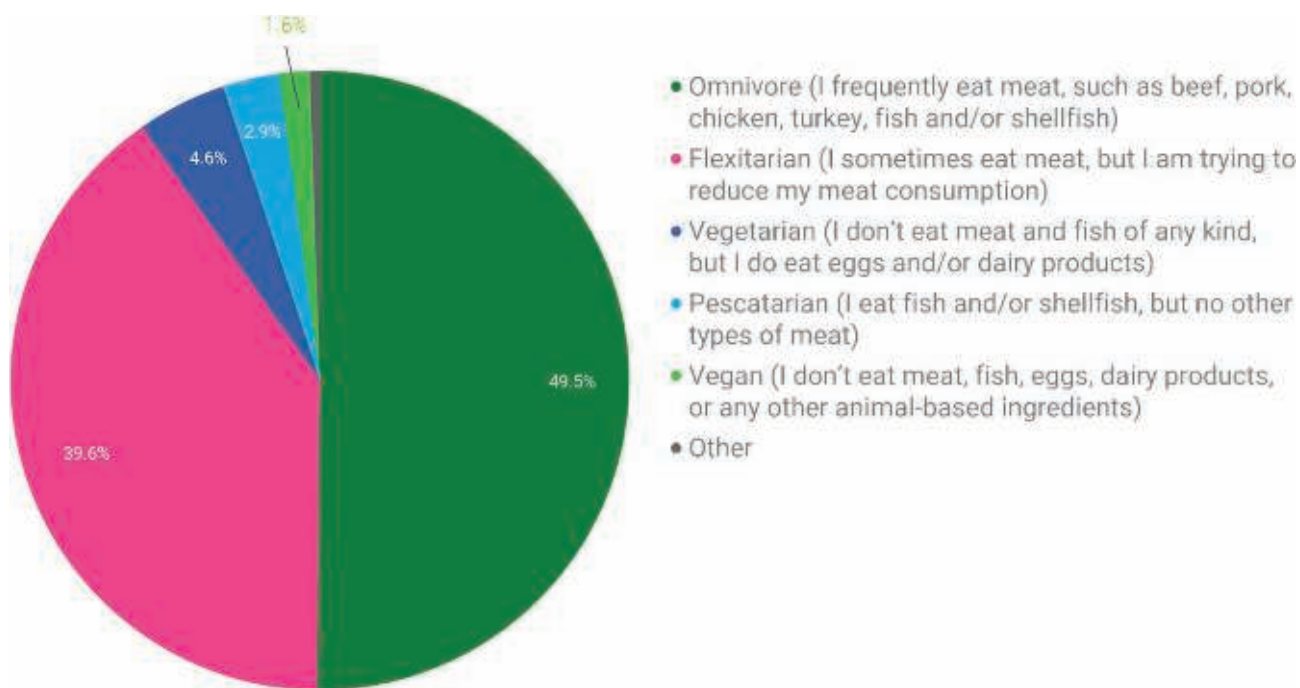
ABOUT THE SURVEY

An online survey was conducted in the UK in September 2021. The survey was completed by respondents recruited via the Attest online platform, with a total of 750 participants. Three separate groups of 250 participants were each exposed to different sets of images. The first group was exposed to both lab-based and food-based imagery. The second group was exposed to only lab-based imagery, while the third group was exposed to only food-based imagery. All groups were presented with the same definition of cultured meat.

We collected data on several demographic categories, including age, gender, and educational background, setting quotas for age, gender, and dietary habits in order to ensure that the sample was representative of the general population and equally distributed with respect to these variables. The sample consisted predominantly of people on a mixed diet, but also included flexitarians, pescatarians, vegetarians, and vegans (see chart 1).

For a full breakdown of the demographic data of the respondents, please see Appendix 1.

Chart 1: dietary lifestyle



Single-choice question: How would you define your current eating habits? | N=758 |

RESULTS

A low understanding of cultured meat

When asked about their general understanding of cultured meat, in an open question, 57% of the 750 participants surveyed showed no understanding of cultured meat, while 15% had an incorrect understanding of the term, for example stating that it was “plant-based” or that it was meat which is cooked or prepared differently. Only 16% of respondents had any accurate understanding of cultured meat, for example, stating it was made from cells, or that animals are not killed, while less than 2% of respondents had a good understanding of the term.

Word Cloud: What do you currently understand about cultured meat?

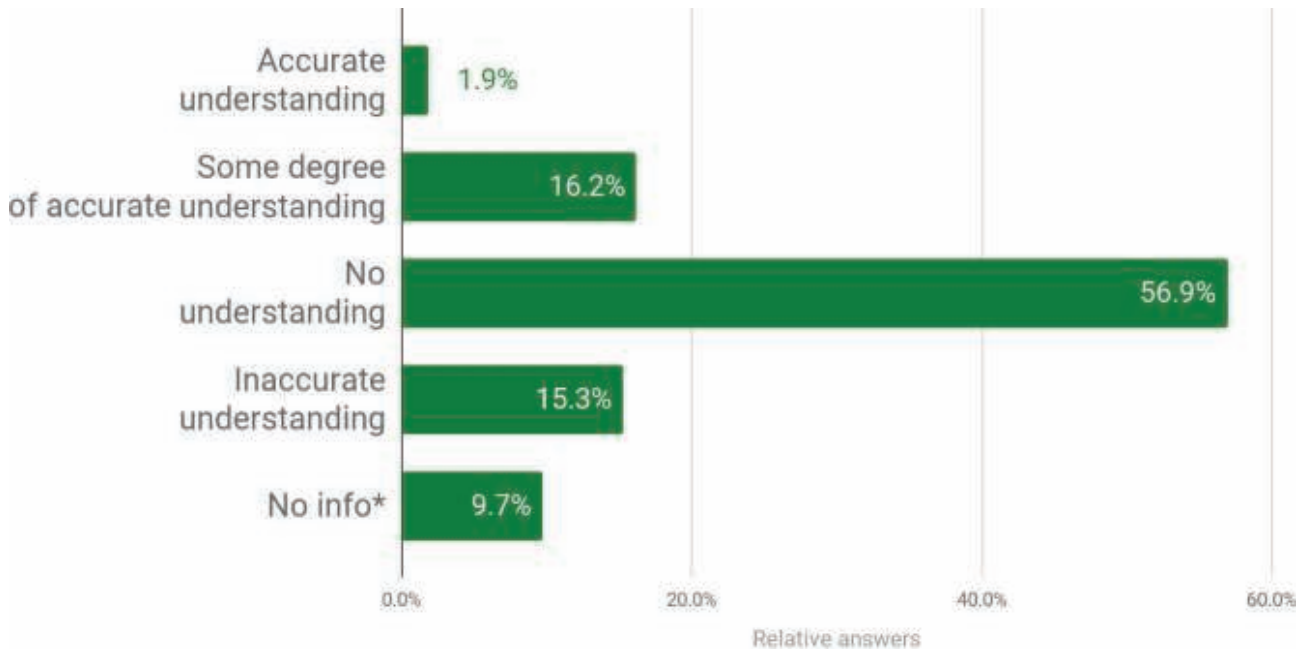


Open-answer question | N=648 invalid=31 | Note that pescetarians, vegetarians, and vegans have small samples of <30.



Source: Shiok Meats

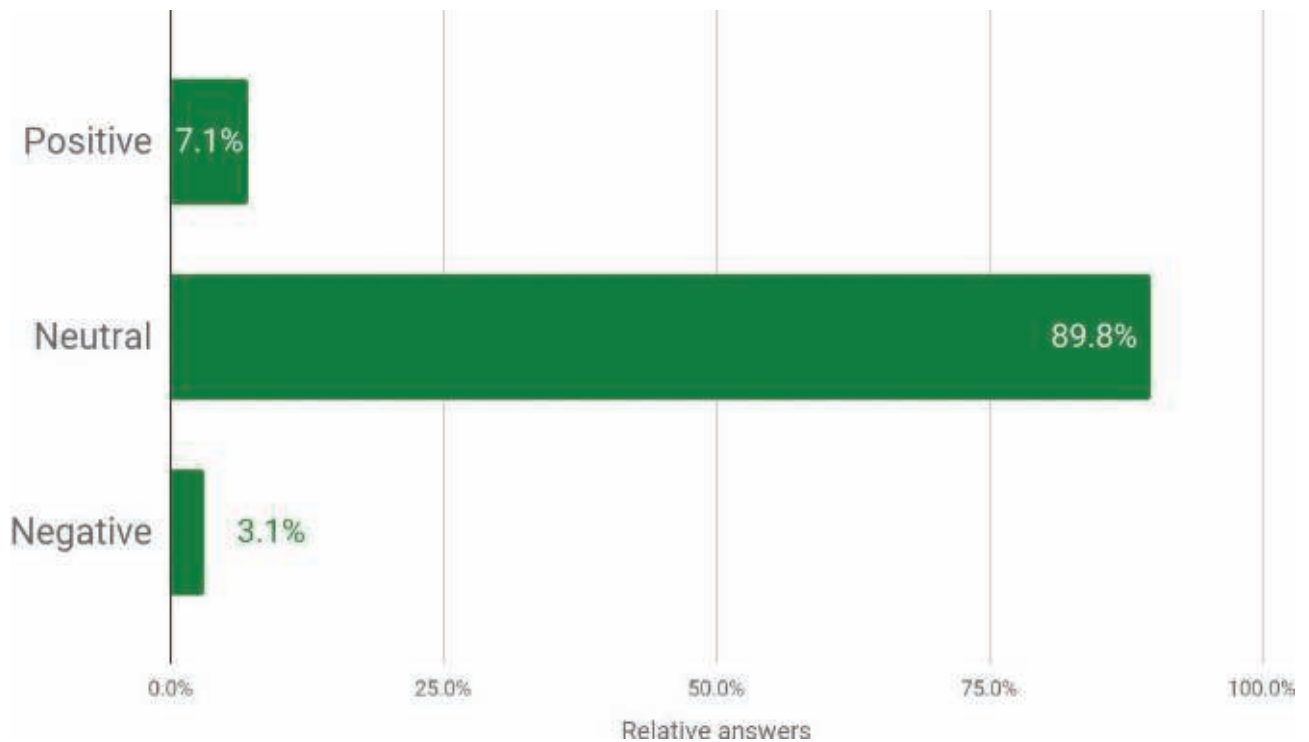
Chart 2: What do you currently understand about cultured meat?



Open-answer question, recoded into 5 categories | N=648 invalid=31 | *answers were e.g. healthy, tasty, environmentally friendly, which are correct, but it is not clear if participants knew what cultured meat is.

Responses were also categorised by sentiment, with 90% of respondents presenting a neutral understanding of cellular agriculture.

Chart 3: What do you currently understand about cultured meat?



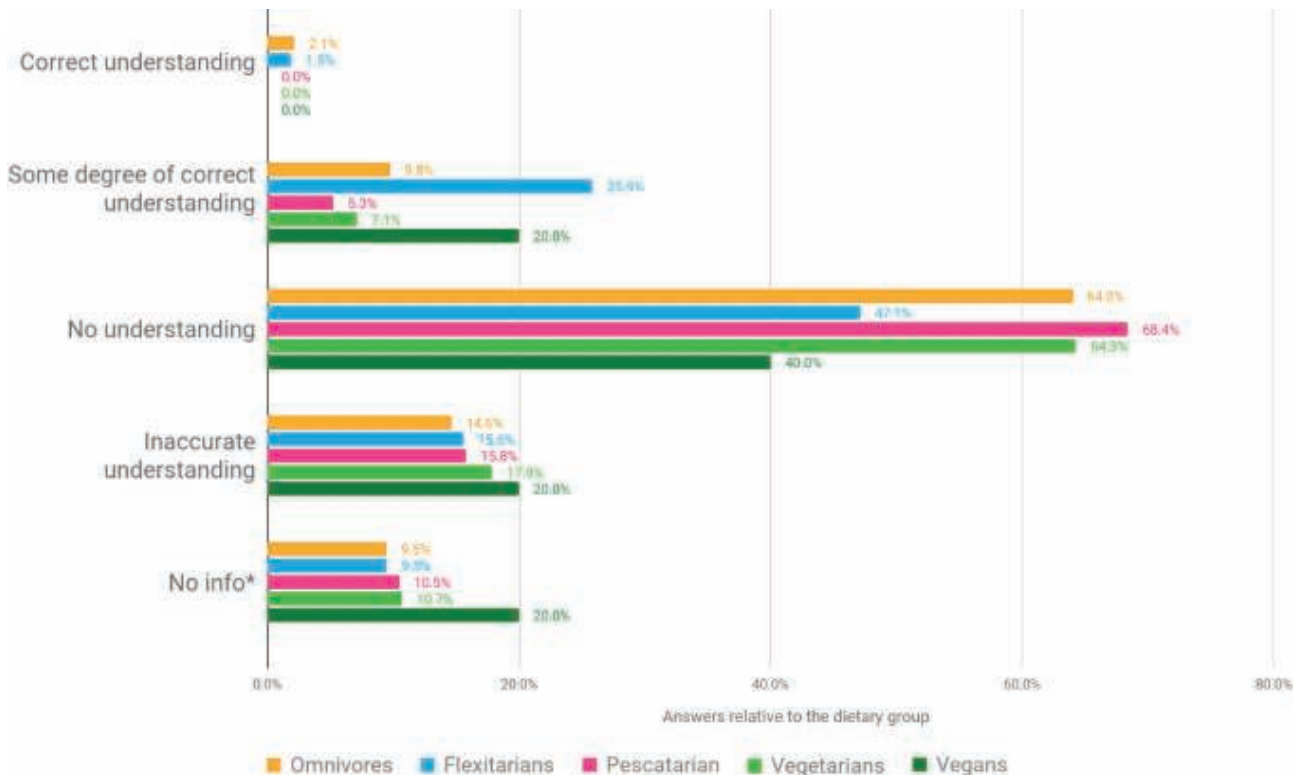
Open-answer question, recoded into 3 categories | N=648 invalid=31 | Answers are categorised regardless of whether the participant has the correct understanding of cultured meat. Answers like "I don't know" are considered neutral.



Source: Wildtype

The study also analysed responses based on dietary habits. Although responses were similar across groups, flexitarians had the most accurate understanding of cultured meat among all dietary groups, with 26% of flexitarians showing some degree of accurate understanding of the term. Similarly, flexitarians (alongside vegans) were the group that exhibited the lowest number of responses that showed no understanding of cultured meat, as seen in the graph below.

Chart 4: What do you currently understand about cultured meat? Relative answers by dietary group

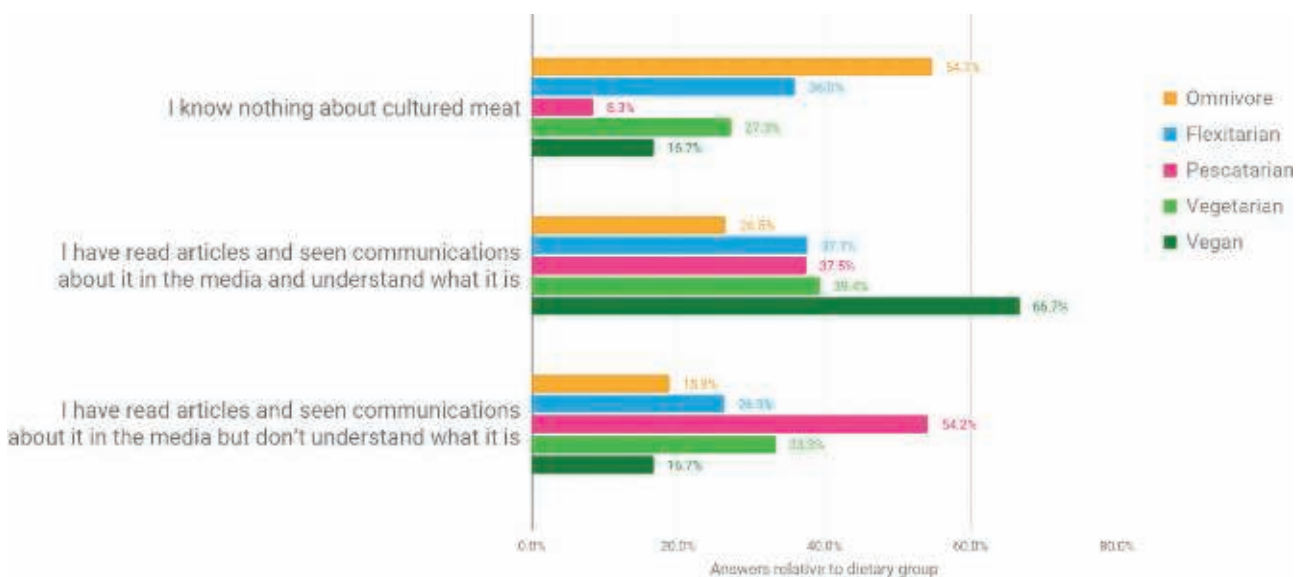


Open-answer question, recoded into 5 categories | N=648 invalid=31 | *answers included, for example, "healthy"; "tasty"; "environmentally friendly", which are correct but it is not clear if participants actually knew what cultured meat is. Note that pescetarians, vegetarians, and vegans have small samples of <30.

Flexitarians had the most accurate understanding of cultured meat among all dietary groups.

Half of our respondents stated that they know nothing about cultured meat. However, a third of respondents have read articles and seen communications about the topic in the media and do have some understanding of what it is. 24% have been exposed to the topic but do not have an understanding. Breaking these results down by dietary group, we see quite similar results across groups, with vegans being the most exposed to cultured meat, while omnivores know the least about cultured meat.

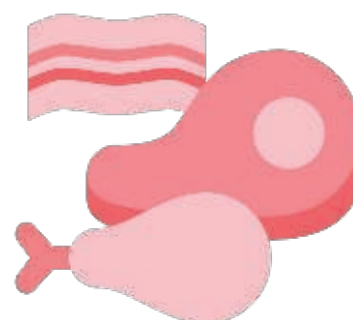
Chart 5: Which of the following best describes your knowledge of cultured meat? Relative answers by dietary group



Single-choice question | N=742 | Note that pescetarians, vegetarians, and vegans have small samples of <34.

Key takeaways

- The majority of respondents have a poor understanding of what cultured meat is.
- The majority of respondents also show a neutral understanding of cultured meat.
- The current low levels of awareness around cultured meat, together with the neutral understanding, mean that there is still plenty of room for informing the public, normalising the concept, and making it better known and more attractive.
- Dietary habits make a difference. Of all the dietary groups, flexitarians seem to have the most accurate understanding of cultured meat.



Understanding the status quo

Group one

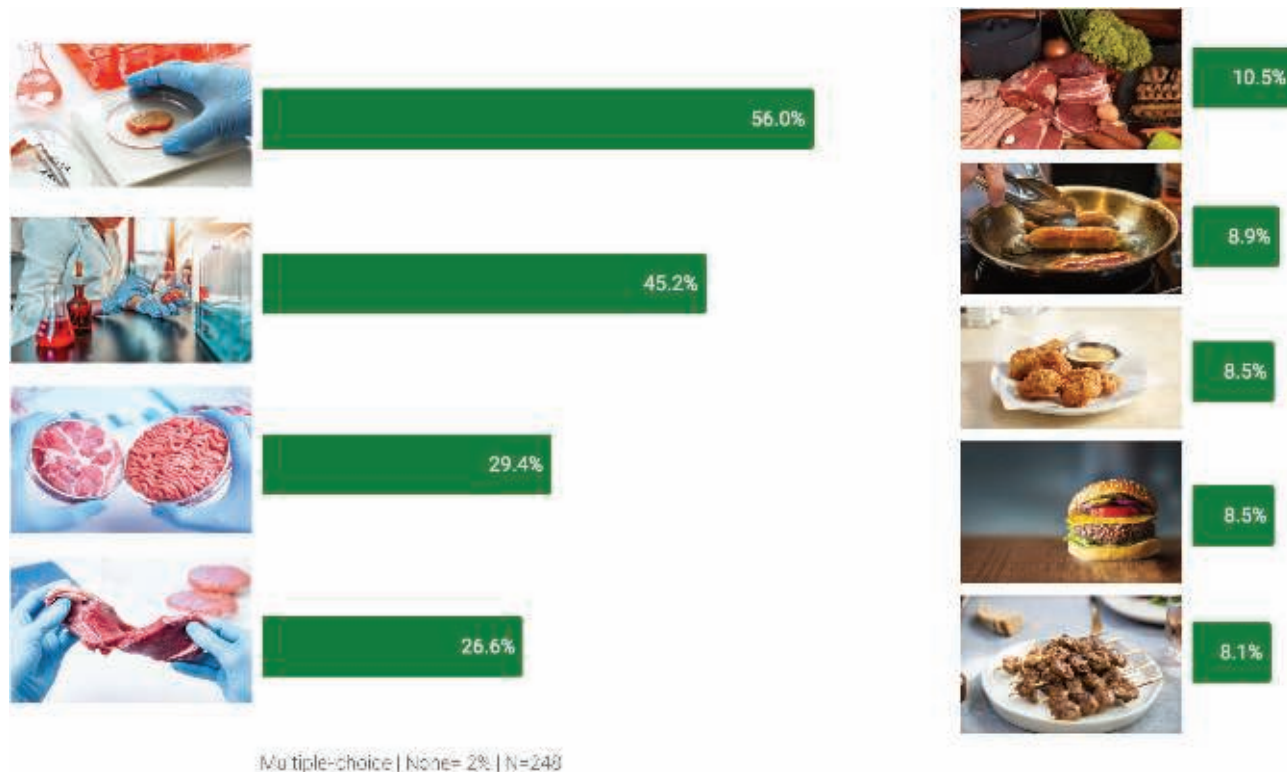
The first group of respondents was exposed to both lab-based and food-based images (see appendix) and were asked which of these images they most frequently see associated with cultured meat. Lab-based, blue-glove, petri-dish images were selected much more frequently by respondents than food-related images.

Chart 6: Which of these images do you most frequently see associated with cultured meat?



When asked which images consumers think are most representative of cultured meat, we can see that lab-based images are perceived as being the most representative, which can be explained by the fact that people are more exposed to these images.

Chart 7: Which of these images do you think are most representative of cultured meat, based on your current understanding?



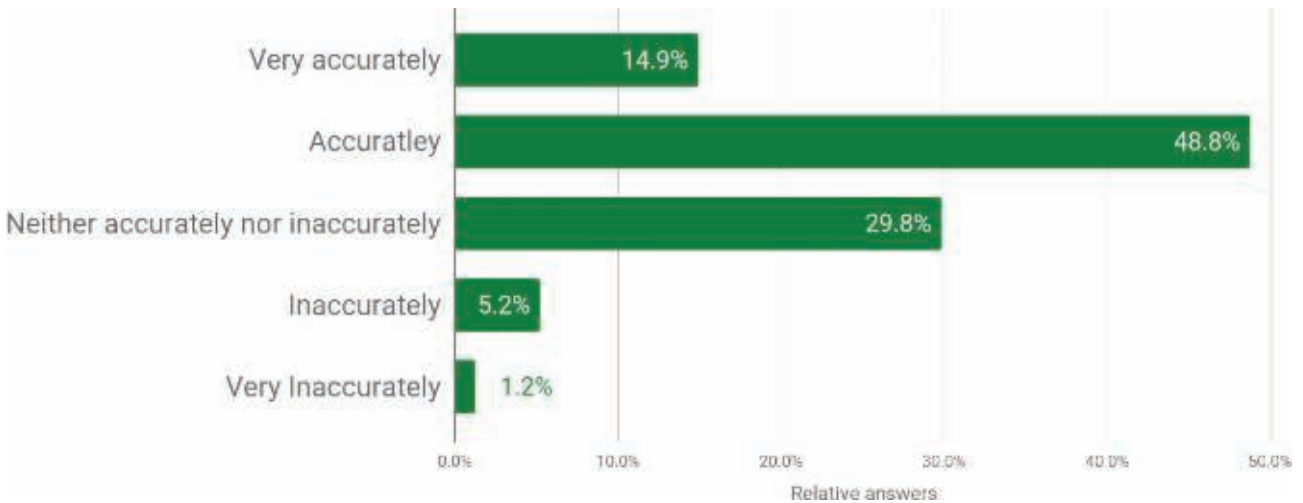
A majority of respondents most frequently see cultured meat associated with lab-based images. Respondents also perceive lab-based pictures as being the most representative of cultured meat, perhaps due to their high proliferation in media.



Group two

Respondents in the second survey group were shown only lab-based images and asked how accurately they portray cultured meat. Approximately 64% of respondents stated that they thought that lab-based images portray cultured meat accurately or very accurately, while 30% of respondents stated that lab-based pictures portray cultured meat neither accurately nor inaccurately. Similarly to the first group, the second group also generally viewed lab-based pictures as an accurate portrayal of cultured meat.

Chart 8: From the short description, how accurately do these images portray cultured meat?

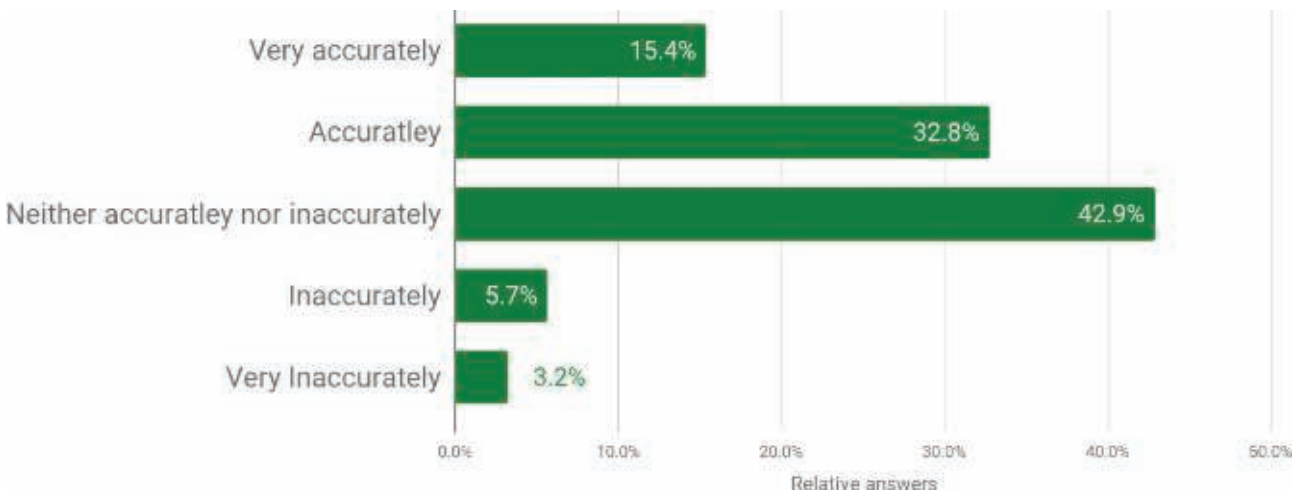


Single-choice question | N=249

Group three

The third survey group was only shown pictures of end products such as burgers and nuggets. 48% of respondents stated that food-based images portrayed cultured meat accurately or very accurately, with 43% stating that these images are neither accurate or inaccurate.

Chart 9: From the short description, how accurately do these images portray cultured meat?



Single-choice question | N=247

When presented with food-based images, almost half of the respondents stated that these images portrayed cultured meat accurately or very accurately.

Key takeaways

- A majority of respondents most frequently see lab-based pictures associated with cultured meat, a potential consequence of the heavy use of lab-based images in the media to depict cultured meat.
- Respondents think that both lab-based and food-based images can portray cultured meat accurately, giving the industry an opportunity to use more accurate images without confusing the consumer.



Consumer-sentiment analysis

Food-based images lead to a more positive sentiment towards cultured meat

In order to answer our key question about how images influence consumer perceptions of cultured meat, respondents were presented with several statements to express how lab-based and food-based images impacted their attitudes towards cultured meat.

When it comes to appeal, 43.6% of respondents who were shown lab-based images and 49% of respondents who were shown food-based images agreed or strongly agreed that cultured meat was appealing to eat.

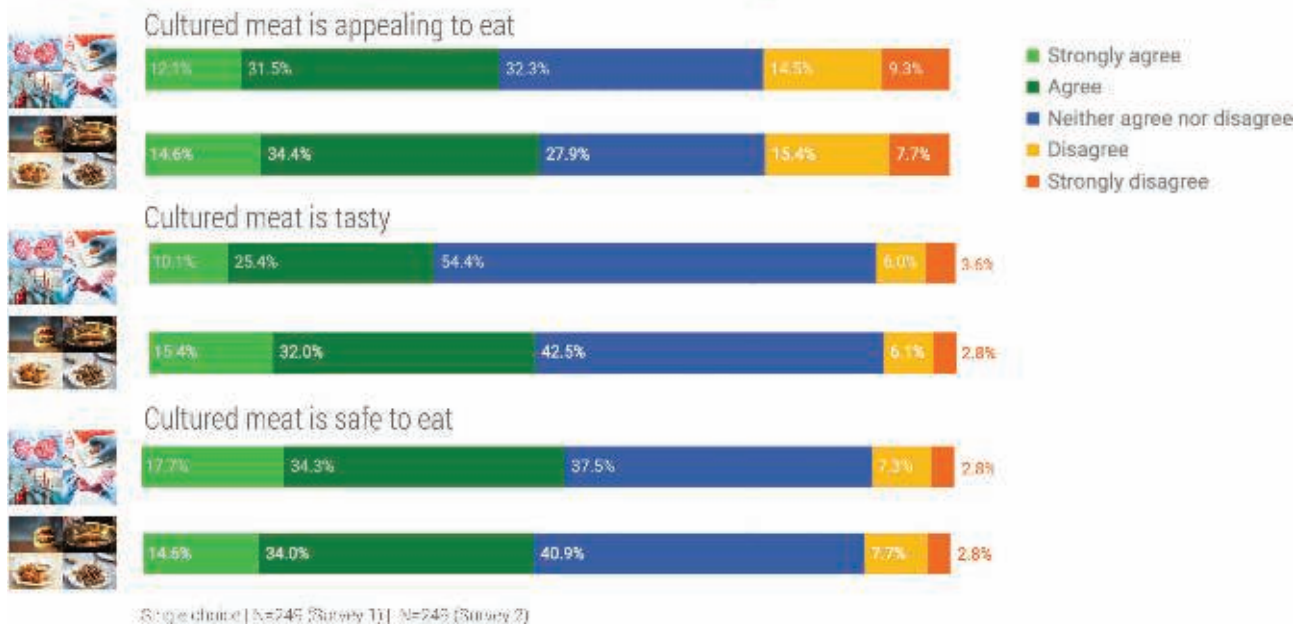
In terms of taste, 35.5% of respondents who were shown lab-based images and 47.4% of respondents who were shown food-based images agreed or strongly agreed that cultured meat was tasty.

Similarly, when it comes to perception around nutrition and affordability, respondents shown food-based images were slightly more likely to agree or strongly agree that cultured meat is nutritious and affordable than those shown lab-based images.

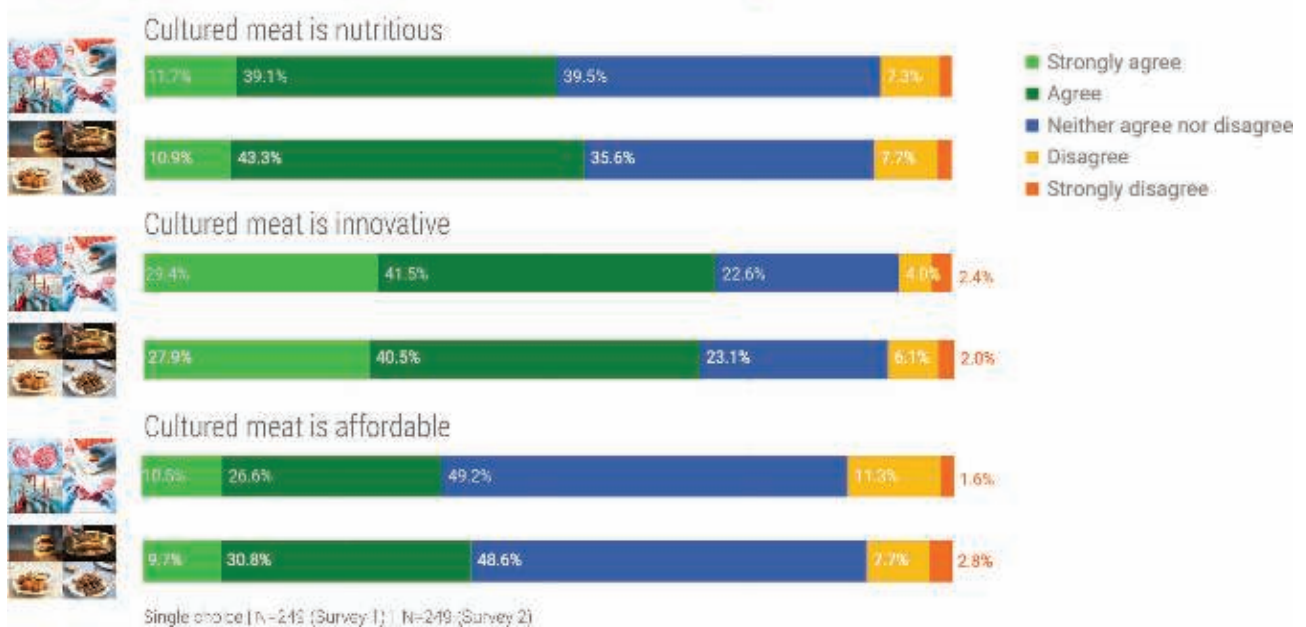
With regards to sentiments around health, respondents who were shown lab-based images were more likely to agree or strongly agree that cultured meat is healthy – however these results could be influenced by the fact that the food-based images shown included burgers and nuggets which tend to not have a 'healthy' perception.

Respondents who were shown food-based images viewed cultured meat as slightly more appealing, tasty, nutritious, and affordable than did those who were shown lab-based images.

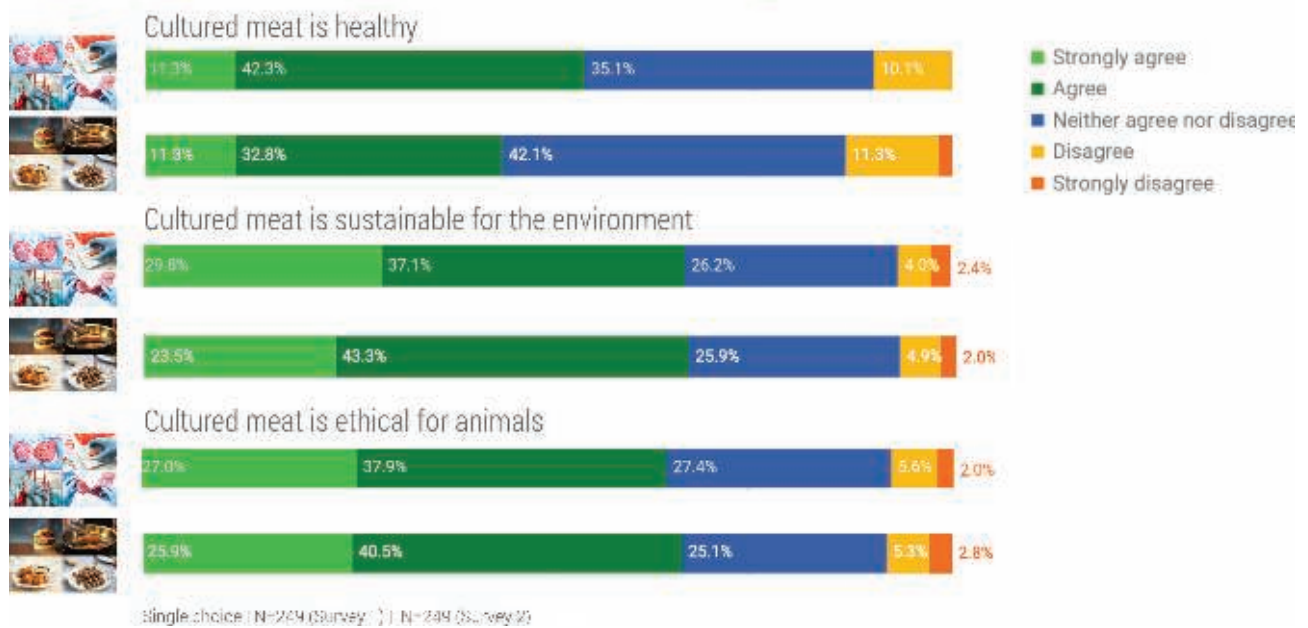
Based on the image and the short description, to what extent do you agree or disagree with the following?



Based on the image and the short description to what extent do you agree or disagree with the following?



Based on the image and the short description to what extent do you agree or disagree with the following?



Similar likelihood of trying, purchasing, or replacing conventional meat with cultured meat, regardless of imagery.

When asked about the likelihood of eating, purchasing, or replacing conventional meat with cultured meat, respondents' results were very similar, regardless of whether they were shown lab-based or food-based images.

In our sample, 62% of respondents who were shown lab-based images and 62% of respondents who were shown food-based images stated that they were likely or very likely to try cultured meat.

38.5% of respondents who were shown lab-based images and 36% of respondents who were shown food-based images said that they were likely or very likely to purchase cultured meat regularly.

41% of respondents who were shown lab-based images and 37% of respondents who were shown food-based images stated that they were likely or very likely to replace conventional meat with cultured meat.

Overall, respondents showed a strong likelihood to try cultured meat and replace conventional meat with cultured meat, regardless of the images presented.

Key takeaways

- Respondents who were shown food-based images viewed cultured meat as slightly more appealing, tasty, nutritious, and affordable than did those who were shown lab-based images.
- Respondents show a strong likelihood to try cultured meat and replace conventional meat with cultured meat, regardless of the images presented.
- ProVeg recommends using food-based images in communication.
- Given that more than half of our survey respondents had no understanding of cultured meat, information and education about the product category are important in ensuring that cultured meat becomes more widely understood by consumers, and that their sentiment remains neutral or positive.



CONCLUSION

This survey looked into consumer understanding of cultured meat and sentiments towards cultured meat based on different image exposure, including both lab-based and food-based.

The results show that the majority of respondents have a low and neutral understanding of what cultured meat is. The current low levels of awareness and the neutral understanding highlight the importance of increasing people's familiarity with cultured meat through the use of transparent communication and accurate images of the products.

Currently, a majority of people most frequently see lab-based images associated with cultured meat, a likely consequence of the heavy use of lab-based images in the media to depict cultured meat.

Regardless of the images presented, respondents indicated a strong likelihood of trying cultured meat and replacing conventional meat with cultured meat. This level of current interest, regardless of whether consumers are exposed to lab-based or food-based images, is remarkable for a new food category that is not yet on the market.

Respondents think that both lab-based and food-based images can portray cultured meat accurately, thus giving the industry an opportunity to use more accurate images without confusing consumers. ProVeg recommends the use of food-based images in communication, since exposure to these images slightly increases the perceptions of the attractiveness, taste, nutritional value, and affordability of cultured meat.

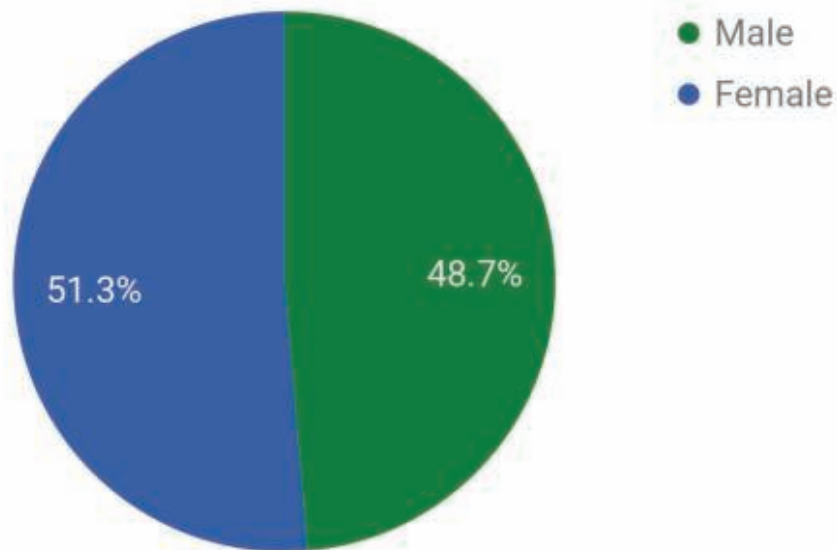


Source: GOOD Meat

APPENDIX

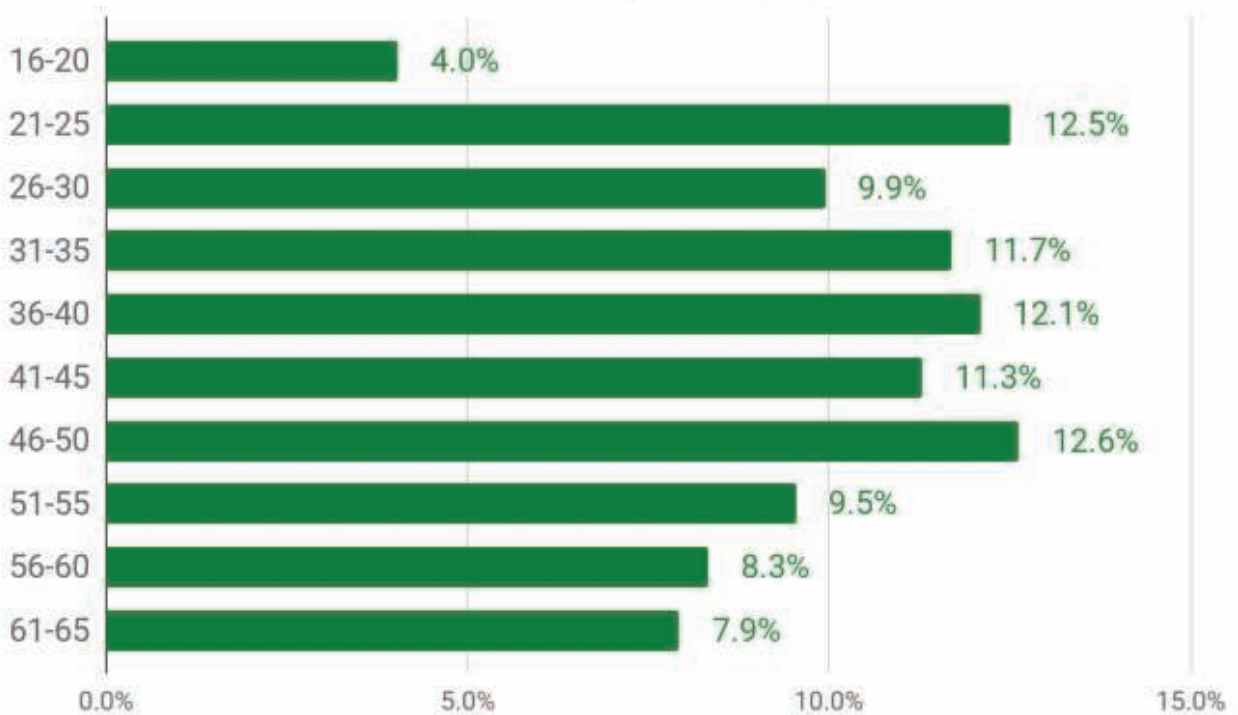
Demographic data

Gender



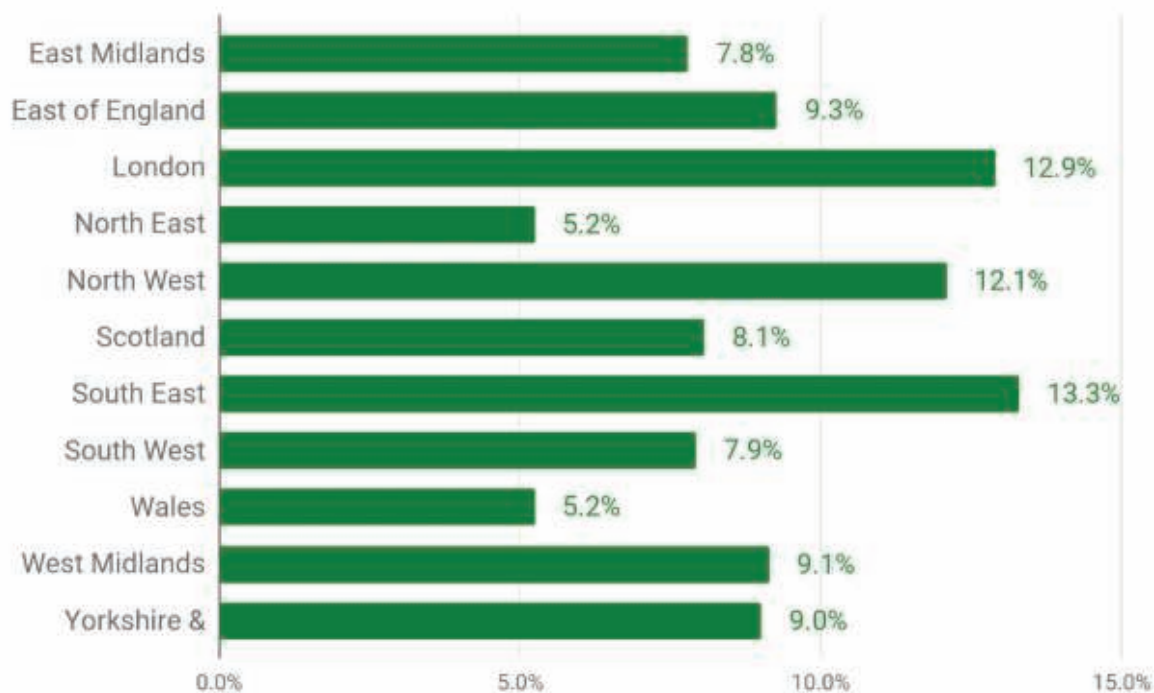
Close-ended question | Single Choice | N=744 |

Age



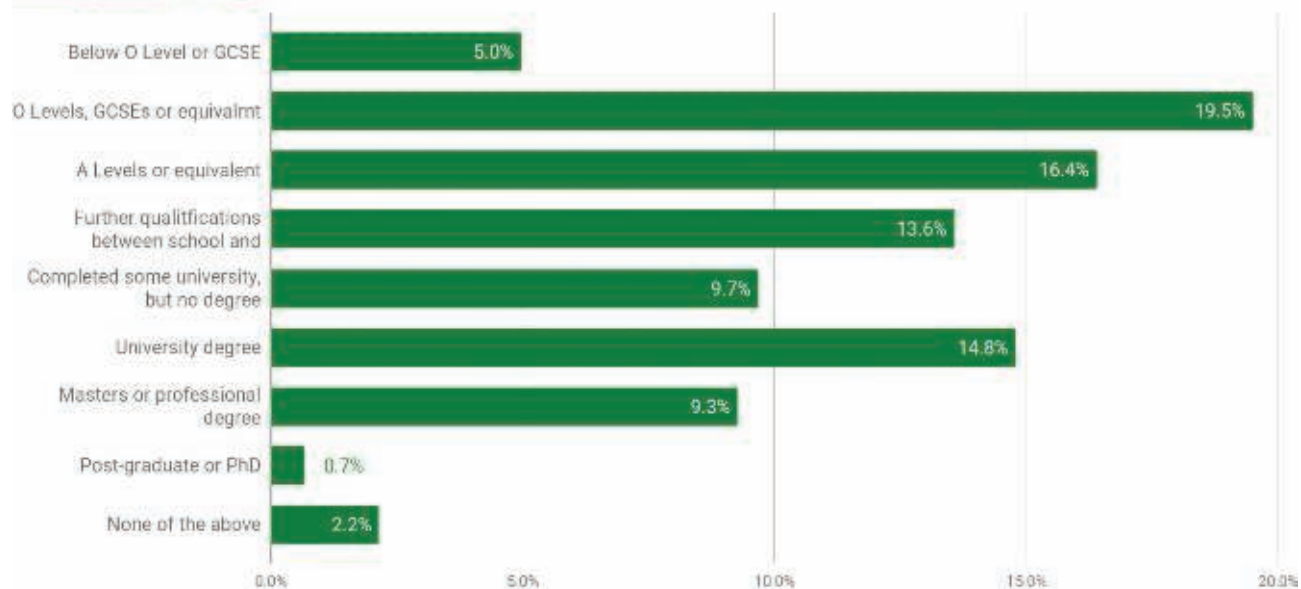
Close-ended question | Single Choice | N=744 |

Home region



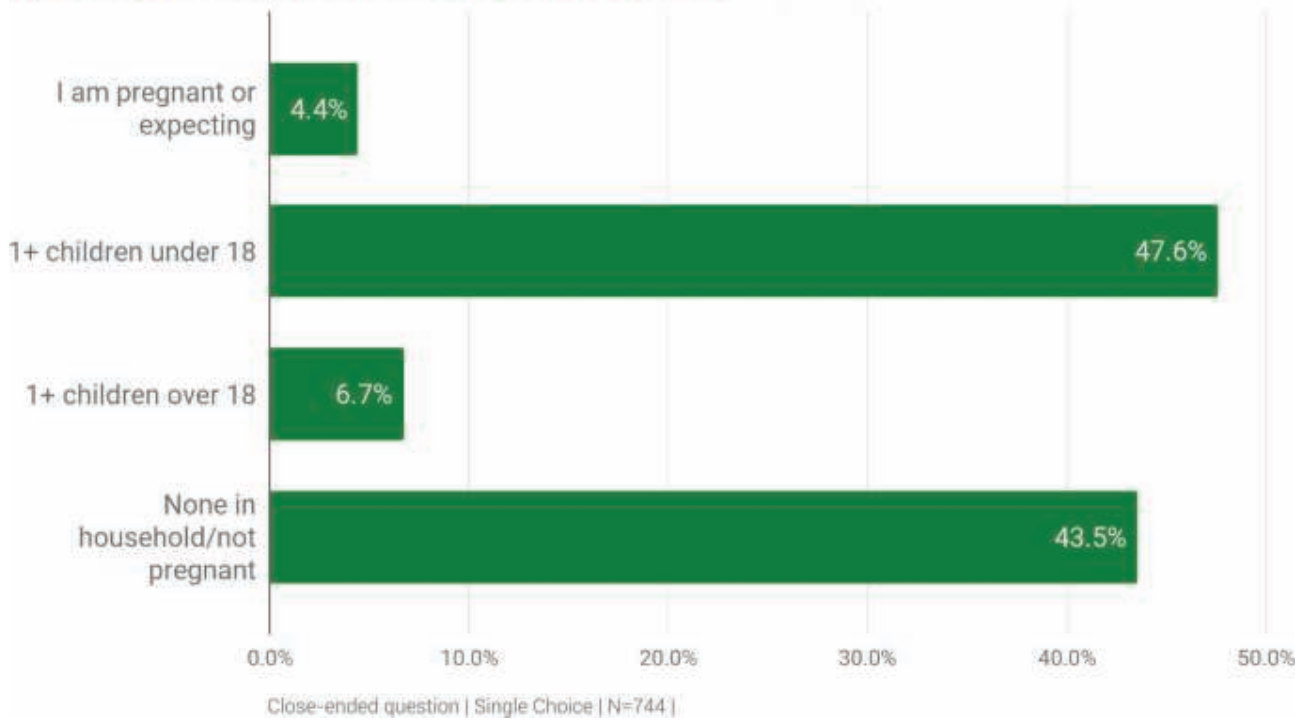
Close-ended question | Single Choice | N=744 |

Education level

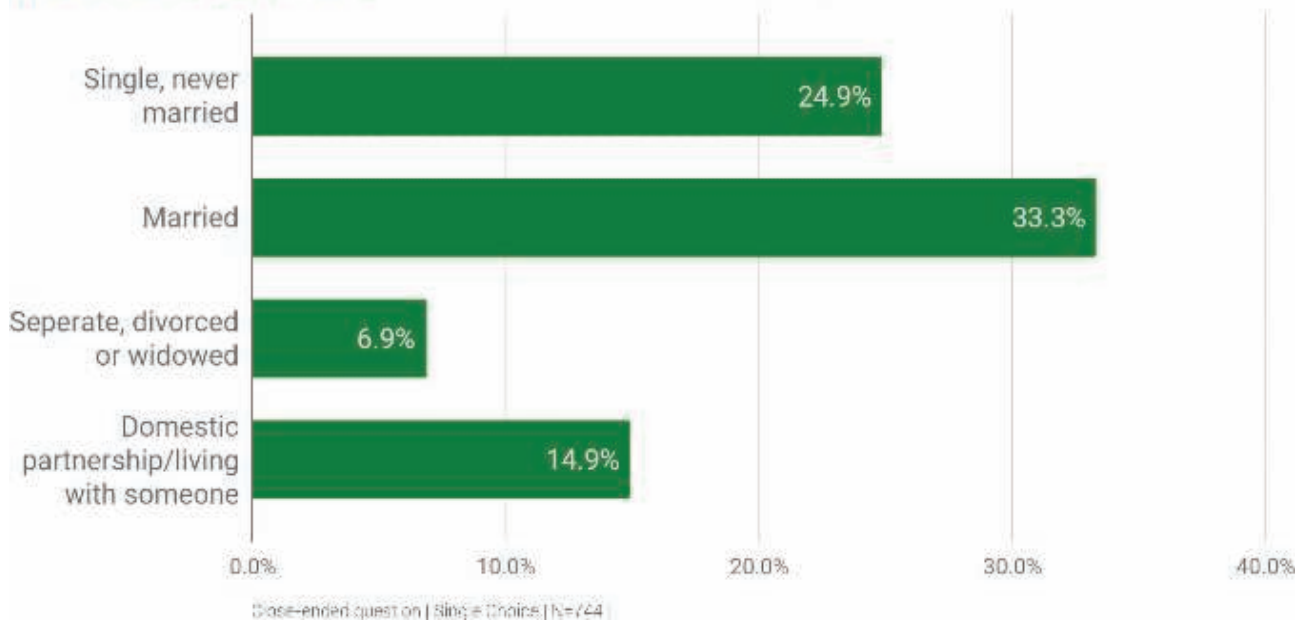


Close-ended question | Single Choice | N=744 |

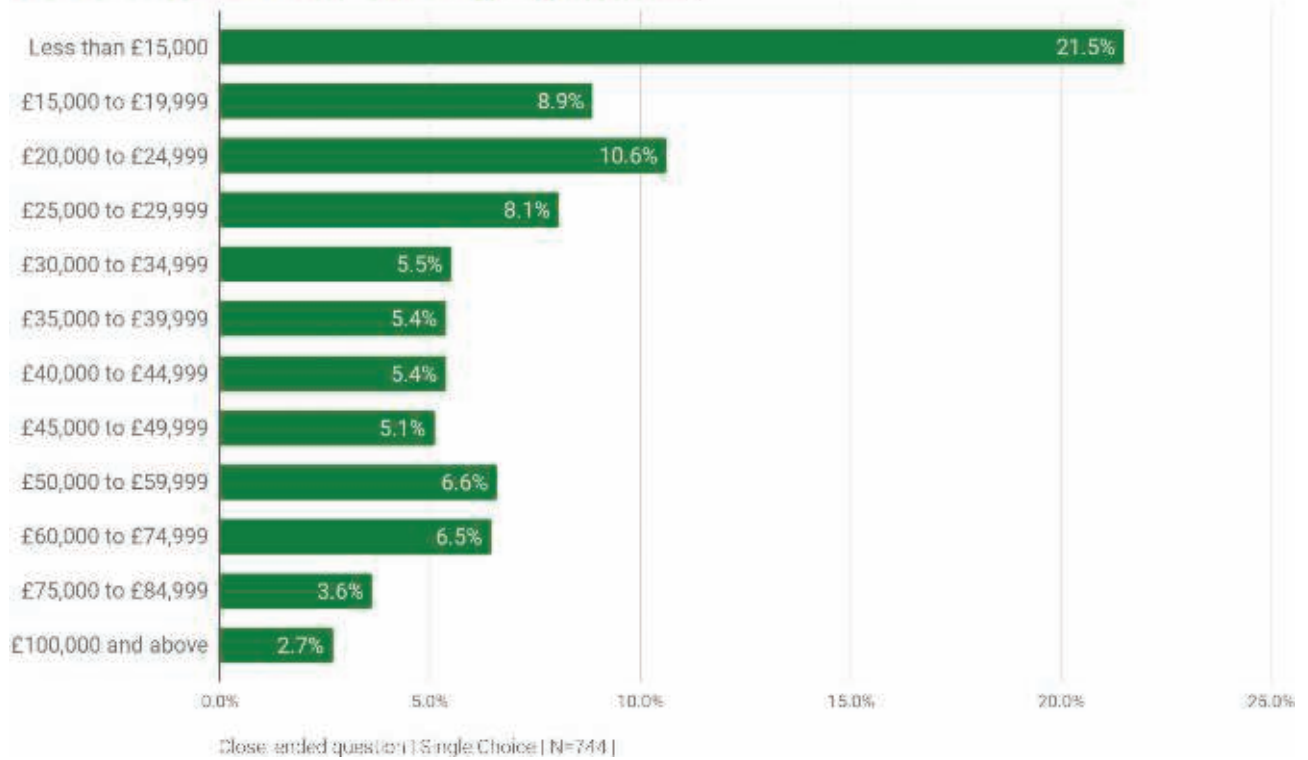
Status of children in the household



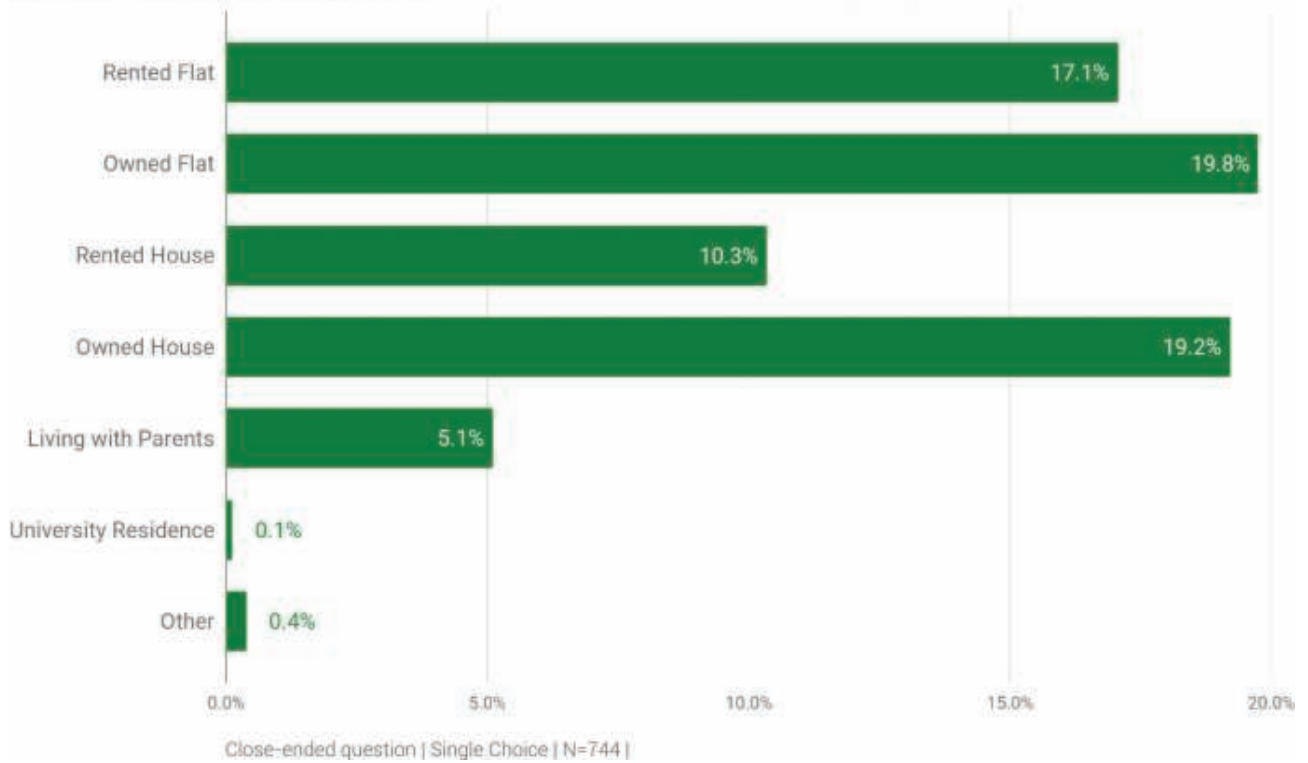
Relationship status



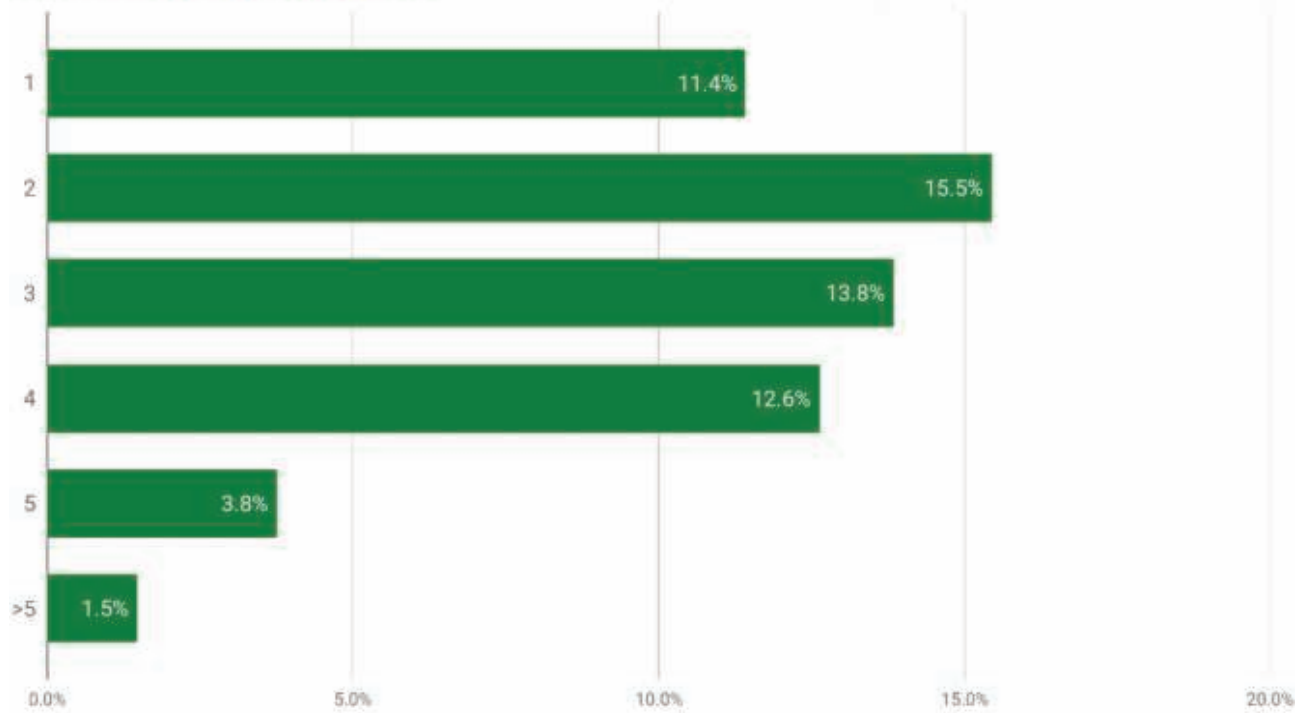
Gross household earnings (annual)



Home-owner/renter

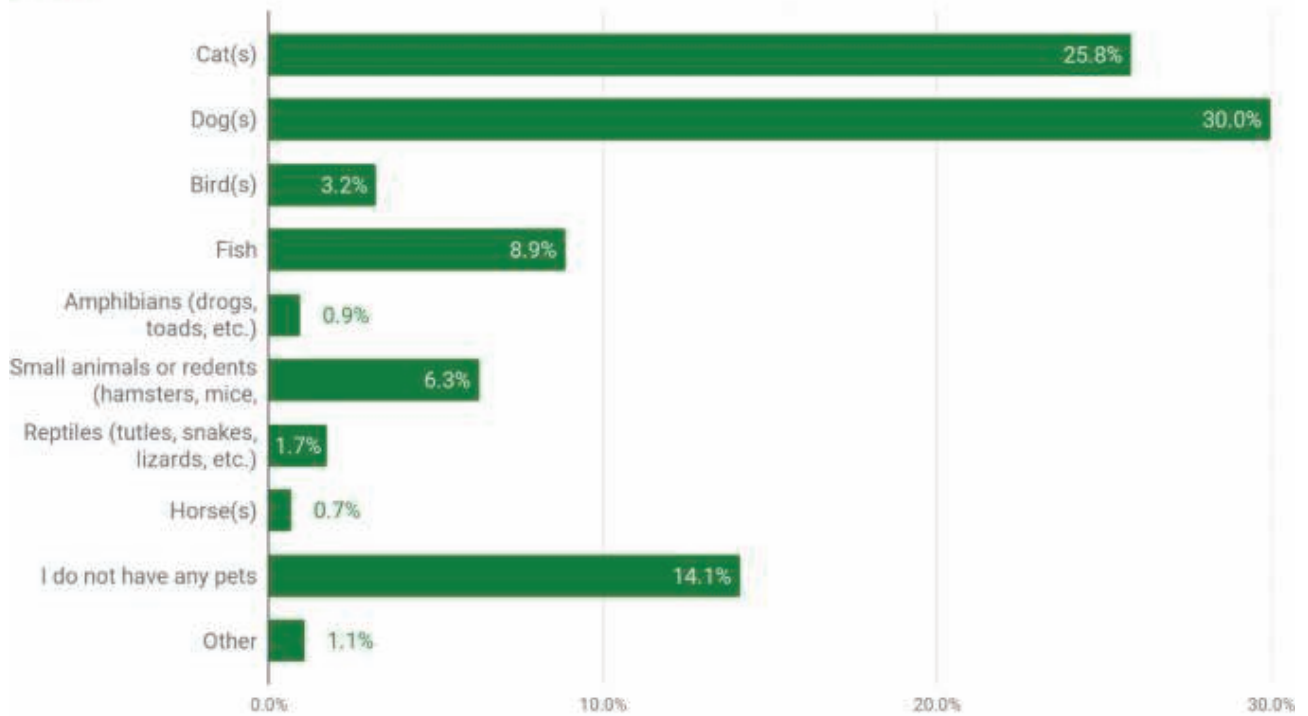


Adults in household



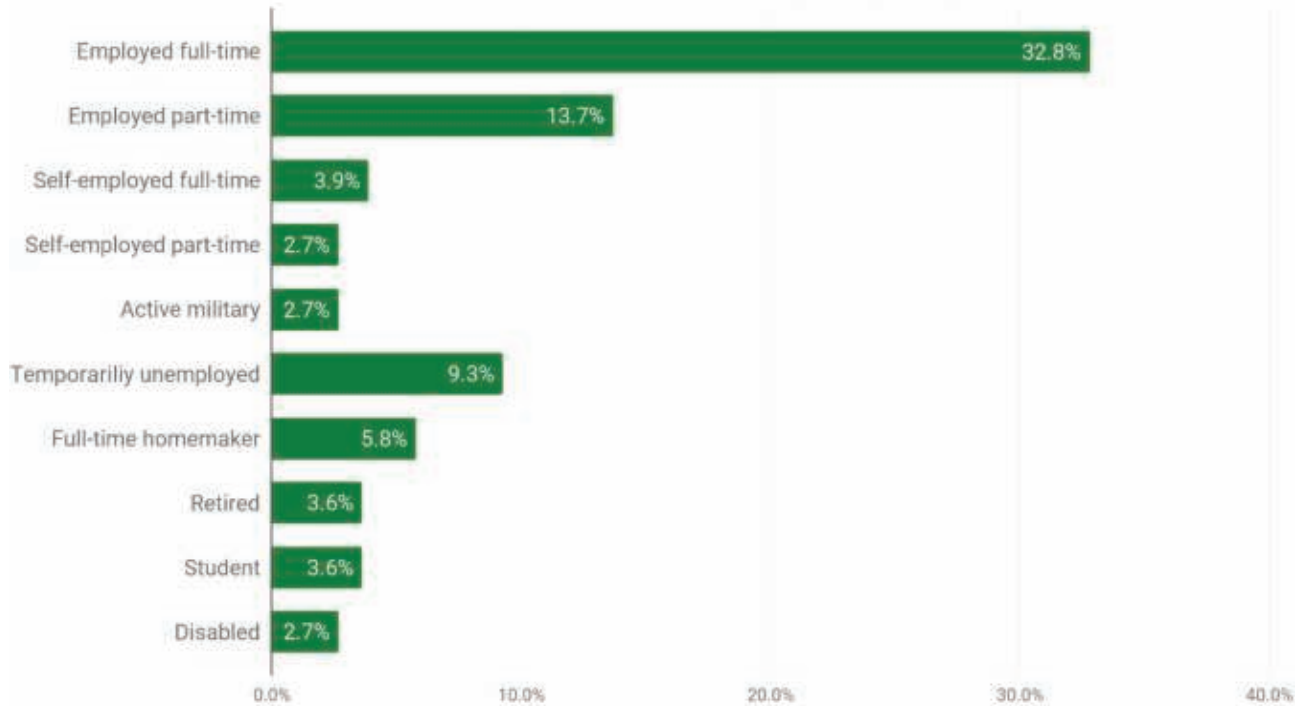
Close-ended question | Single Choice | N=744 |

Pets



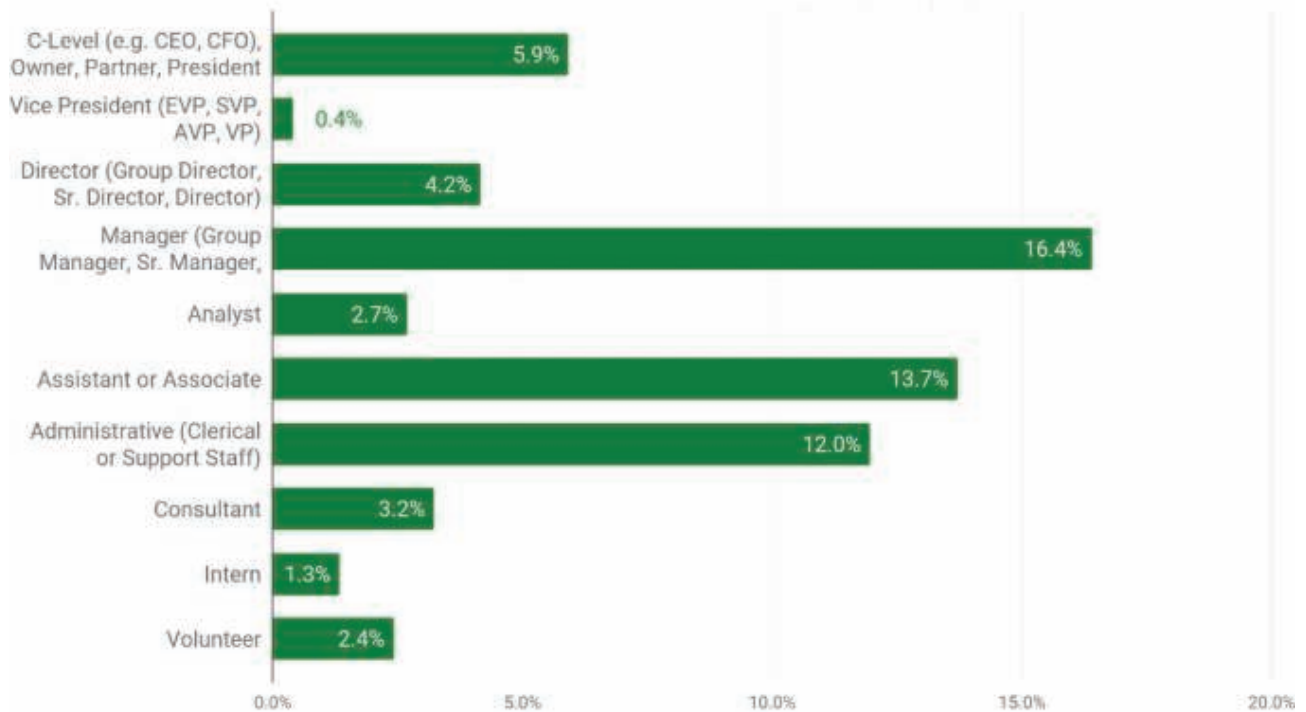
Close-ended question | Single Choice | N=744 |

Employment type



Close-ended question | Single Choice | N=744 |

Professional experience



Close-ended question | Single Choice | N=744 | None: 36.3%

Definition of cultured meat

What is cultured meat? Cultured meat refers to meat grown directly from cells. By cultivating cells to produce meat, fish, and seafood, the raising and slaughtering of animals can be avoided. In order to produce meat and seafood, stem cells are first sampled from animals through a biopsy. These cells are then fed with nutrients in large vats, also known as cultivators, where they multiply and differentiate. As they grow, they become muscle tissue, which is the main component of meat. The aim is to provide people with animal-based products that they know and like, but with numerous human health benefits, a lighter impact on the environment, and a reduction in animal use and slaughter.

Lab-based pictures



Food-based pictures





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