

# Chewing it over

Public attitudes to alternative proteins and meat reduction

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**SMF**

**Social Market  
Foundation**

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Kindly supported by



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## EXECUTIVE SUMMARY

### **This report, looking at the politics of meat reduction, is the second of three exploring the potential impact of alternative proteins on animals**

- Alternative proteins could dramatically reshape our food systems, and significantly reduce the animal suffering involved in intensive farming. This report is the second of three investigating the likelihood and potential of such change.
- The first investigated the state of farmed animal welfare, and concluded reducing the consumption of intensively farmed chicken should be the immediate primary focus.
- The third will look at how far alternative proteins can promote higher animal welfare, and how likely they are to succeed.
- This report seeks to understand public attitudes to animal welfare, meat reduction policies and alternative proteins, to better understand the political constraints and opportunities for change, by means of:
  - A thorough literature review
  - A nationally representative survey of 1,500 people
  - Six focus groups containing people with differing attitudes to meat.

### **Politicians see the topic of meat reduction as politically toxic**

- Though many policymakers recognise the imperative to reduce meat consumption to improve animal welfare, public health and to protect the environment, they are reluctant to say so too loudly for fear of political backlash.
  - The government-commissioned National Food Strategy set a target of reducing meat consumption by 30% over a decade, but this has not been taken forward.
  - Indeed, British politicians have lined up to reject the possibility of a meat tax, despite no serious proposal being raised for such a policy.

### **In fact, public opinion is in many ways ahead of Westminster – most people agree with meat reduction in principle**

- Meat reduction is not a fringe goal or idea – it is endorsed by over half the UK population:
  - 57% of the country believe that most people should eat less meat, while only 16% disagree.
  - 58% of people have taken steps to eliminate or reduce their own meat consumption.
- They are motivated by animal welfare, health and environmental concerns – which often go together.
- There is no doubt that animal welfare concerns are widely shared:
  - 83% say they care about farmed animal welfare
  - 61% have some discomfort with the way animals are treated on farms.

## **There is less consensus that meat reduction ought to be a political focus**

- 43% of people believe that the government should encourage people to eat less meat, but 34% disagree with that notion.

## **Public opinion gravitates towards educational and labelling interventions and is hostile to meat taxes**

- The public tends to prefer ‘softer’ measures like public education and labelling:
  - 74% would support government-mandated animal welfare labels on meat products.
  - Polls also suggest strong support for teaching school children about farmed animal welfare.
- Yet these policy interventions *alone* are unlikely to achieve dramatic reductions in meat consumption:
  - While there is evidence to suggest that welfare labelling can shift purchasing behaviour, evidence from other domains (like alcohol and junk food) suggests it has less impact than affordability.
- The idea of a meat tax is particularly unpopular:
  - 69% would be against such an initiative.
  - In any case, the impact of a meat tax on animal welfare is ambiguous - while it would be likely to reduce meat consumption, it could shift purchases from higher-welfare beef and lamb to lower-welfare chicken.
- By contrast, people are more open to subsidising plant-based alternatives: 58% would support a 20% subsidy, with only 21% against.

## **There is, however, substantial appetite for stricter regulatory standards for farm animal welfare**

- There is some confusion over how farm animals are currently treated. People do recognise that chickens face particularly poor conditions, but understanding is limited:
  - 36% say that chickens are generally not well treated, compared to 16% for beef cattle.
  - Yet only 16% believe most farm animals are poorly treated, despite the fact that chickens account for the vast majority of farm animals.
  - Moreover, 34% of people believe treatment of broiler chickens is good.
- Even so, there is widespread support for tougher animal welfare standards:
  - 91% say they would prefer stricter policies in this area.
  - 59% would favour a ban on all ‘factory farming’, including 31% of ‘Meat Lovers’.
- Many would be willing to accept stronger regulation, even if it increased prices:
  - 66% say they would pay more for meat from higher-welfare animals.

## There is a particular risk that chicken is seen as less unhealthy and environmentally problematic than other forms of meat

- Despite some appreciation of the greater suffering involved in chicken consumption, it is regarded as healthier and less environmentally damaging:
  - 75% of people think chicken is a “healthy” food, compared to 34% for beef and 27% for pork.
  - 25% think chicken is bad for the environment, compared to 55% for beef and 42% for pork.

## One in five people are hardcore Meat Lovers – the other 81% are ‘persuadable’

- We segmented the UK population according to its views on animal welfare and meat reduction policies.
- **19% are Meat Lovers:**
  - They are more likely to be men, middle aged (average age 50), and to vote Conservative, with 50% university educated.
  - They generally tend to view animal products as healthy and environmentally unproblematic.
  - Yet 27% of people in this group still say they have some discomfort with the way animals are treated on farms, and nearly a third want to ban factory farms.
- **12% are Animal Lovers:**
  - 58% are vegetarian or vegan, and 96% have made some effort to avoid or limit meat.
  - 70% are women and 63% are university educated. They are typically middle aged (48 years on average) and they are most likely to vote Labour.
  - They are disproportionately drawn from both high and low-income groups (as opposed to middle income).
- **32% are Animal Sympathisers:**
  - Only 6% are vegetarian or vegan, but they tend to have pro-animal views – 83% have tried to reduce their meat consumption.
  - They are disproportionately likely to have high or low incomes but are less likely to be in middle income brackets. Their average age is 47.
- **37% hold no strong views**, and are broadly reflective of the general population in terms of gender, age and income.

## Alternative proteins can play a role in helping people to eat less meat – particularly Animal Sympathisers

- Alternative proteins are already helping some consumers to reduce their meat consumption, but only 26% say they are satisfied with the existing products on the market.
- Existing plant-based products are seen as convenient, though with some qualms over taste and major concerns over affordability:
  - 45% say plant-based meat alternatives are convenient.
  - 37% say they are tasty; 34% say they are not.



- 44% say they are not affordable, compared to 28% who say that they are.
- Nevertheless, most people are amenable to government subsidy and investment in alternative proteins:
  - 52% of people are not enthused about existing products, but would be open to eating them in the future.
  - 62% would favour public investment in research to develop better alternatives.
  - 58% support price subsidies for alternative proteins.
- People with a more positive view of alternative proteins tend to be more supportive of meat reduction policies:
  - For example, 28% of those who believe plant-based meat is tasty would support a meat tax, compared to just 6% who do not find plant-based meat tasty.

### **However, they will have to overcome suspicion – particularly of cultivated meat**

- People are ambivalent about the health impact of alternative proteins:
  - 49% of people regard plant-based meat as healthy.
  - However, there is substantial concern over its processed nature, and a lack of trust in the food industry more broadly.
- There is also significant scepticism of cultivated meat in particular:
  - Only 39% would even try cultivated meat and only 22% would be willing to buy it.
- However, cultivated meat may be particularly attractive to ‘swing’ consumers seeking to reduce their meat consumption:
  - 55% of Animal Sympathisers say they would try cultivated meat.
  - By contrast Animal Lovers (31%) were even less likely to try cultivated meat than the ‘No Strong Views’ group (35%).

## CHAPTER ONE – INTRODUCTION

Meat feels like a sensitive subject to many people – certainly to politicians wary of opening another front in the culture wars. Many policymakers, particularly those in more expert or technocratic positions, are convinced of the need to reduce our consumption of animal products to improve animal welfare, improve public health and protect the environment. At the same time, what people choose to eat is seen as a personal decision, freighted with cultural significance, which leads to a reluctance to intervene or even criticise.

The tensions this generates are reflected in the government’s failure to take forward the recommendation of the National Food Strategy, which it commissioned, for a 30% reduction in meat consumption over 10 years. The views of George Eustice, until recently Secretary of State for Environment, Food and Rural Affairs, are fairly typical. Despite having endorsing the view that “we should be eating higher-value meat, meat that costs more money, and probably a little bit less of it”, Eustice ruled out government action to bring about such a shift in eating habits.<sup>1</sup> Before the House of Lords Environment and Climate Change Committee last year, he was insistent that “we are not telling people that they should not eat meat”, and argued against public information campaigns because “We are ultimately omnivores in our natural state”.<sup>2</sup> The spectre of taxes on meat have been a particular lightning rod in recent years, with politicians lining up to reject the policy – among them Boris Johnson<sup>3</sup>, Liz Truss<sup>4</sup> and Michael Gove<sup>5</sup> – despite no serious proposal for a tax having been raised.

The hesitancy of British politicians is understandable given the experiences of some of their foreign counterparts. In 2021, the mayor of Lyon sparked protests and was accused of risking children’s health by the central government when schools in the city shifted to meat free days.<sup>6</sup> Last year, the Spanish government distanced itself from comments made by its own consumer affairs minister, Alberto Garzón, criticising the environmental and animal welfare consequences of factory farming.<sup>7</sup> In the US, President Biden was attacked by Republicans on the basis of untrue claims in the *Daily Mail* that he was planning to limit Americans to a burger a week as part of his climate plans.<sup>8</sup> Public debate in Germany, where three ministers have encouraged citizens to eat less meat, seems to be more measured, but it is the exception rather than the norm.<sup>9</sup> Even in the Netherlands, where the government seems to have been more willing to openly countenance a shift towards plant-based proteins, going as far as to produce a national proteins strategy, efforts to reduce nitrogen emissions by restricting livestock farming have drawn fierce resistance.<sup>10</sup>

Alternative proteins – proteins produced from plant or animal cells, or by way of fermentation – have the potential to break through this morass, as we suggested in a previous SMF paper.<sup>11</sup> Supporting the development of more alternative protein options could help reduce the consumption of conventionally produced animal products through the power of consumer choice rather than regulation. It could also make restrictions more palatable to the public. Equally, there is no guarantee that alternative proteins will not be politically divisive themselves. In 2019, Greggs’ vegan sausage rolls sparked a mini culture war.<sup>12</sup> Things are rather more serious in Italy, where the far-right government has proposed an outright ban on cultivated meat,<sup>13</sup> and Turkey, which has issued an outright ban on plant-based cheese products.<sup>14</sup> A common method of pushing back on plant-based proteins centres around nomenclature by preventing them from using terms like “sausage” or “bacon” – with such a proposal being rejected at EU level in 2020, but passed in France last year.<sup>15</sup> The South African government has seized products from supermarket shelves for using such descriptors.<sup>16</sup> A recent report in the *Times* suggested that the UK government is to consider similar restrictions on plant-based dairy alternatives, preventing them from using terms like “mylk” and “sheese”.<sup>17</sup>

This report is the second in a series of three exploring the potential of alternative proteins to improve animal welfare. The first, published in May, explored the current state of animal welfare in food production in the UK.<sup>18</sup> It concluded that the most practical and tractable way to think about animal welfare is to identify factory farming – the use of highly intensive methods – with lower welfare. This approach implies that farm animal welfare is overwhelmingly an issue of intensively farmed meat chickens: of the 155 million factory farmed animals in the UK at any given time, 98% are poultry. Moreover, the vast majority of meat chickens reared for slaughter – some 95% – are factory farmed.

This second report explores the political opportunities and challenges around reducing those numbers. It seeks to improve our understanding of public attitudes to animal welfare, efforts to reduce meat consumption and alternative proteins, and how they vary across different social groups. In other words, we want to see how far policymakers’ fear and caution around the politics of meat is justified, and how far alternative proteins could help them make progress.

We did this by means of a thorough review of existing academic, consumer and opinion research on attitudes to farmed animal welfare, meat reduction, alternative proteins and government policy in the area. We also conducted a nationally representative survey of 1,500 people and carried out six focus groups with 37 participants, reflecting the range of different attitudes to meat and animals.

The third report, still to come, will look specifically at how alternative proteins can help to improve animal welfare in the UK – how likely they are to displace meat consumption, what sort of consumption they displace, and how supporting alternative proteins compares to more traditional animal welfare measures.

Before that, this report is structured as follows:

- Chapter Two describes the findings of our literature review.
- Chapter Three outlines what we have learned from our primary research about public attitudes to animal welfare and meat reduction at an aggregate level.
- Chapter Four discusses how far these views translate into desire for *political* action, again at the aggregate level.
- Chapter Five then explores how attitudes vary between how different types of people think about these issues, presenting the findings of our segmentation analysis.
- Finally, Chapter Six looks specifically at attitudes to alternative proteins, and how they might influence the politics and policy of farmed animal welfare in the years ahead.

## CHAPTER TWO – LITERATURE REVIEW

We conducted a literature review to investigate the British public's views on four topics: (a) farmed animal welfare, (b) meat reduction and vegetarianism, (c) alternative proteins, and (d) public policy to improve farmed animal welfare. We reviewed sources from academic and grey literature, and present our findings here.

Overall, we found that people are generally supportive of animal welfare when asked, but are not very knowledgeable about the issue and may not think about it often. Three key motivators for reducing meat intake emerged: health concerns, animal ethics and environmental impacts. In general, health concerns tend to be the most frequently cited factor, particularly with regards to red meat, though animal and environmental concerns may be more likely to prompt dietary change. Availability and price are barriers to people buying alternative proteins, but the predominant issue is taste. Politically, people are supportive of efforts to improve animal welfare, though they want to balance this with support for farmers and would also like more plant-based options. They are mostly opposed to efforts to restrict meat consumption, such as a meat tax.

The full literature review methodology is available in Appendix 1.

### **Most people are sympathetic to animal welfare, though their understanding is often limited**

In modern society, most people have little direct experience of farming practices, production animals, and slaughterhouses. That leads to a lack of understanding and confusion over farm animal welfare issues.<sup>19</sup> In general, consumers' knowledge about farming and animal welfare issues is relatively low. A 2022 survey found that 74% of British people admit to not knowing anything about industrial meat production, the highest proportion of any of the five countries in which the research was conducted (Brazil, Germany, France and the USA).<sup>20</sup>

When Britons were asked about their understanding of specific practices with regards to the treatment of chickens and cows, approximately 47% of respondents admitted that they are unaware of how often calves are separated from dairy cows on dairy farms in the UK. 62% of the participants expressed uncertainty about the prevalence of beak trimming in laying hens, which is a common practice in the UK, and only 25% knew that beak trimming occurs often.<sup>21</sup> Previous research has found that young people, in particular, display a low awareness of farm conditions and struggle to understand welfare labels – finding it difficult to recognise the differences in treatment and conditions between larger livestock like cows and sheep compared to those encountered by broiler chickens.<sup>22</sup>

Indeed, many consumers choose to remain ignorant of the conditions that farm animals face, trying to avoid learning unpleasant facts or consciously trying to dissociate meat from its animal origin.<sup>23</sup> This ‘wilful ignorance’ is also reflected in people’s selective concern for the well-being of some types of animal use over others. The more necessary or inevitable people deem animal use, the less likely they are to ascribe mental capacity and animal welfare concern for the animal. Animals used for medical research are typically shown the least concern, farm animals slightly more, and those used in cosmetic testing and hunting receive the greatest concern. Familiarity also matters – those with pets and personal experience with a particular animal species are less comfortable with using them for meat or research.<sup>24</sup>

Evidence also suggests there is a tendency to link animal welfare to other food concerns, and to assume that if a product is high welfare it must be good in other respects. Animal-friendly products are perceived as healthier, safer, tastier, more hygienic, authentic, environmentally friendly, and ‘traditional’.<sup>25</sup> Schmiess and Lusk suggest that providing reliable information on management and housing conditions of farmed animals could increase willingness to pay more for welfare-friendly options.<sup>26</sup>

Polling data collected over the past 20 years indicates a significant increase in public sympathy towards animal welfare in the UK. In 2002, less than 1% of voters reported animal welfare to be an important issue motivating their voting decisions.<sup>27</sup> By 2014, that had risen to 14%, and 45% said that factory farming should be included in every political party’s manifesto.<sup>28</sup> It should be noted, however, that in 2014 only 5% considered animal *rights* to be a priority.<sup>29</sup> This figure has remained consistent over time: in a 2017 poll, 5% of voters said that animal rights is a significant issue to them, and 9% said politicians do not talk enough about it.<sup>30</sup> It is unclear how far the greater value people place on welfare than rights reflects a genuine philosophical difference, or is merely a framing effect or a consequence of the associations people have with those words.

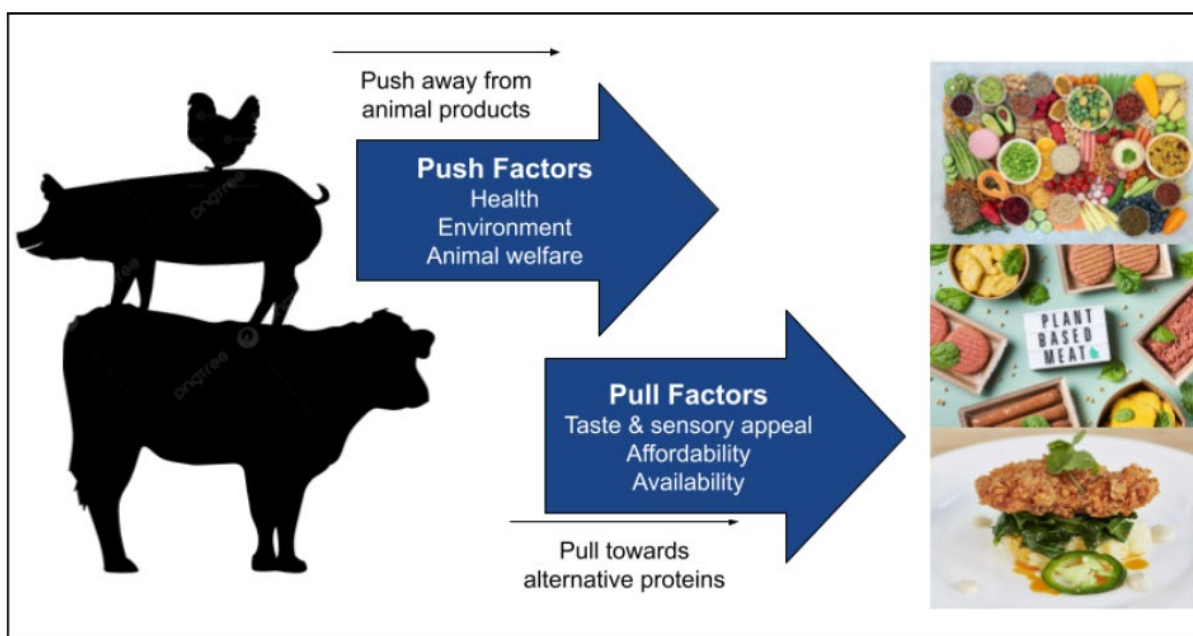
More broadly, polling shows support for greater animal welfare education. A 2020 survey of Scottish adults found that 63% were in favour of including animal welfare in the school curriculum.<sup>31</sup> The RSPCA’s Kindness Index, based on a 2022 survey, found 84% of British people in favour of the move, with 72% believing it would enhance students’ comprehension of their actions’ impact on animals.<sup>32</sup>

Support for animal welfare policies crosses political divides. When it comes to animal welfare in education, 72% of Labour voters, 71% of Scottish National Party voters and 51% of Conservative voters in Scotland said they were in favour.<sup>33</sup> Another poll found that 43% of 2019 Conservatives voters, 51% of Labour voters, 51% of Liberal Democrats and 61% of Green Party supporters “strongly agreed” that the government should pass more laws to protect animal welfare and reduce animal cruelty.<sup>34</sup>

## Health, environment and animal welfare concerns are ‘push factors’ away from animal products

A 2017 paper by Joop de Boer and Harry Aiking presents a compelling framework for thinking about shifting diets, distinguishing between factors which ‘push’ consumers away from animal products, and those that ‘pull’ them towards alternatives.<sup>35</sup> In this section and the subsequent one, we consider three of the most important push factors (health, environmental considerations, and concern for animal welfare) and three of the most important pull factors (taste and sensory appeal, affordability, and availability).

**Figure 1: Push factors (away from animal products) and pull factors (towards alternatives)**



Source: SMF analysis

The reasons why individuals choose to be vegan or vegetarian or to reduce meat consumption vary and often overlap with one another. A review of polling data in the UK reveals three key motivators for adopting plant-based eating behaviour: personal health, environmental concerns, and animal ethics.<sup>36</sup>

In one survey, 35% of UK adults said they reduced their meat consumption due to animal welfare, whereas 56% attributed it to their concern for the environment.<sup>37</sup> However, a separate study revealed that, for those that would consider reducing their meat consumption but have not yet done so, health benefits were the most common factor – 41% cited health, compared to 22% for helping improve animal welfare and 15% for environmental impact.<sup>38</sup> This would seem to indicate that motivations for curbing meat consumption vary based on whether one is already engaging in meat reduction or merely considering doing so. In other words, the motivations of people who actually reduce their meat consumption may vary from those of people who do not. Looking specifically at self-identified vegans, 55% of vegans say they do not eat animal products for environmental reasons, 44% for health reasons, and 34% for ethical reasons (39% also cited religious reasons).<sup>39</sup> While environmental considerations are common motives for switching towards a more plant-based diet,<sup>40</sup> such concerns are generally cited less frequently than health or animal welfare.<sup>41</sup>

## Health

Though environmental and animal welfare considerations tend to hold more sway over those that have *already* decided to reduce meat consumption<sup>42</sup>, health might be an important ‘push’ factor to encourage ‘veg curious’ consumers to make the change.

The majority of the findings on public attitudes toward the benefits of plant-based eating reveal human health to be a top priority among consumers, which holds for both plant-based eaters and omnivores, including flexitarians.<sup>43</sup> Survey data collected from consumers that identify as vegan and vegetarian found that the primary reasons for plant-based uptake that emerge tend to be health reasons. When current vegans were asked about what impact adopting a plant-based diet has had on their health, approximately 70% report an improvement.<sup>44</sup> Another recent survey examining the attitudes of Britons across a range of dietary profiles said that ‘health benefits’ were the number one factor for considering a switch (41%).<sup>45</sup> In general, when consumers are asked what drives their food purchasing behaviour, health is among the most frequently cited factors. In a report commissioned by the Food Standards Agency, 63% of people agreed they are ‘prepared to make big changes to their lifestyle in order to be healthier’.<sup>46</sup> This may represent an action-intention gap to some extent, since most research finds taste and price to be the most important factors in food choices in practice.

When it comes to people reducing their dairy consumption, health was listed as the top priority (74%), with animal welfare playing less of a key role (40%). In one study, 60% of people switching to dairy alternatives cited the health benefits, compared to 32% motivated by animal welfare.<sup>47</sup> However, animal welfare seems to be of more importance among younger consumers.<sup>48</sup> Nearly one-quarter of individuals who report they have actively decreased their meat and dairy intake state that this change is related to animal welfare concerns.<sup>49</sup> In another study, 54% of meat alternative consumers and 46% of dairy alternative consumers cited health as their main driver. The comparable figure was 26% for animal welfare.<sup>50</sup>



Evidence for the association between plant-based meat and health was also apparent in an online survey conducted with German and UK meat eaters investigating consumers' opinions of pea and algae burgers compared to the traditional beef burger in terms of taste, health, and environmental friendliness. Pea and algae burgers were expected to be less tasty, but were preferred because they were seen as healthier.<sup>51</sup>

### Environment

There remains some resistance to meat reduction efforts when they are framed as environmental measures. In recent polling of British citizens' attitudes toward net-zero initiatives, 43% supported government messaging to curb meat consumption. However, measures to increase the price of meat and dairy products were the least popular option, behind initiatives like moving to lower carbon energy and heating or encouraging recycling.<sup>52</sup>

Insofar as consumers make a connection between agriculture and the environment, the focus is often more on locally sourcing food and reducing food waste than on the carbon intensity of producing the food. In fact, the majority of food's environmental impact occurs before products leave the farm gate, while factors like packaging and transport make up a relatively small amount of the total impact.<sup>53</sup> This means many people underestimate the environmental costs of eating meat, even if it has fewer 'food miles'.<sup>54</sup> When UK households are asked about their perceptions of effective sustainable practices, only 6% of respondents indicated that switching to a vegetarian diet was the best way a household could reduce their emissions – even lower for a vegan diet, at 4% of respondents. Furthermore, these differences vary by political affiliation: 11% of Liberal Democrats agreed that vegetarianism would be one of the most significant actions a household could take to reduce emissions compared to only 6% of Labour voters and 5% of Conservatives.<sup>55</sup>

### Animal welfare

Concerns about animal welfare constitute one of the key 'push' factors for many people. As we saw above, the prominence of animal welfare in consumers' decision making varies quite significantly. One possible explanation for these differences is differences in knowledge and understanding of the moral issues with animal agriculture.

In one qualitative study exploring the motivations of meat reducers, animal welfare and environmental concerns were cited less than personal health and physical wellbeing.<sup>56</sup> Yet these active meat reducers were not well-informed about consumer campaigns related to meat consumption, and less than half of the meat-reducers could accurately recall such campaigns.<sup>57</sup>

Studies indicate that knowledge about animal welfare issues is closely linked to the level of concern people have for animal welfare.<sup>58</sup> People who report having more knowledge about farm animal welfare issues and those who have direct agricultural experience with farm animals are more likely to demonstrate concern for animal welfare and engage in welfare-friendly behaviours. This suggests that education and exposure to farm animals could have a significant impact on attitudes towards animal welfare. When consumers are presented with clear information regarding the state of animal welfare in the farming sector, animal ethics becomes a significantly greater predictor of dietary change compared to environmental and health concerns.<sup>59</sup> That said, it is important to recognise that information alone is not enough to result in substantial behavioural change: for that, we require other mechanisms, such as well-designed policies, and high-quality alternative proteins.

### **Taste, affordability and availability are key ‘pull factors’ that attract people to meat alternatives**

A key theme of this report, as we shall discover in our primary research in the subsequent chapters, is that reducing meat and animal product consumption is mainstream – not a fringe activity, but something fairly widespread and normalised. Previous research bears this out. That said, it is only a relatively small minority that actively *identifies* as vegan or vegetarian. Roughly 3% of British adults call themselves vegan, though this has grown from under 1% in 2016 and approximately 2% in 2020.<sup>60</sup> A further 5% say they are vegetarian, and 3% pescatarian.<sup>61</sup> A 2019 survey found that 13% of meat eaters planned to go vegetarian in subsequent months with 6% intending to adopt a vegan lifestyle.<sup>62</sup> On the other hand, the proportion of omnivores overall has remained generally unchanged across the majority of the UK, with estimates ranging between 60-75% of the general population.<sup>63</sup>

Yet just as significant is the growing tendency of ‘omnivores’ and ‘flexitarians’ to reduce their consumption of animal products, with estimates of flexitarians ranging from 16%-23%.<sup>64</sup> In 2021, over 33% of UK households reported following a reduced meat or meat avoidant diet (vegan to flexitarian). Two separate surveys, one from 2019, one from 2021, found that a quarter of British adults intended to eat less meat in the next 12 months.<sup>65</sup> As of 2022, almost half (46%) of British adults were considering reducing their intake of animal products in the future.<sup>66</sup>

Plant-based alternative foods have been central to this trend. Analysis of the National Diet and Nutrition Survey, a robust sample of more than 15,000 respondents, showed annual consumption of plant-based alternative foods (defined as products designed to mimic the taste and texture of animal-based products) increased from 6.7% between 2008-2011 and 13.1% between 2017-2019. This difference, although not apparently large in relation to the broader population, is a 115% increase in household consumption in less than 10 years.<sup>67</sup> More recent polling data from 2022 puts the number of people eating plant-based alternative foods at upwards of 58% for alternative meats and 48% for plant-based milk.<sup>68</sup> In 2022, the UK spent almost £1 billion on plant-based products. In terms of sales volume, that represents a 6% increase over two years, though it did not match the peak of 2021.<sup>69</sup> The rise of meat eaters opting for plant-based lunches and dinners became particularly salient during the COVID-19 pandemic, soaring by 46% from 2019 to 2020 in the UK.<sup>70</sup>

At the same time, there remains significant wariness and scepticism towards cell cultivated ('lab grown') meat. Surveys have found that the proportion of people willing or eager to try lab grown meat is between around a third and two-fifths.<sup>71</sup> The proportion that say they are unwilling to try it is 49%, and the proportion that see themselves as "not at all likely" to do so is 22%. Around a quarter of those unwilling to try cultivated meat would consider it if they were confident it is safe and/or well regulated.<sup>72</sup>

Gender, age and income are among the strongest predictors of people's attitudes towards alternative proteins. Millennials, women and people in higher income brackets make up the majority of plant-based consumers.<sup>73</sup> In particular, women are considerably less likely to eat meat.<sup>74,75</sup> Men are more open to cultivated meat, however: 24% of them said that they would be more likely to buy it, compared to 9% of women.<sup>76</sup> Given that men are less open to plant-derived alternative protein sources, this suggests that cultivated meat could help reach even the most meat-attached consumers.<sup>77</sup>

Age is also a strong correlate of plant-based eating behaviours. The percentage of people who identify as vegan or vegetarian decreases with age, with 24% of 18-to-24-year-olds identifying as vegan compared to only 4% of those aged 65 and over. This suggests that younger generations are more likely to follow a plant-based diet, while older generations are less likely to do so.<sup>78</sup> Generational differences also emerge when examining attitudes toward both meat-reducing behaviour and alternative proteins. People aged over 55 are significantly less likely to say they would buy cultivated meat,<sup>79</sup> or, more generally to be open to changing their eating habits.<sup>80</sup> By contrast, people aged 25-35 are more likely to believe that vegetarianism and veganism are the best routes to lowering household emissions.<sup>81</sup>

### Taste and sensory appeal

Most people that are unlikely to consider switching to a plant-based diet say it is for a simple reason – taste.<sup>82</sup> When considering the factors dissuading consumers from purchasing plant-based alternatives to animal products, sensory properties such as texture and taste play a significant role in consumer attitudes.<sup>83</sup>

In one study, participants that expected the plant-based burgers to be less tasty tended to have greater personal meat commitment, more negative attitudes towards vegetarians and vegans, and higher food neophobia (fear of new foods).<sup>84</sup>

This is true not only for meat substitutes, but also for other animal protein alternatives such as plant-based eggs and dairy alternatives. Research examining preferences and perceptions of vegan eggs in a large sample of UK consumers found that key determinants of purchasing intentions centred around the intrinsic and extrinsic qualities of the product such as taste, size, texture and source ingredients.<sup>85</sup> These tendencies are linked to age. Younger people score lower on neophobia – that is, they tend to be more open to novel food items.<sup>86</sup> Experts in the plant-based food sector also agree with consumers on the need to technically enhance taste and texture to strengthen the 'pull' of plant-based meat alternatives.<sup>87</sup>

Issues of taste cut both ways, though. In a 2021 survey of British vegans, nearly a quarter said they gave up animal products out of taste preference.<sup>88</sup> Given these results, further research should probe which sources of alternative proteins or brands are rated as most appealing, as well as the intrinsic properties such as texture and meat familiarity, particularly those that align consensus between vegetarians, vegans and meat eaters.

Taste may also be linked to perceptions of health, given that individuals with higher levels of neophobia reported a lack of trust in the nutritious profile of certain meat alternative brands.<sup>89</sup> This may be further explained by the research showing older adults tend to have higher rates of distrust and disgust of novel foods.<sup>90</sup> Older vegans tend to prioritise plant-based eating for health reasons.<sup>91</sup> Mixed findings regarding the strength and relevance of taste and health as both a promoter and detractor for meat alternatives could be partially explained by differences in materials and production techniques used in plant-based alternatives. Products perceived as less ‘natural’ may be off-putting to older consumers and in particular those with greater neophobia.<sup>92</sup>

### Affordability

Price is regularly cited alongside taste as a barrier to reducing animal product consumption. In a survey of British consumers, 33% said that price was the main obstacle to eating more meat and dairy alternatives, more than the 27% listing taste.<sup>93</sup> These findings from consumer research are mirrored in expert analysis. For instance, a 2022 report commissioned by Innovate UK similarly concluded that affordability is a key barrier to plant-based products matching repeat purchase rates for conventional meat products.<sup>94</sup>

A survey of meat eaters in the UK found that 31% are currently reducing their consumption of meat in order to cut grocery costs, and another third would consider doing so in the future in order to save money.<sup>95</sup> Yet for many people, this shift has not succeeded in cutting costs: half of those that have reduced their meat intake say their bills have gone up. Only 18% find it to be cheaper.<sup>96</sup> Another survey from 2022 found that 33% of meat eaters say plant-based alternatives to meat and dairy are priced too high.<sup>97</sup> As we have already seen, consumption of plant-based alternatives is highest among higher-income consumers.<sup>98</sup>

However, this does not necessarily imply that meat reduction is the preserve of rich people. A 2018 survey found that those on low incomes are more likely to follow flexitarian and vegetarian diets (8%), compared to high income households (6%).<sup>99</sup> Vegans are also more likely to come from poorer households – one analysis found that 32% of vegans are low income, while low income households represented 27% of the country.<sup>100</sup> 21% of vegans say they are struggling with their grocery bills – higher than the 15% overall figure.<sup>101</sup>

One explanation for these mixed findings is that, although those on a lower income may make up a greater proportion of vegans and vegetarians, these individuals are likely consuming mostly legumes, pulses or soy as opposed to processed meat substitutes. This makes sense, given the relative affordability and accessibility of these sources of plant protein.<sup>102</sup>

## Availability

Availability is another major obstacle to the uptake of alternative proteins, the second most cited deterrent in a 2020 survey.<sup>103</sup> Researchers have found that new vegetarians and vegans report the transition to be difficult when they lack sufficient knowledge and skills concerning food preparation.<sup>104</sup> Another factor to consider is the perceived lack of available and appetising options when eating out. When it comes to ease of access, meatless eating is rated poorly on convenience.<sup>105</sup> If food retail and menu options are dissatisfying to consumers in terms of taste preferences, this may also serve as a social barrier to vegan and vegetarian eating. Indeed, a significant proportion of UK vegans and vegetarians report receiving push back from friends and family – 48% of vegans reporting they face some hostility.<sup>106</sup> Other personal factors such as cultural attachments which may lead to difficulty in ‘veganising’ familiar foods are also worth considering within the context of informational and social access to plant-based eating. For instance, food production, preparation, and consumption have shown to be embedded in sociocultural contexts, transmitted from family and friends as a means of social organisation and connection.<sup>107</sup>

For many people, ‘pull factors’ in favour of alternative proteins such as taste, affordability and accessibility are not yet strong enough. That creates a challenge for individual consumers seeking to eat less animal products, and for policymakers seeking to drive societal change.

## British people are wary of government policies to reduce meat consumption that restrict choice

In terms of policy preferences, British people consistently tell pollsters that animal welfare is a critical consideration in the food system,<sup>108</sup> and there is strong sympathy for the economic interests of British farmers. For example, a 2021 survey asking people to rank different priorities for the UK’s trade deal with Australia found that the most popular responses were protecting British farmers and ensuring high animal welfare standards, which were considered more important than limiting environmental impact and keeping prices low. Polling on the trade deal found strong resistance to importing animal products deemed lower welfare, such as beef treated with hormones, eggs from hens kept in battery cages, and pork from pigs kept in sow stalls.<sup>109</sup> However, despite public concern, the UK government allowed the import of lower-welfare products, including battery caged eggs from countries with lenient welfare policies, as part of the new Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP).<sup>110</sup>

People are far less amenable to policies actively seeking to reduce meat consumption. The public is wary of government action that makes it more difficult to access animal products – especially taxes – and much more favourable towards efforts to offer more alternatives. For instance, when survey respondents were asked to judge the relative fairness of various sustainability-related policy measures, increasing access to vegan and vegetarian food options was rated highest, whereas meat and dairy taxes were perceived as the least fair.<sup>111</sup>

Opposition towards a meat tax is apparent across multiple sources of polling data in the UK. Survey data from 2021 collected public attitudes toward multiple policy measures aimed at reducing meat and dairy consumption. When asked to what extent individuals would support or oppose the introduction of a meat tax, 55% said they would oppose the measure.<sup>112</sup> In a follow up survey, polling respondents showed similarly unfavourable views when asked more specifically whether they would support or oppose ‘an additional tax of 8% on meat, dairy and eggs, where the proceeds of the tax are used to make fruit, vegetables and other plant-based foods and meat alternatives cheaper’. More than half of the public opposed this measure (59%). In contrast, when asked if they would support government and food retail campaigns to promote the benefits of plant-based eating, 55% showed support. Nearly half (45%) said they would back a policy requiring at least 30% of menu options to be plant-based by 2025 in publicly funded establishments.<sup>113</sup> In general, then, attitudes are less favourable to interventions framed in terms of ‘restriction’ (like taxes) than those that expand options, for instance greater investment in plant-based substitutes or lowering costs on plant-based substitutes.

In short, people want more choice, not less.

Somewhat counterintuitively, this opposition to a meat tax is not necessarily bad for animals. Since any tax on meat would be most likely to be introduced on the basis of environmental impact or nutritional content, it would be likely to fall more heavily on red meat, and could increase consumption of chicken and fish instead.

## CHAPTER THREE – PUBLIC ATTITUDES TO ANIMAL WELFARE

The remaining chapters of this report focus on the findings of our primary empirical research on UK attitudes towards animal welfare, meat reduction, alternative proteins, and related policy. Our primary research consisted of:

1. A nationally representative survey
2. A series of focus groups to further explore the views of specific segments.

For the survey stage, we recruited a representative (age, gender, political party) sample of 1,501 UK residents from Prolific, a platform where people can sign up to take part in online research. Participants were each paid £1.85 to take part in a 12-minute survey, which was hosted on Zoho, an online survey platform. The full survey instrument is available in Appendix 2.

We removed participants who (a) failed one of three attention checks;<sup>i</sup> (b) took less than five minutes to complete the survey; (c) took longer than 30 minutes to complete the survey; or (d) had a duplicated Prolific ID. After removals, we then recruited further participants to give a final sample of N=1,501.

The sample was broadly representative of gender, age groups, and political affiliations, and no weighting was applied. For a full breakdown of the sample demographics, see Appendix 3.

As part of the survey analysis, we performed K-means clustering to segment the sample into distinct groups based on their answers to the main survey questions.<sup>ii</sup> This analysis identified four unique groups based on their attitudes towards animal welfare and meat reduction measures, ranging from most to least positive: 'Animal Lovers', 'Animal Sympathisers', 'No Strong Views', and 'Meat Lovers', which we describe in greater detail in Chapter Five. These groups are further examined in terms of their demographics and views on specific issues.

For the focus group stage, we recruited a total of 37 participants spread across six online focus groups. These focus groups reflected the segments of opinion we discovered, with one Animal Lovers focus group, one Meat Lovers focus group and two each of the middle 'swing' groups, Animal Sympathisers and those with no strong views (i.e. they indicated no hostility nor active engagement with animal welfare.)

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<sup>i</sup> The attention check questions are shown in blue highlights in the Survey Instrument (Appendix 2).

<sup>ii</sup> This approach groups responses by minimising Euclidean distances between data points, thereby identifying patterns in the data based on grouping together the most similar responses. For this purpose, 'Don't know' and 'N/A' responses were set to missing values so that they did not influence the clustering. We used pairwise exclusion, which excluded cases with missing data only for specific variables rather than omitting them entirely from the analysis. We specified our target as four clusters, and set the convergence criteria at 0.00001. The resulting cluster memberships were saved as a new variable, enabling us to further examine and characterise these distinct segments for our report.

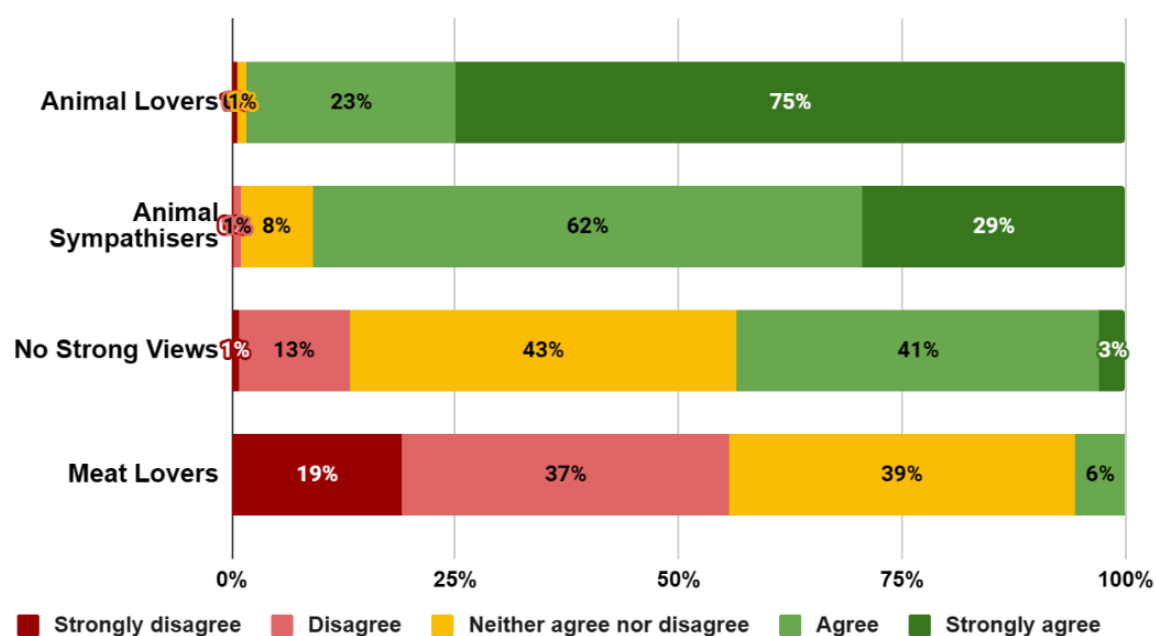
We analysed the findings from the survey stage using descriptive statistics primarily, both for the aggregated sample and for the four specific segments. We supplemented these analyses with insights from the focus groups, which were analysed using content and thematic analysis. The major findings are detailed in the remaining sections of the report.

## Meat reduction is mainstream

Meat reduction is widely seen as culturally divisive and contentious, which helps explain why politicians are so reluctant to discuss measures that could bring down meat consumption. Yet our survey suggests that the majority of British people are on board with the principle of reducing meat consumption, and indeed have taken action to alter their own personal diet. Far from being fringe or radical, the notion that British consumption of animal products is excessive is a mainstream belief.

Figure 2 shows that 57% of people agree with the statement that in general most people should try to eat less meat. Only a minority – 16% – disagree. Moreover, this view is widely held across demographic groups. It is the majority view for all genders and age groups, though women and younger people are more likely to endorse meat reduction.

**Figure 2: “In general, most people should try to eat less meat”**



Source: SMF survey April 2023

These sentiments were reflected in our focus groups, with most participants tending to agree that lower meat reduction would be a good thing:

*“I agree that meat consumption needs to be reduced... there’s no real evidence the government is likely to want to take that on, and that will be the biggest issue on how.” – Animal Sympathiser*

*“We don’t have to eat meat – reducing animal cruelty, preserving different species – we don’t need to eat so much” – Animal Sympathiser*



*“We do need to reduce overall”. – No Strong Views*

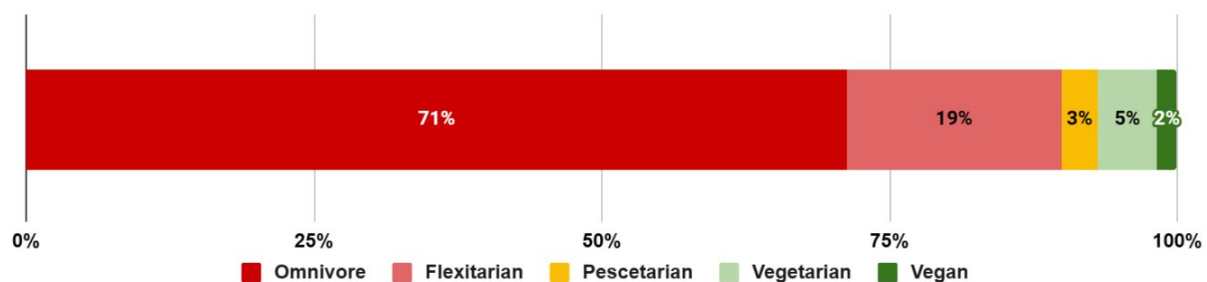
*“They’re sort of talking about this so much more and it is probably permeating down to children now. Be a good thing to do.” – Animal Sympathiser*

Even people who are personally reluctant to change their own diets recognise the broader social imperative. Some are selective about the types of meat they are willing to cut down on – as we shall see, their prioritisation may not reflect animal welfare issues. For example, one person said:

*“Red meat can be unhealthy...so I would be happy to reduce that...” – No Strong Views*

This is not just a vague endorsement of a general goal that other people are expected to take the lead on. What is really striking from our survey is the extent to which people say they have changed their own behaviour. 2% of our sample were self-described vegans (a little lower than the 3% found in other recent surveys). A further 8% were vegetarians or pescatarians, amounting to 10% of people in total who say they have entirely eliminated some form of animal product. Moreover, a further 19% identify as ‘flexitarians’, who consciously try to reduce meat consumption, even while continuing to eat some meat. The 71% of ‘omnivores’ in our survey is at the upper end of the 60-75% range we found in the literature review.

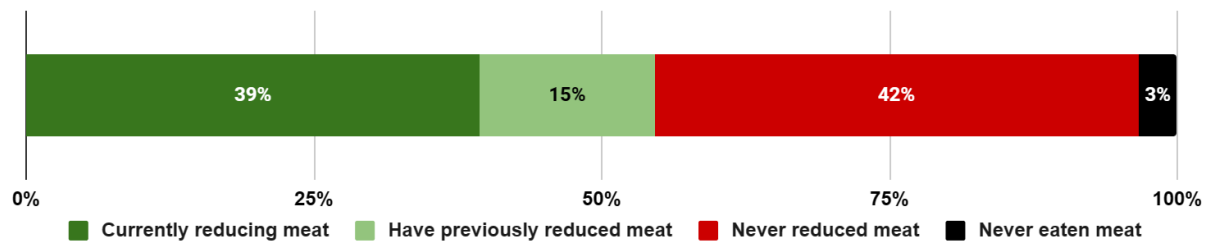
**Figure 3: “Which of the following best describes your diet?”**



Source: SMF survey April 2023

These figures seem to underestimate the extent of meat reduction, however. When we ask people not about their identity, but about their actual behaviour, we find that 58% of people have at some point taken steps to reduce or eliminate meat. This 58% comprises 3% who have never eaten meat, 15% who have previously taken steps to cut down meat but are no longer doing so, and 39% who are currently trying to eat less meat. A large proportion of self-described omnivores fall into this category: 23% are currently trying to eat less meat, and 19% have previously done so.

**Figure 4: “Are you currently trying, or have you ever tried, to reduce your own consumption of meat?”<sup>iii</sup>**



Source: SMF survey April 2023

Many focus group participants discussed their openness to changing their meat consumption, particularly those who had experience with meatless or vegan eating in the past, whether personally or through friends and family:

*“I’ve not gone vegetarian. I still eat meat, but I’m conscious of it. Certain things turn me right off. I didn’t eat lamb for years because I found out exactly how that process works...” – Animal Sympathiser*

*“I’ve got a six year old grandson who’s decided that he’s a vegetarian and his mother went through a phase of vegetarianism ... As a family we’re quite accustomed to cooking and coping without meat.” – Animal Sympathiser*

*“We’re both trying to cut down” – No Strong Views*

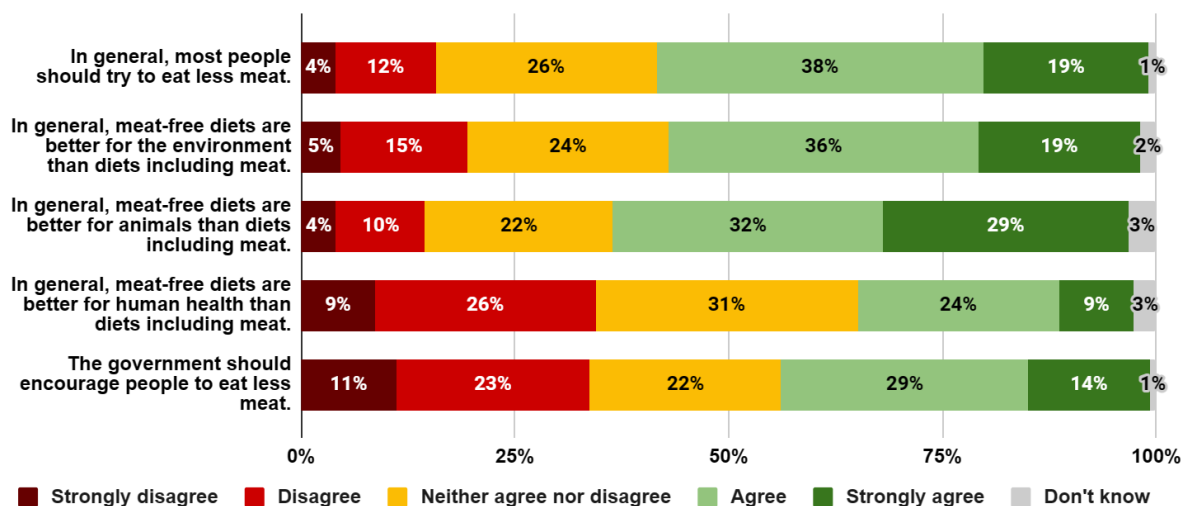
*“There is a balance. I’m happy with that stuff [plant-based substitutes] ... But I also like a bit of meat from time to time ... I think everyone has a right to be an individual, but I do think that animals have a right to be treated well.” – Animal Sympathiser*

### **It is motivated by health, environmental and animal welfare considerations**

As in the literature review, we find that health, environmental and animal welfare concerns all contribute to the desire to reduce consumption of animal products. Figure 5 shows that most people see meat-free diets as bringing benefits: 61% of people believe that meat-free diets are better for animals, and 55% say that they are better for the environment. The proportion that believe meat-free diets are better for human health is lower, at 32%, but this seems to reflect a belief that some meat is good for health, even if most people currently eat too much and should cut down.

<sup>iii</sup> The numbers in the graph do not sum to 100 because of rounding.

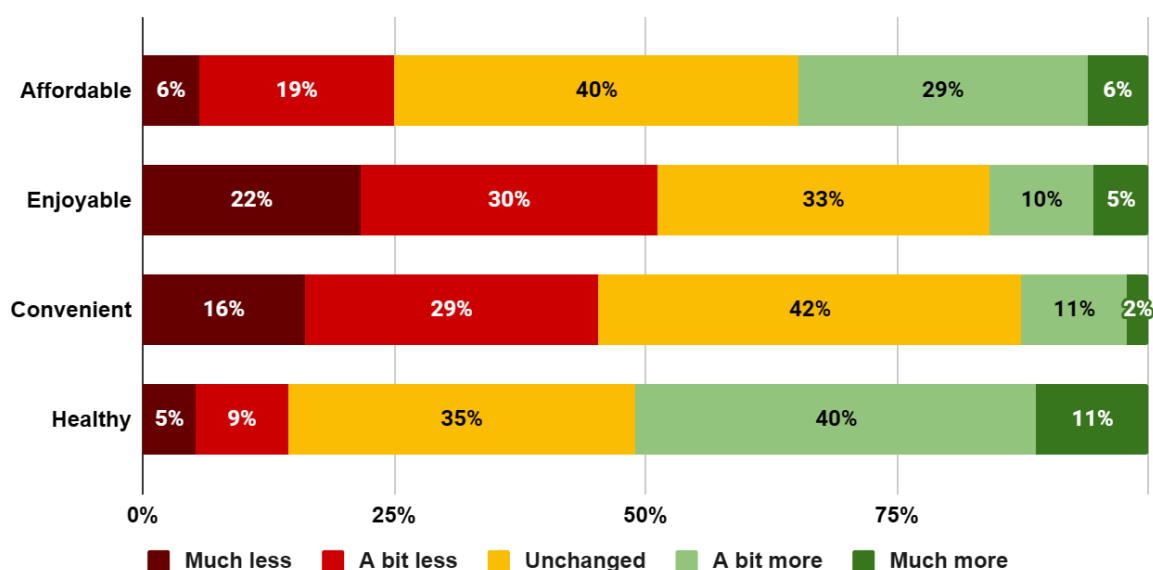
**Figure 5: “To what extent do you agree with the following statements?”**



Source: SMF survey April 2023

That theory is supported by Figure 6, which presents respondents’ views on how reducing their meat consumption would affect their diet. 51% said they think that eating less meat would be healthier for them. It also shows that more people than not believe that eating less meat would be economical: 35% say that reducing meat consumption would make their diet more affordable, compared to 25% who believe it would be more expensive – though as we have seen, this may be over-optimistic. The chart also highlights some of the perceived obstacles to eating less meat. 51% of people think that a lower-meat diet would be less enjoyable, and 45% say it would be less convenient.

**Figure 6: “Reducing my meat consumption would make (or has made) my diet...”**

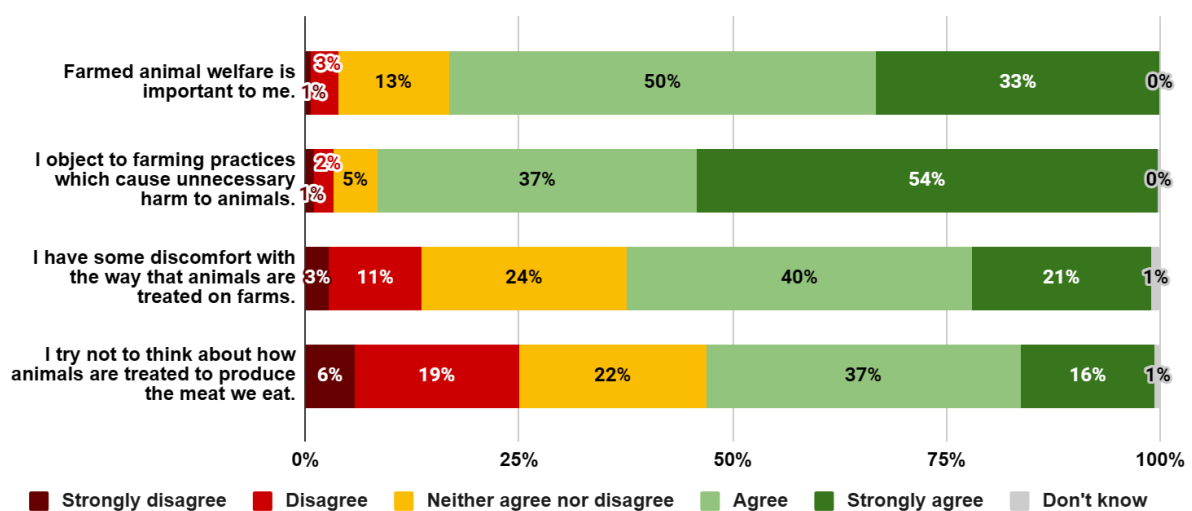


Source: SMF survey April 2023

## Animal welfare concerns are widely shared

As this project is primarily focused on issues of animal welfare, it is worth pausing to explore how frequently expressed and widely held concern for animals is. In our survey, 83% of people claimed that farmed animal welfare is important to them, and 33% ‘strongly agreed’ with the statement. Only 4% were willing to say that it is unimportant. 91% objected to farming practices which cause unnecessary harm to animals. We should treat these stated beliefs with due caution – admitting that one does not care about animals might be seen as socially unacceptable, and people may claim animal welfare is “important” to them without it significantly influencing their attitudes and behaviour. However, at the very least they demonstrate that the UK has clear and widely recognised social norms in favour of animal welfare.

**Figure 7: “To what extent do you agree with the following statements?”**



Source: SMF survey April 2023

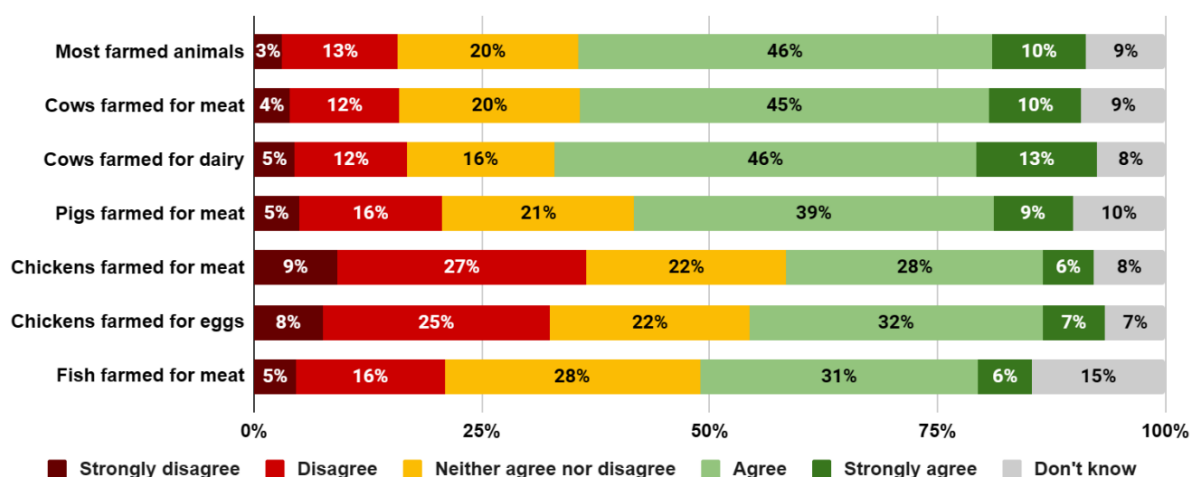
Figure 7 suggests that these concerns around farmed animal welfare do trouble many people. Overall, our survey found that 56% of people believe that on British farms most animals are generally well treated. Nevertheless, 61% of people say they feel some discomfort about the way that animals are treated on farms, and 53% say they try not to think about how animals are treated to produce meat.

As we might expect, there is a relationship between people’s perceptions of farm animal welfare and discomfort around meat. Of the people who believe animals are poorly treated on farms, almost all – 95% of them – feel some discomfort around meat. Perhaps more surprisingly, 47% of people that think farm animals are generally treated well nevertheless still feel uncomfortable about meat. This might be because they retain some concerns about the standards experienced by “well-treated” farm animals, or because meat inevitably involves slaughter. Either way, low level disquiet around the meat industry is widespread.

## There is some awareness of poor treatment of chickens, but there is a risk that chicken is seen primarily as better for health and the environment

A slight majority of people believe treatment of farmed animals in the UK is generally good. As Figure 8 shows, 56% of people believe that most farm animals are well treated. There is some awareness of poorer standards for chickens (an issue we raised in our previous report):<sup>114</sup> 36% of people believe that chickens farmed for meat are not well treated, and 33% believe as much of chickens farmed for eggs, higher numbers than for other farmed animals. At the same time, 34% and 39% believe there is generally good treatment of chickens farmed for meat and eggs respectively.

**Figure 8: “To what extent do you agree with the following statements? In UK farming there is generally good treatment of...”**



Source: SMF survey April 2023

Although people are more likely to perceive chickens as being poorly treated compared to other species, chicken is also generally seen as healthier and better for the environment. As Figure 9 shows, beef is seen as the most environmentally problematic animal product, with a majority of respondents (55%) tending to agree that it is bad for the environment and just 12% disagreeing. Meanwhile, pork is seen as the least healthy animal product, with 35% tending to view it as unhealthy, and just 27% viewing it as healthy. On the other hand, chicken was seen as bad for the environment by just 25% of respondents, and just 5% viewed chicken as unhealthy.

Perceptions that chicken and fish are healthier, in that they constitute ‘white meat’, were expressed by many of the respondents in the focus groups:

*“...Red meat, it can be quite unhealthy. And some products, like sausages and bacon, they're linked maybe to cancer. So I would be quite happy to try and reduce those products and eat more chicken and fish.” – No Strong Views*

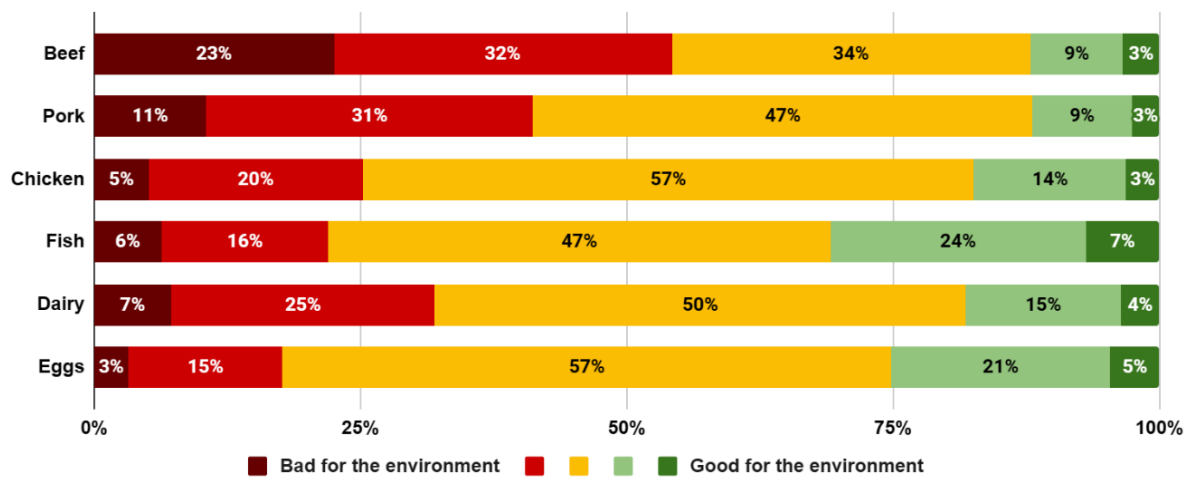
*“Whether a piece of meat or chicken. It's completely natural, isn't it? And it's not been tampered with or I don't know.” – No Strong Views*

*“White meat is slightly healthier.” – Animal Sympathiser*

*“I think what we’ve all been educated, haven’t we, in health terms, is that fish is good, certainly oily fish, good for the heart and all of that, omega oils and all that.”*  
 – Animal Sympathiser

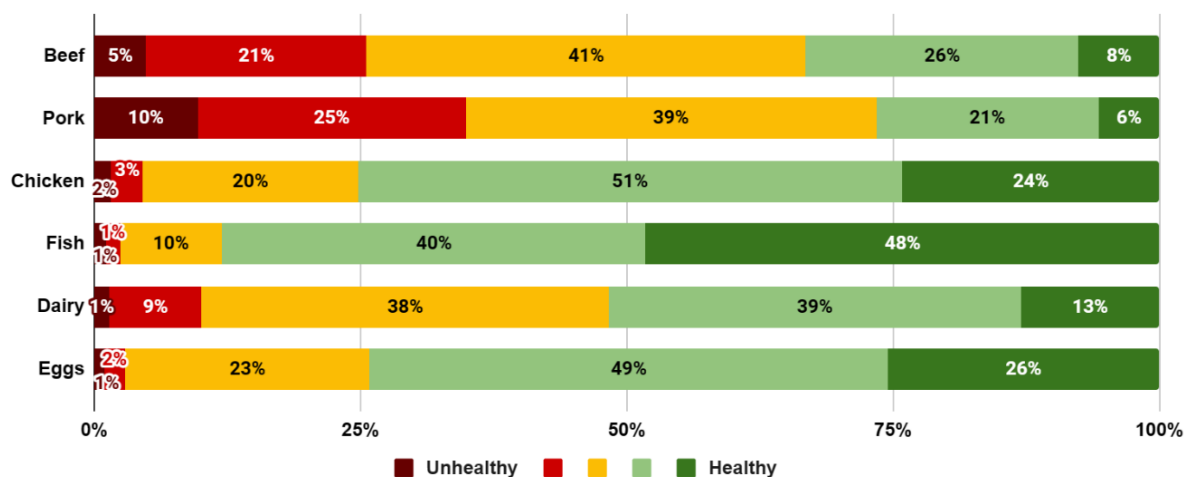
*“So I think there is a pecking order, and my personal pecking order is fish, top, chicken – so, white meat and then red meat.”* – Animal Sympathiser

**Figure 9: “To what extent do you think the following foods are bad for the environment?”**



Source: SMF survey April 2023

**Figure 10: “To what extent do you think the following foods are healthy?”**



Source: SMF survey April 2023

This misalignment of environmental and health perceptions with animal welfare perceptions vis-a-vis chicken poses a problem for animal advocates. Consumers may prefer chicken as the healthier or more eco-friendly option, but switching from red meat to chicken is likely to increase farmed animal suffering.

## CHAPTER FOUR – ATTITUDES TO POLITICAL ACTION TO REDUCE MEAT CONSUMPTION

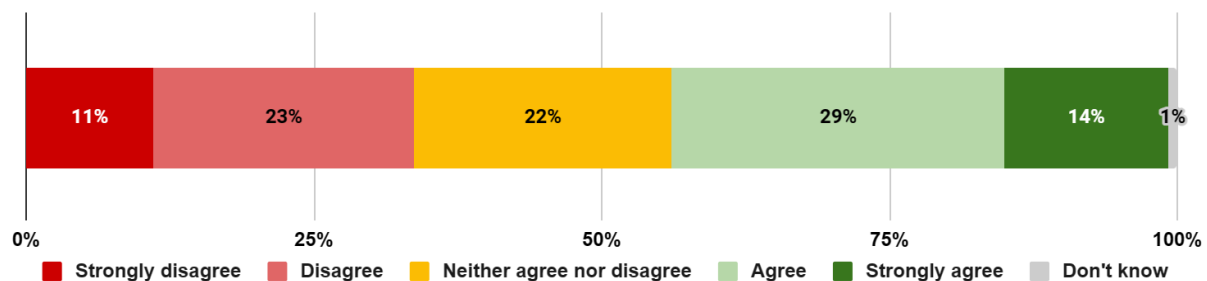
### Despite people’s concern over meat and animal welfare, there is less consensus that meat reduction ought to be a political focus

Chapter Three found a surprising level of consensus over the desirability of reducing meat consumption, at a personal and societal level. When it comes to the question of whether political action should be taken to help us make those changes, however, things are less clear and more contentious.

On the one hand, more people believe that the government should encourage people to reduce their meat consumption than believe such activity would be illegitimate, as Figure 11 shows. 43% say they are in favour of government-supported meat reduction initiatives. That exceeds the 34% that believe such activities would not be appropriate for the government, and only one in ten say they strongly oppose government efforts to discourage meat.

*“The policies that the government can bring in could help, especially with meat reduction.” – Animal Lover*

**Figure 11: “To what extent do you agree with the following statement? The government should encourage people to eat less meat”**



Source: SMF survey April 2023

The minority of respondents who do not support government interventions to discourage meat consumption varied in their reasoning for not trusting governments to take action on matters of animal welfare. Some participants expressed principled objections to the restriction of personal choice. In many other cases, objections were based on mistrust of the government, both in terms of its competence and the legitimacy of its motives. Indeed, this mistrust went beyond government – across our focus groups we found widespread wariness towards food companies:

*‘Animal welfare is being used as a smokescreen to allow food production companies to move into more processed foods’ – Meat Lover*

*“We don’t know how animals are treated...Unless I can actually see how animals are farmed, I don’t trust a lot of it” – Animal Lover*

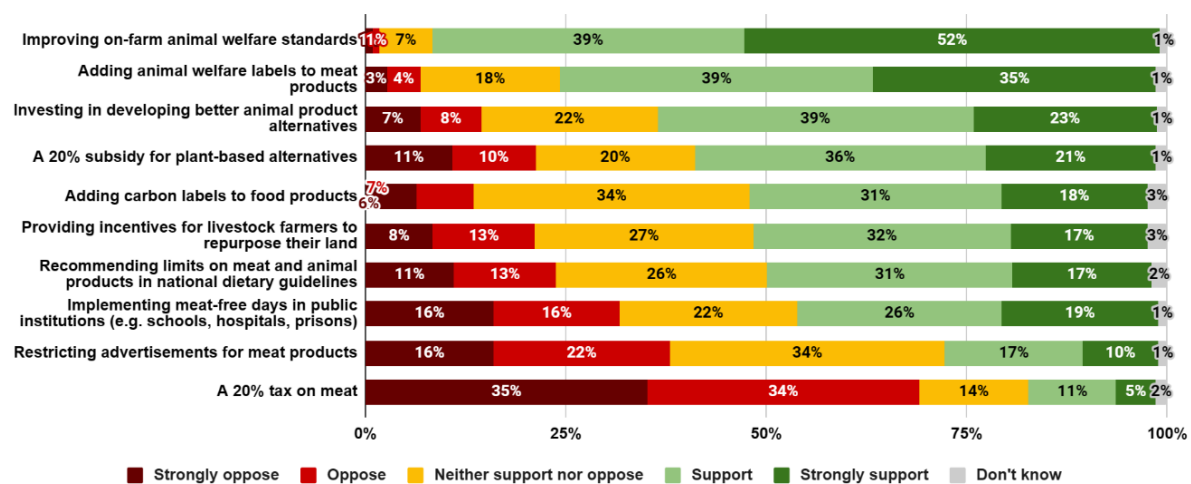
*“It sounds like Conservative MPs use that word a lot [transparency], don't they? But it's this idea about being very honest about stuff, and I think we need complete honesty about what's in meat products, because, as you were saying, that doesn't really exist ... So complete transparency about what you're actually eating, and if that means putting labels on stuff, so be it.” – Animal Lover*

This mistrust represents an opportunity for those that want to highlight the harms associated with meat production and discourage meat consumption. At the same time, they may form something of a barrier to alternative proteins by undermining confidence in the companies that produce them.

## Public opinion gravitates towards educational interventions and is hostile to taxation

In our survey, we asked people for their views on a range of different types of policy initiatives that could be used to reduce meat consumption. Figure 12 shows the results. By far and away the most popular policy is action to improve on-farm welfare standards, which 91% of people support – we discuss this finding in the next section.

**Figure 12: “We might as a society want to reduce our meat consumption for environmental, health, animal welfare and food security reasons. To what extent would you support or oppose the government implementing each of the following policies to reduce meat consumption?”<sup>iv</sup>**



Source: SMF survey April 2023

The second most popular proposal was animal welfare labelling on meat products, which 74% of people would favour, and only 7% would oppose. This reflected a broader tendency in our focus groups for discussion to drift towards ‘softer’ measures that involved educating and informing people about animal welfare issues rather than compelling anybody to do anything.

<sup>iv</sup> The numbers in the graph do not add to 100 because of rounding. Rounding may also mean that numbers cited in the text differ slightly from those in the graph where multiple responses are aggregated together (e.g. ‘support’ and ‘strongly support’). Where they differ, the numbers in the text will be accurate.



*“There's lots of things the government can do just to educate the population.” – Animal Sympathiser*

*“I think if ... efforts were made to promote that using a variety of online initiatives, which could be Facebook platforms, Instagram platforms, pages, whatever, or anything ... it's doing everything possible to make people aware of it [animal welfare]. And I think the most resourceful way would be to use online resources.” – Animal Lover*

Such measures were explicitly justified on the basis that the government should seek to reduce meat consumption without force, compulsion or taxes:

*“It's very difficult to find the balance, though, isn't it? That's going to be the problem, to encourage people without them feeling they're being forced.” – Animal Sympathiser*

*“Maybe there should be some sort of vegan advertising – don't be too radical, people need to have a choice, but make sure they are informed.” – Animal Sympathiser*

*“I also think that the government needs to perhaps start educating, rather than taxing or legislating, just start educating the public about what the benefits would be, what the benefits to their health would be. The planet, the country, I think, just does need educating about the reason to turn from one type of food that they've always had to another.” – Animal Sympathiser*

Certainly, there is a general sense – uncovered both in our research, and in previous work – that people do not understand well how animals are treated in food production.<sup>115</sup> Many say they would like to know more, and to be better guided through the confusion.

*“I don't feel well-informed about what happens in the industry at all – unless you're connected to the industry, you'll never really know what happens.” – Animal Sympathiser*

*“Free range, sustainable farming, organic – maybe you get snapshots of this information, but you don't feel like you have a lot of what's going on in the background ... we don't know how much we can trust.” – Animal Sympathiser*

That leads to calls for better labelling, which until recently the government was exploring through a proposed scheme to reform mandatory requirements to disclose animal welfare information.<sup>116</sup> However, these plans were dropped in July.<sup>117</sup>

It also leads to calls for public information campaigns – for example, government funded advertising explaining the issues around meat consumption – and to calls for education around animal welfare issues in schools. As we saw in the literature review, there is generally good public support for better animal welfare education in schools.<sup>118</sup>

Such initiatives that seek to inform and educate need to be carefully designed if they are to have a meaningful effect on behaviour. As one participant in our focus groups pointed out, more detailed labelling places a cognitive burden on consumers. That implies at the very least that any labelling scheme would have to be extremely simple and clear – for example, a traffic light system, or as proposed in our previous report, an evaluation of whether the animal that produced the product had a ‘good life’, a ‘life worth living’, or a ‘life not worth living’.<sup>119</sup>

*“It’s information overload ... too microscopic instead of a practical thing. QR codes could be used to make it easier to look things up – I want very straightforward and very simple information ... or advertising campaigns that make a concerted effort to make something visual or video based is more accessible rather than trying to think about food labels when in a rush with my kids” – Animal Sympathiser*

If a simple and clear labelling system for animal welfare were introduced, it is likely that it would, to some extent, reduce demand for low-welfare animal products and increase demand for high-welfare animal products. Indeed, we have seen this demonstrated in the case of free-range eggs: mandatory labelling coincided with a rise in the free-range eggs market share of free range eggs from 32% in 2004 to 67% in 2019.<sup>120</sup> ‘Traffic light’ nutritional label information has, similarly, been shown to encourage people to buy healthier foods.<sup>121</sup>

A recent SMF paper highlighted the trade-off in public health policy between measures that are non-interventionist and seem more politically palatable and those that are more effective, but less popular.<sup>122</sup> To some extent we have found a similar relationship here, with more popular policies likely to have a more modest impact on meat consumption. That said, promising policies that received majority support include adding animal welfare labels to food products, subsidising and investing in alternative proteins, and improving on-farm animal welfare standards. We also found reasonably high support for recommended limits on meat intake (49% support), meat-free days in public institution catering (45% support), and incentives for farmers to shift away from rearing livestock (49% support)

However, we found far less support for apparently the strictest regulatory interventions – restricting advertising for meat products, and the most politically controversial policy: a meat tax. Only 27% of people would be in favour of limiting meat marketing, with 38% opposed. On the face of it, this is somewhat surprising. In other apparently analogous cases, such in the case of alcohol<sup>123</sup> or junk food,<sup>124</sup> the public tends to be supportive of limiting advertising. This may be because they do not perceive much direct benefit from being advertised to and, if anything, see advertising as a nuisance. It is possible that people remain resistant to the parallel between meat and tobacco (the product that has by far the strictest restrictions on its marketing), continuing to want to see meat as a mainstream product rather than a taboo.

Taxation is the most consistent and reliable way to reduce consumption of harmful products like tobacco, alcohol and sugary drinks.<sup>125</sup> Yet people are resistant to applying that approach to meat. As in previous surveys, we found that a clear majority of people would be opposed to a meat tax: 69% said they are against, with just 16% in favour. It is worth putting this in some perspective – taxes in general tend to be unpopular, and it is hard to find a large constituency for raising most taxes. Yet by any standard, support for a meat tax remains low.<sup>126</sup>

*“I don’t think that’s a good idea. I think reducing the prices of meat alternatives would be a better way to get people to try those. But I just think a meat tax then the government has taken too much control” – No Strong Views*

*“Just the whole word tax is just so negative and it just gets people’s backs up ... it’s the wrong way to go about it completely.” – No Strong Views*

Given the relative popularity of subsidies for alternative proteins (which only 21% in our survey opposed), it may be possible to somewhat soften attitudes towards meat taxes by combining the two policies. In other words, we could hypothecate some of the revenue from a meat tax to make other – less harmful – foods, including alternative proteins, cheaper. Yet given the public’s current low opinion of meat taxes, it is likely to be a challenging task.

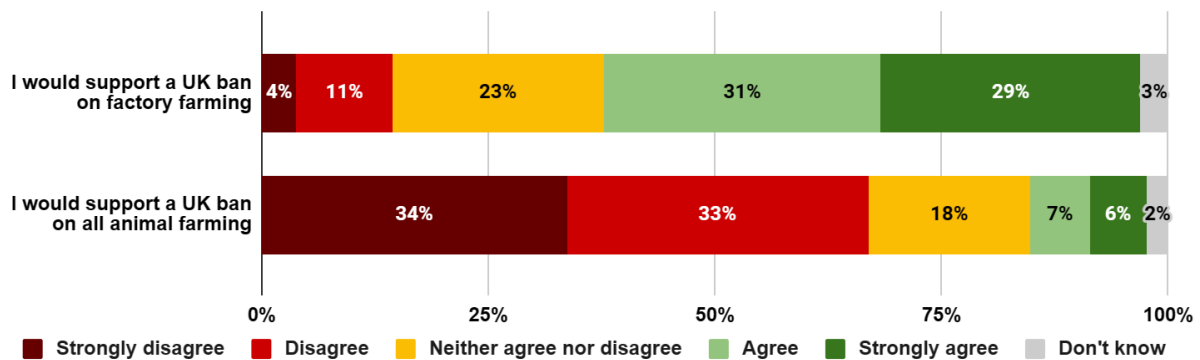
As discussed above, that is not necessarily a terrible thing from the perspective of animal welfare. Insofar as a meat tax reduced meat consumption, that would likely be positive for animal welfare. Yet if it encourages a shift in consumer demand towards chicken away from red meat, that would be harmful to animal welfare.

### There is substantial appetite for stricter regulatory standards for farm animal welfare

There is, though – as we saw – one regulatory intervention that is not just popular, but *the most popular* way to address meat consumption: raising standards on factory farms. We saw in the previous section that 91% of people would favour such measures, though we should recognise that they may not necessarily have interpreted that as being achieved through regulation.

Yet when we asked explicitly about banning factory farming – a relatively radical measure – 59% of people said they would be in favour. We can only assume, then, that increasing regulation would win the support of the vast majority of people.

**Figure 13: “To what extent do you agree with the following statements?”<sup>v</sup>**



Source: SMF survey April 2023

This was not just an artefact of our polling questions. In multiple focus groups, participants spontaneously reached the conclusion that, instead of talking around the problem, the best and most direct way of addressing animal suffering in the food system would be to outlaw ‘factory farming’:

<sup>v</sup> The numbers in the graph do not add to 100 because of rounding. Rounding may also mean that numbers cited in the text differ slightly from those in the graph where multiple responses are aggregated together (e.g. ‘support’ and ‘strongly support’). Where they differ, the numbers in the text will be accurate.

*“It's been going on for so many years now and no one's done anything about it. Some of them really should.” – Animal Sympathiser*

*“We're all concerned about the way animals are kept and killed and produced for our tables ... if it was just legislation that put a stop to factory farming, that would end these concerns” – Animal Sympathiser*

This could be dismissed as ‘cheap talk’, but people in focus groups showed some recognition that raising legal animal welfare standards would result in higher prices, and remained nonetheless undeterred:

*“I sometimes occasionally eat chicken, but I go to a local farm and I only buy free-range, but the price is nearly double!” – Animal Lover*

*“They should make a lot less of that [processed meat] and maybe put the prices up a little bit.” – Animal Sympathiser*

Significantly, concern about the hidden costs of meat, and an openness to paying more, go beyond the Animal Lovers and Sympathisers, as we discuss in the next chapter:

*“Even though it's more expensive ... I can see that some meat and chicken is really cheap and you're thinking, why is it so cheap? I am becoming more aware now ... I'm happier to pay for meat that's been produced in a better way. And I think people need to maybe accept that cheap meat is going to affect animals and maybe should try and make better choices.” – No Strong Views*

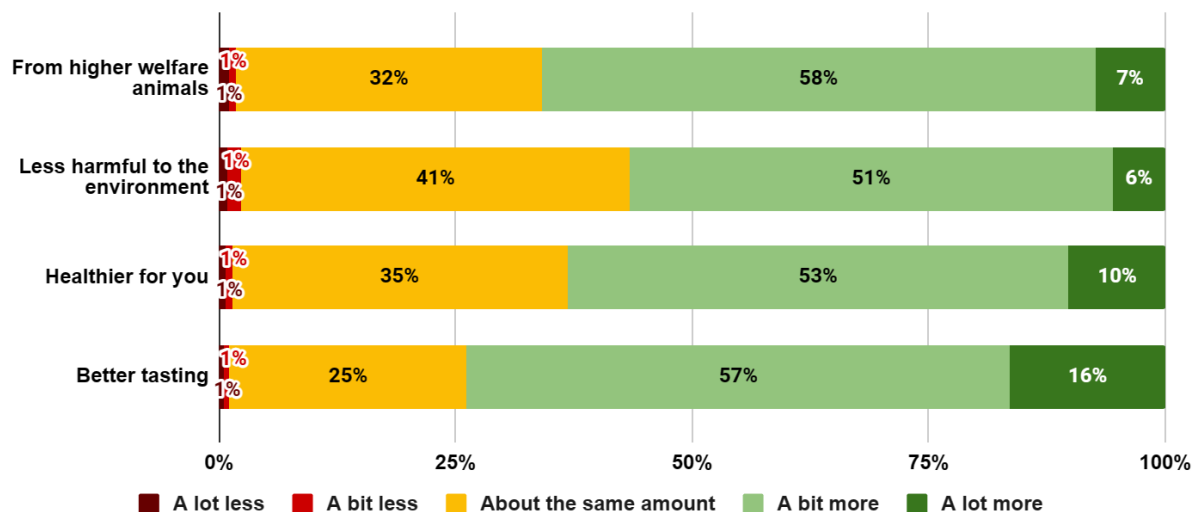
*“I don't mind paying a bit more for thinking that the animals are hopefully being treated well in most cases.” – No Strong Views*

Some focus group participants did express concern about the impact on poorer consumers of meat prices going up, but they tended to argue that such people would be better helped through direct financial support than by sustaining cheap low welfare products:

*“Like they helped out with the heating bills, they could help out with the eating bills. So people who can't afford to and only go and buy the cheaper cuts of meat, if they abolish the factory farming and then subsidise people ... Help them buy the more expensive meat.” – Animal Sympathiser*

These views are consistent with the findings of our survey, in which 66% of meat eaters said that they would be willing to pay more for meat that is higher welfare. However, it should be noted that most people say they would only pay a ‘bit’ more, and only 7% would countenance the cost of meat being ‘a lot’ higher’. Yet as Figure 14 shows, that 66% is higher than the 57% willing to pay more for less environmentally harmful meat, or even the 63% willing to pay more for healthier meat. These responses are congruent with previous research on consumer willingness to pay more for ‘higher quality’ animal products, even amidst the cost of living crisis. It should be noted, however, just under half of the population (46%) believes that meat with a quality assurance mark is worth paying extra for, leaving a majority either indifferent or in disagreement.<sup>127</sup> This highlights a significant knowledge and trust gap about labels among the remaining majority – underscoring the importance of promoting sourcing credentials.

**Figure 14: “Compared to regular meat, how much would you be willing to pay for meat that is...”<sup>vi</sup>**



Source: SMF survey April 2023

The extent of support for a factory farm ban is consistent with some of our other survey findings, with a majority indicating animal welfare is important to them, and only 4% admitting not to caring about it. That said, it is not clear that people are aware of the extent of factory farming – in our previous report we estimated that two-thirds of all terrestrial farm animals, and 95% of all chickens, are factory farmed.<sup>128</sup> As such, they may not appreciate how profound a change banning factory farming would be. After all, 56% believe that most farmed animals are treated well, suggesting they see factory farming as the exception rather than the rule.

It may well be that participants in our research do not recognise how profound such changes would be. In our previous report we estimated that two-thirds of all terrestrial farm animals, and 95% of all chickens, are factory farmed. Banning factory farming would therefore represent a dramatic upheaval of our food system. Whether people would have the stomach for such a drastic change remains unclear. We have seen they have some willingness to accept higher prices for better welfare, but how far would they take that principle? Nevertheless, it is apparent that they are dissatisfied with the status quo.

<sup>vi</sup> The numbers in the graph do not add to 100 because of rounding. Rounding may also mean that numbers cited in the text differ slightly from those in the graph where multiple responses are aggregated together (e.g. ‘support’ and ‘strongly support’). Where they differ, the numbers in the text will be accurate.

## CHAPTER FIVE – FOUR SEGMENTS OF PUBLIC OPINION

The previous chapters have presented public opinion mainly in the aggregate. This chapter explores the variation beneath that overarching picture. Through our segmentation analysis, we have found that the British public can be broken down into four groups, from most to least favourable to animal welfare and meat reduction efforts:

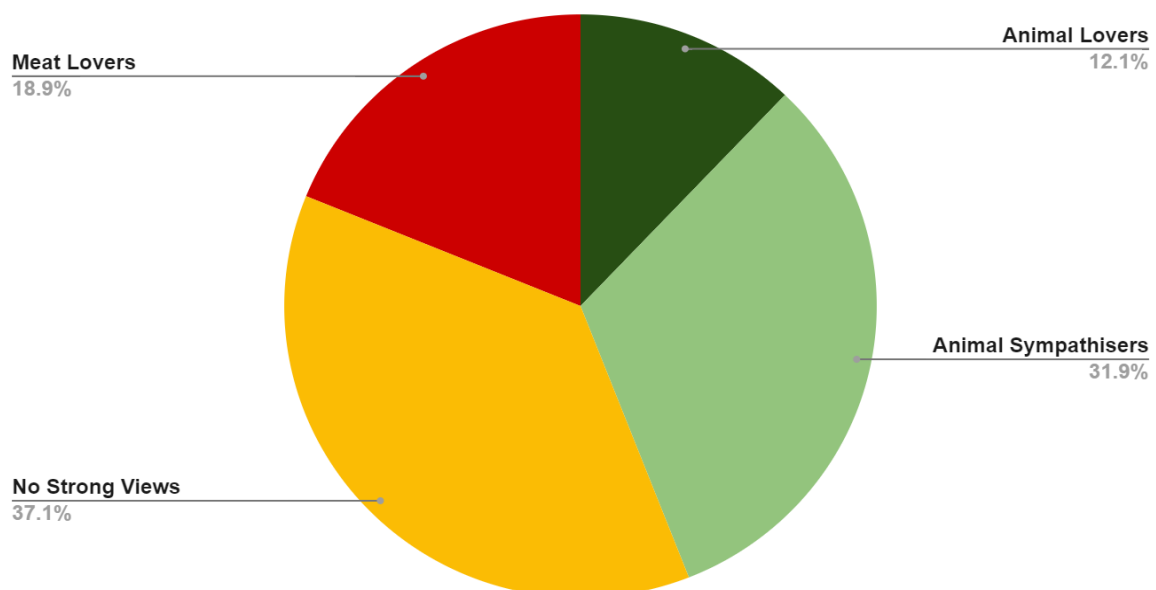
- 12% are ‘Animal Lovers’.
- 32% are ‘Animal Sympathisers’.
- 37% are in the ‘No Strong Views’ category.
- 19% are ‘Meat Lovers’.

In this chapter, we describe the opinions and characteristics of each of these groups, to provide a richer picture of the country’s views.

### The four segments characterised

As Figure 15 shows, the segments essentially represent those with the strongest pro-animal views and pro-meat views as two smaller and more opinionated segments, with the majority in the middle either Animal Sympathisers (but mostly not vegetarian) or having no strong views toward farmed animal welfare and the other issues in the survey (see Appendix 2). The majority of people (69%) fall into the middle categories, neither hostile to nor fully engaged with animal welfare issues. It is revealing that the median person in this country falls into the ‘No Strong Views’ category. Equally, though, supporters of animal welfare can take heart from the fact that 44% of people are at least sympathetic to their cause. Overall, 81% of people might be deemed at least ‘persuadable’. On the following page, we report the key sociodemographic groups represented in each of these groups.

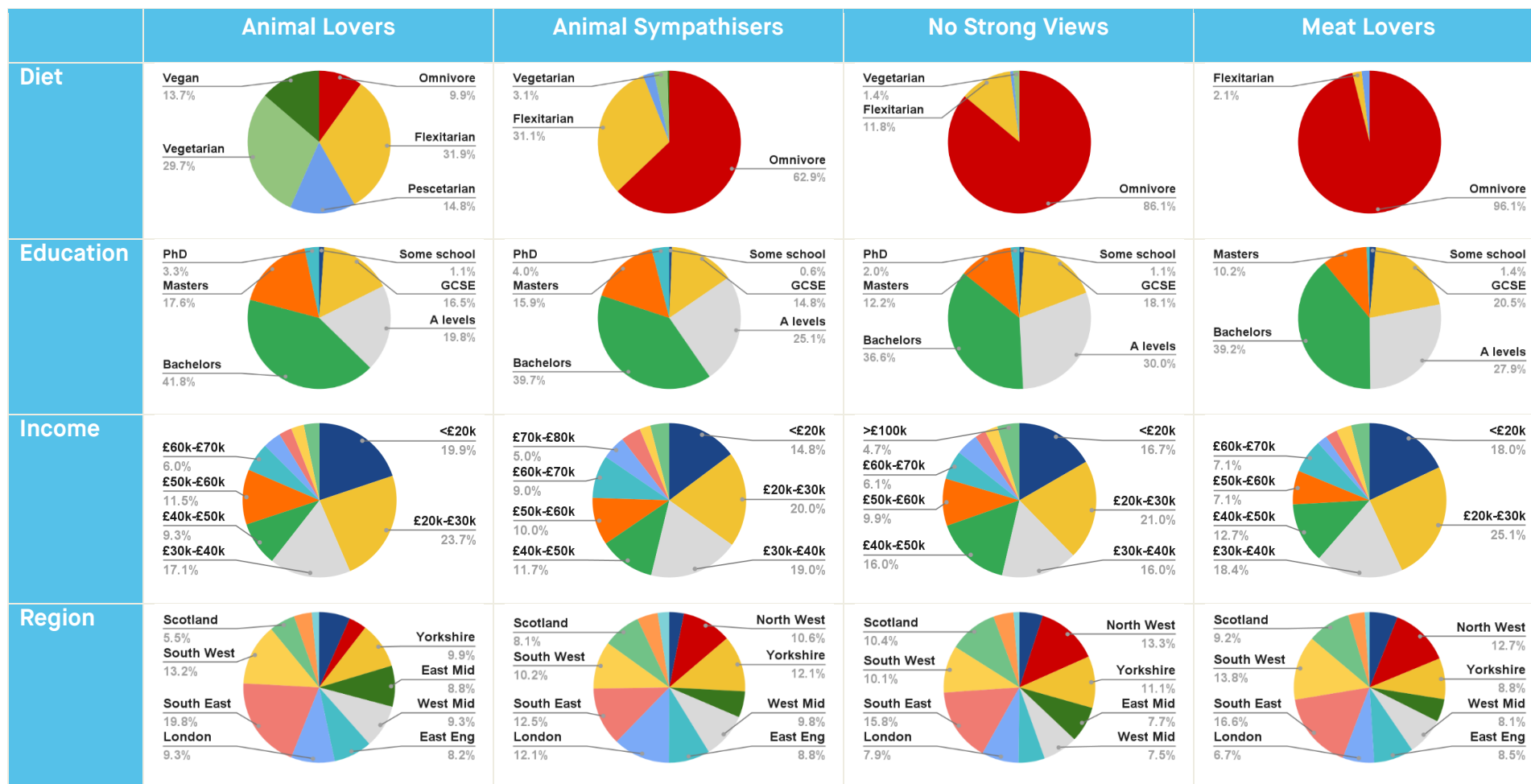
**Figure 15: Overview of segments**



Source: SMF survey April 2023

**Table 1: Demographics of the Four Segments**

	Animal Lovers	Animal Sympathisers	No Strong Views	Meat Lovers
<b>N</b>	182	479	557	283
<b>%</b>	12%	32%	37%	19%
<b>Average age</b>	48.77	47.43	47.29	50.31
<b>Gender</b>	<p>Female 69.7% Male 30.3%</p>	<p>Female 50.9% Male 49.1%</p>	<p>Female 51.5% Male 48.5%</p>	<p>Female 39.9% Male 60.1%</p>
<b>Politics</b>	<p>Conservative 17.6% Labour 34.1% Lib Dem 13.2% Other 14.8% None 20.3%</p>	<p>Conservative 25.9% Labour 29.4% Lib Dem 10.0% Other 16.1% None 18.6%</p>	<p>Conservative 35.5% Labour 19.7% Lib Dem 7.7% Other 13.4% None 23.7%</p>	<p>Conservative 45.2% Labour 10.2% Lib Dem 4.9% Other 16.0% None 23.7%</p>
<b>Area</b>	<p>Rural 24.2% Suburban 48.9% Urban 26.9%</p>	<p>Rural 19.2% Suburban 52.4% Urban 28.4%</p>	<p>Rural 21.9% Suburban 51.3% Urban 26.8%</p>	<p>Rural 25.4% Suburban 49.1% Urban 25.4%</p>





As the graphs above show, there are some distinct differences in demographics between the identified segments. This information can guide the targeting of communications to shift views or make calls to action.

**The Animal Lovers** are the smallest segment, at 12% of the total population. They are characterised by strong endorsement of meat reduction as a personal lifestyle and a prescription for others, deeming it a healthy and pro-environmental choice. This group is the most likely to be vegetarian or vegan (58%) and is 70% female. They are the most likely to be university-educated (63%), though this group also had the highest representation of low-income households (20%). Politically, they are the most likely to vote Labour (34%) or Liberal Democrat (13%), and the least likely to vote Conservative (18%). Interestingly, they are relatively likely to live in rural areas (24%), second only to the Meat Lovers at 25%.

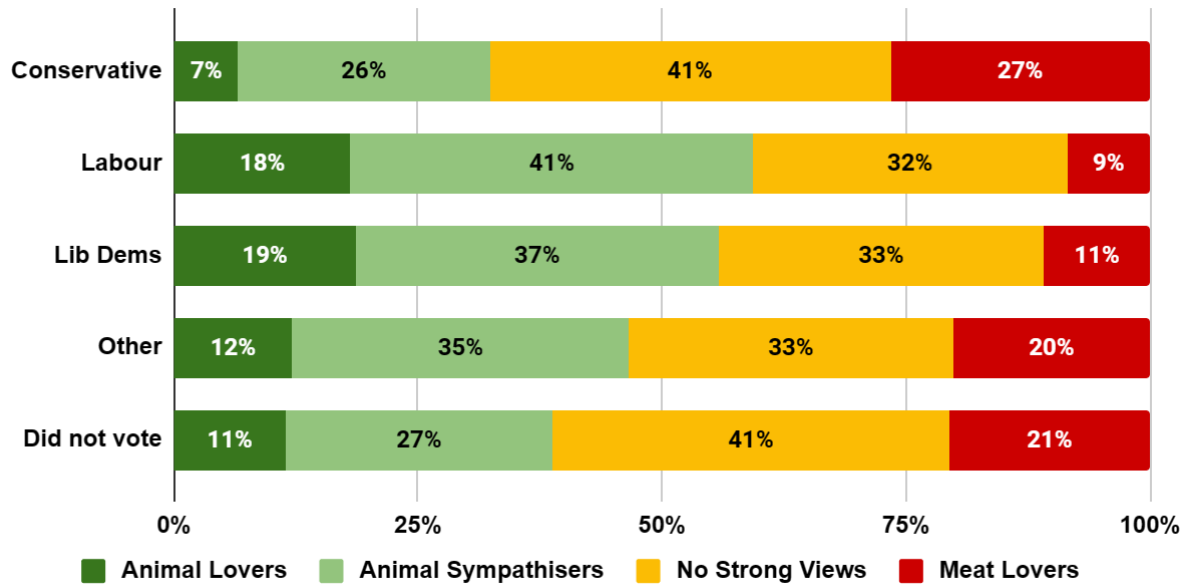
**The Animal Sympathisers** are the second largest segment at 32% of the total population. They are characterised by broadly pro-animal views, but relatively low rates of personal vegetarianism – just 6% of them are vegetarian. This group is 51% female and 49% male. They are relatively likely to vote for left-leaning parties, are the most likely to live in urban (28%) or suburban areas (52%) and are the least likely to live in rural areas (19%). They are the second most educated group (60% have a university degree) and have the highest household incomes – 35% of them earn over £50,000, while just 15% earn below £20,000.

**The 'No Strong Views'** group is the largest segment at 37% of the total population. They are characterised by ambivalence or a lack of strong views on most of the issues we polled. This group is also unremarkable in terms of demographics. Though they are the youngest (very marginally), this group is 52% female and 48% male, and is fairly typical in other regards.

**The Meat Lovers** are the second smallest segment, at 19% of the total population. They are characterised by having the most pro-meat and least pro-animal views, are the most likely to view meat and animal products as healthy, and the least likely to view them as problematic environmentally. This group is the most likely to be male (60%) and the most likely to be Conservative voters (45%). They are also the most likely to live in rural areas (25%) and the least likely to be vegetarian (2%).

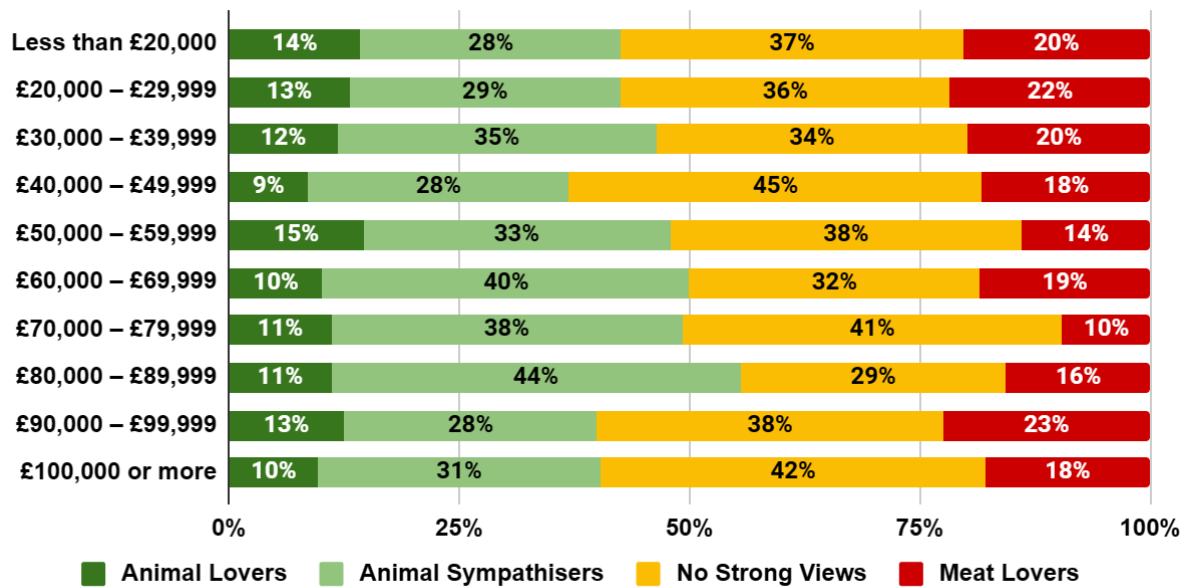
We can also look at the percentage of different demographic groups falling into each of these segments. Below, we see the breakdown of particular voter and income groups. Figure 16 shows that the majority of Labour and Liberal Democrat voters fall into the Animal Lovers or Animal Sympathisers segments, while a plurality of Conservative voters and those who did not vote fell into the 'No Strong Views' group. Conservative voters are also the most likely group to be classified as Meat Lovers, who comprise 27% of Conservatives. There appears to be no clear relationship between income group and segmentation.

Figure 16: Segmentation by 2019 General Election Vote



Source: SMF survey April 2023

Figure 17: Segmentation by income



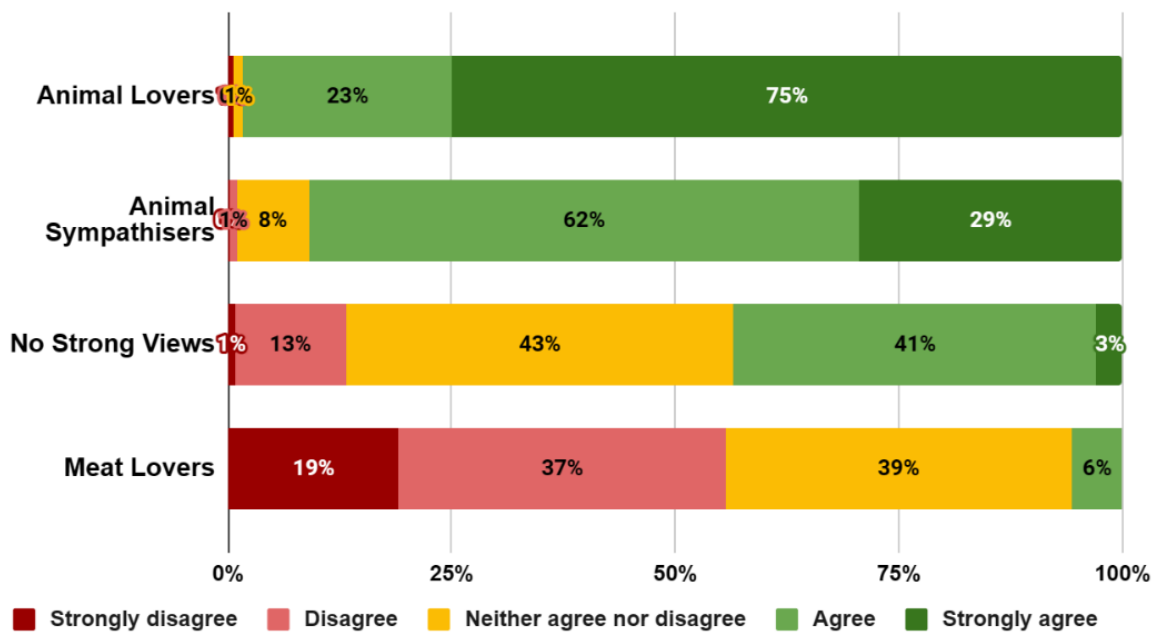
Source: SMF survey April 2023

## Animal Lovers and Meat Lovers have strongly polarised views on most topics, but are in the minority

In general, the Animal Lovers and Meat Lovers had the strongest views on most topics, including the merits of meat reduction, the quality of meat-free diets and plant-based meat alternatives, the treatment of farmed animals, the healthiness and environmental-friendliness of animal products, and government policies to reduce meat consumption.

Almost all Animal Lovers and Animal Sympathisers believe that most people should try to eat less meat, compared to 44% of those with no strong views. That said, Figure 18 highlights the extent to which the principle of meat reduction is accepted and mainstream. To *reject* meat reduction is the more extreme position: though 56% of Meat Lovers do so, only 14% of those in the ‘No Strong Views’ category’ think most people should not try to cut back.

**Figure 18: “To what extent do you agree with the following statement? In general, most people should try to eat less meat”**



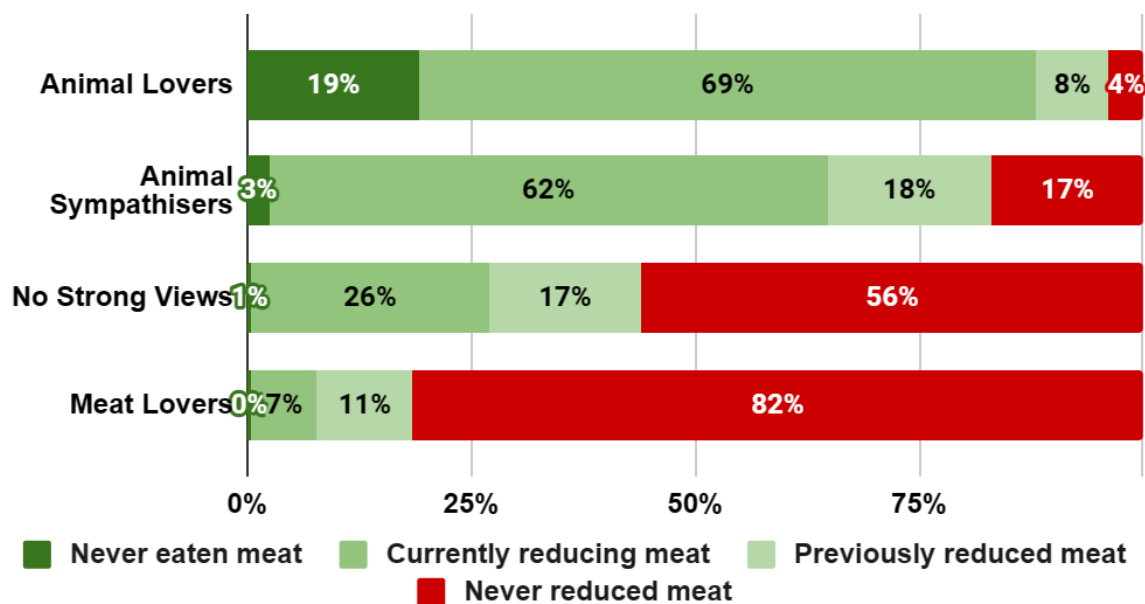
Source: SMF survey April 2023

As noted in the previous chapter, people are far less convinced that meat reduction is any business of the government. While it is an article of faith of Animal Lovers, and endorsed by a strong majority of the Animal Sympathisers, that the government should encourage people to eat less meat, the ‘No Strong Views’ group tends against this view, and Meat Lovers are strongly opposed.

We saw above that Animal Lovers are the most likely to identify as vegetarian and vegans. As Figure 19 shows, almost all (96%) Animal Lovers have made some effort at some point to cut down or eliminate meat. Yet the same is true of the vast majority of Animal Sympathisers (83%) even though most of them continue to be flexitarians or omnivores. The 'No Strong Views' group is more evenly split, with 44% of people having made some attempt to eat less meat. The clear majority of Meat Lovers, unsurprisingly, are unrepentant carnivores. Yet it remains the case that around one in six Meat Lovers is currently making or has in the past made efforts to reduce their meat consumption.

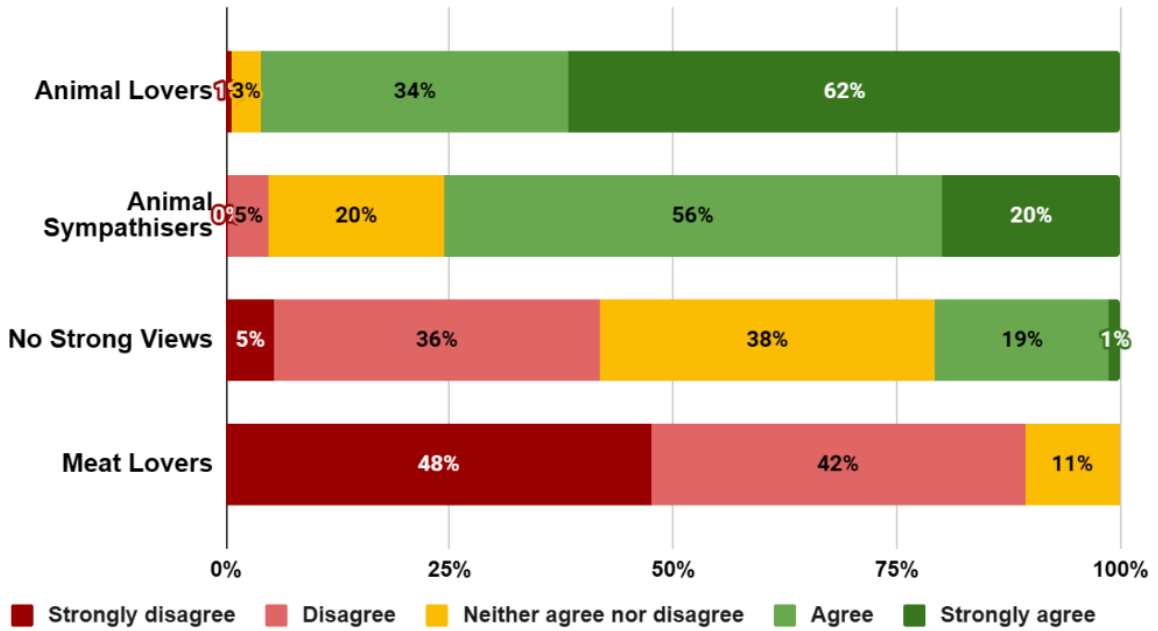
As shown below, 69% of Animal Lovers and 62% of Animal Sympathisers are *currently* reducing their meat consumption. We see that 19% of Animal Lovers have *never eaten* meat, while 18% of Animal Sympathisers have *previously* reduced their meat consumption – both higher than any other group. The majority of Meat Lovers and the 'No Strong Views' group have never reduced their meat consumption.

**Figure 19: “Are you currently trying, or have you ever tried, to reduce your own consumption of meat?”**



Source: SMF survey April 2023

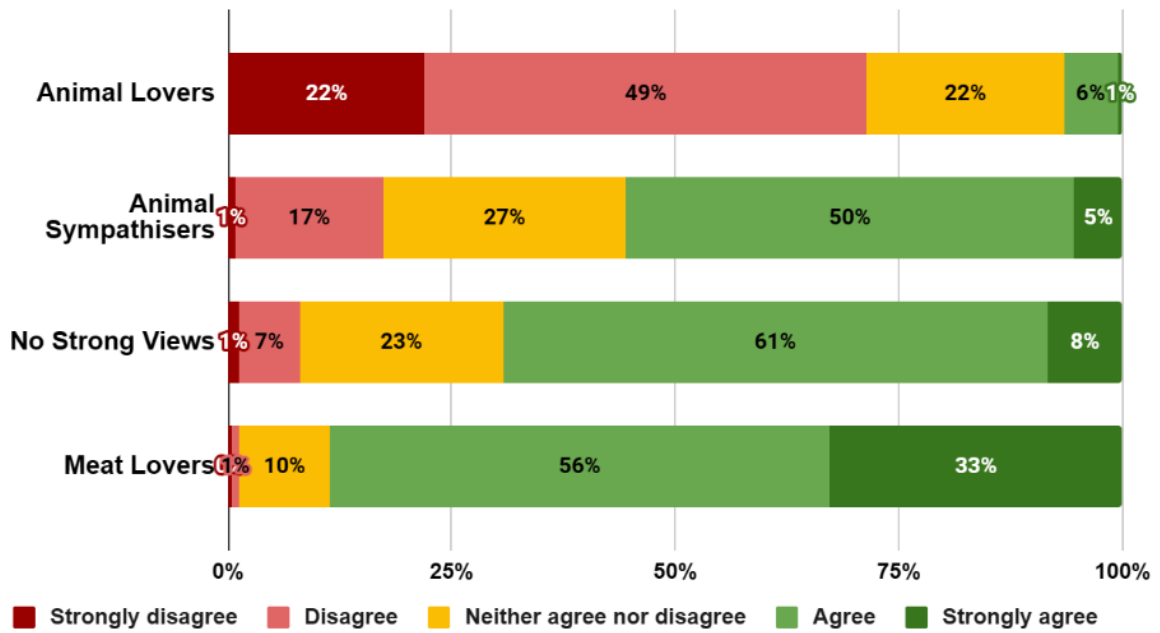
**Figure 20: “To what extent do you agree with the following statement? The government should encourage people to eat less meat”**



Source: SMF survey April 2023

If the desire for government intervention is near universal among Animal Lovers, the notion that farm animals are generally well treated is a similarly defining belief of Meat Lovers, endorsed by 89% of them. Again, those with no strong views reflect the mainstream, with 69% agreeing the British farming has high standards. Perhaps surprisingly, that is also the majority view among the Animal Sympathisers. The fact that 71% of Animal Lovers believe that farm animals are poorly treated marks them out as unusual.

**Figure 21: “To what extent do you agree with the following statement? In UK farming, there is generally good treatment of most farmed animals”**

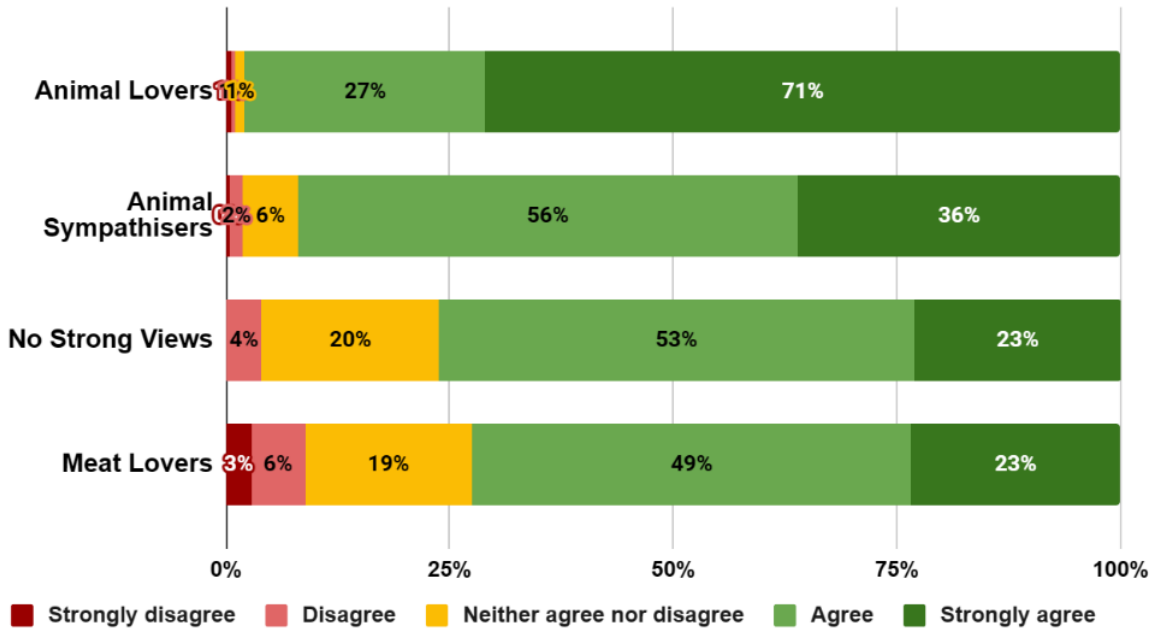


Source: SMF survey April 2023

**A majority of all groups say farmed animal welfare is important to them, but many are misinformed about the reality of farmed animal welfare**

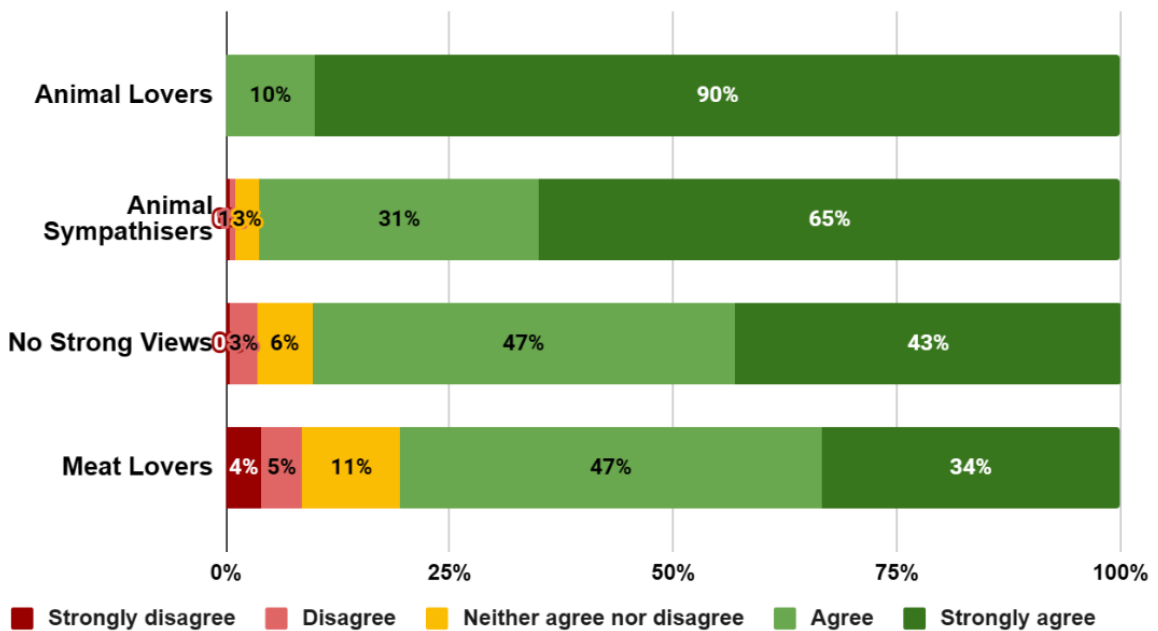
The vast majority of all four segments say that farmed animal welfare is important. Even among Meat Lovers, 72% agreed that farmed animal welfare is important, and 81% objected to farming practices which cause unnecessary harm to animals.

**Figure 22: “To what extent do you agree with the following statement? Farmed animal welfare is important to me”**



Source: SMF survey April 2023

**Figure 23: “To what extent do you agree with the following statement? I object to farming practices which cause unnecessary harm to animals”**



Source: SMF survey April 2023

However, many people – especially in the Meat Lovers and the ‘No Strong Views’ groups – are misinformed about the reality of farmed animal welfare in the UK. Within focus group discussions, this general state of confusion was apparent:

*“Free range, sustainable farming, organic – maybe you get snapshots of this information, but you don’t feel like you have a lot of what’s going on in the background – when the industry and farmers put labels on products, we don’t know how much we can trust that.” – Animal Sympathiser*

*“I feel ignorant about this whole area – there are all sorts of things that go on that we don’t know about – labels have to be backed up by regulation, inspection, consequences for misuse ... Does it happen often, effectively?” – Animal Sympathiser*

*“I’m unfamiliar with what the standards are, so I just come to I would hope that if meets been RSPCA approved, it must be up to quite an acceptable standard, really. I would hope.” – No Strong Views*

*“Similarly, I’m not familiar with the exact law, so I wouldn’t be able to comment, really, but I think there’s always room for improvement in everything. But yeah, I don’t know exactly what the laws are.” – No Strong Views*

87% of Meat Lovers and 61% of those with no strong views think there is generally good treatment of pigs farmed for meat in the UK, while 71% of Meat Lovers and 43% of those with no strong views think there is generally good treatment of chickens farmed for eggs in the UK. In reality, the majority of UK farmed animals, especially chickens and pigs, are on factory farms,<sup>129</sup> and are regularly subjected to conditions and mutilations that the vast majority of Brits find unacceptable.<sup>130</sup>

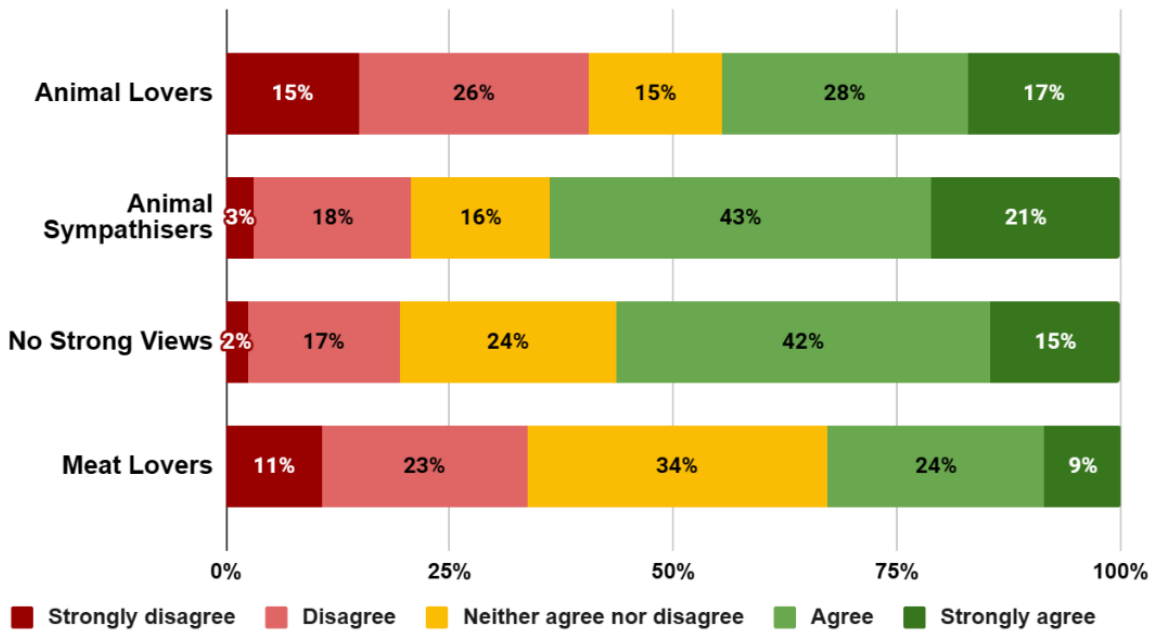
### **Animal Sympathisers and the ‘No Strong Views’ group are most likely to avoid thinking about farmed animal welfare**

While Meat Lovers and Animal Lovers had the strongest views about most meat- and animal-related issues, Animal Sympathisers and the ‘No Strong Views’ group were the most likely to avoid thinking about how animals are treated to produce meat: 57% of ‘No Strong Views’ and 64% of Animal Sympathisers said that they try not to think about this. This is in line with existing evidence on avoidance vis-a-vis animal ethics.<sup>131</sup> In some respects, this is unsurprising – we would expect those with stronger views to be more engaged on animal welfare issues. On the other hand, it is perhaps surprising that most Meat Lovers do claim to confront meat production. That said, it is striking that a large proportion of those on both extremes of the debate say they try to avoid the topic. 33% of Meat Lovers and 45% of Animal Lovers would rather not think about it.

*“If you think about it too much, you’d be inclined to eat less meat for the sake of the animals ... If we had to slaughter our own animals, I probably would switch – not got the stomach for it.” – No Strong Views*



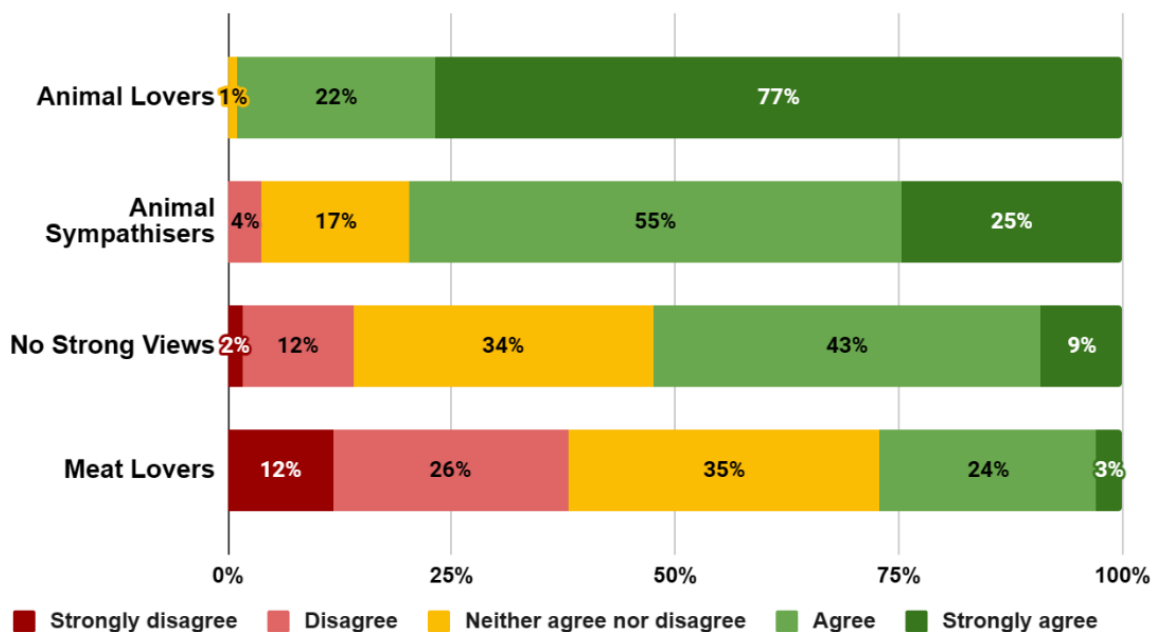
**Figure 24: “To what extent do you agree with the following statement? I try not to think about how animals are treated to produce the meat we eat”**



Source: SMF survey April 2023

This evasion is understandable given how widespread discomfort with animal farming is. Unsurprisingly, almost all Animal Lovers have concerns about the way animals are treated on farms, and not one in our survey would describe themselves as comfortable. That discomfort is shared by the overwhelming bulk of Animal Sympathisers (80%) and the majority (52%) of those with no strong views. Perhaps most revealing, 27% of Meat Lovers say they have some discomfort with the way animals are treated on farms, and only 38% would describe themselves as comfortable.

**Figure 25: “To what extent do you agree with the following statement? I have some discomfort with the way that animals are treated on farms”**



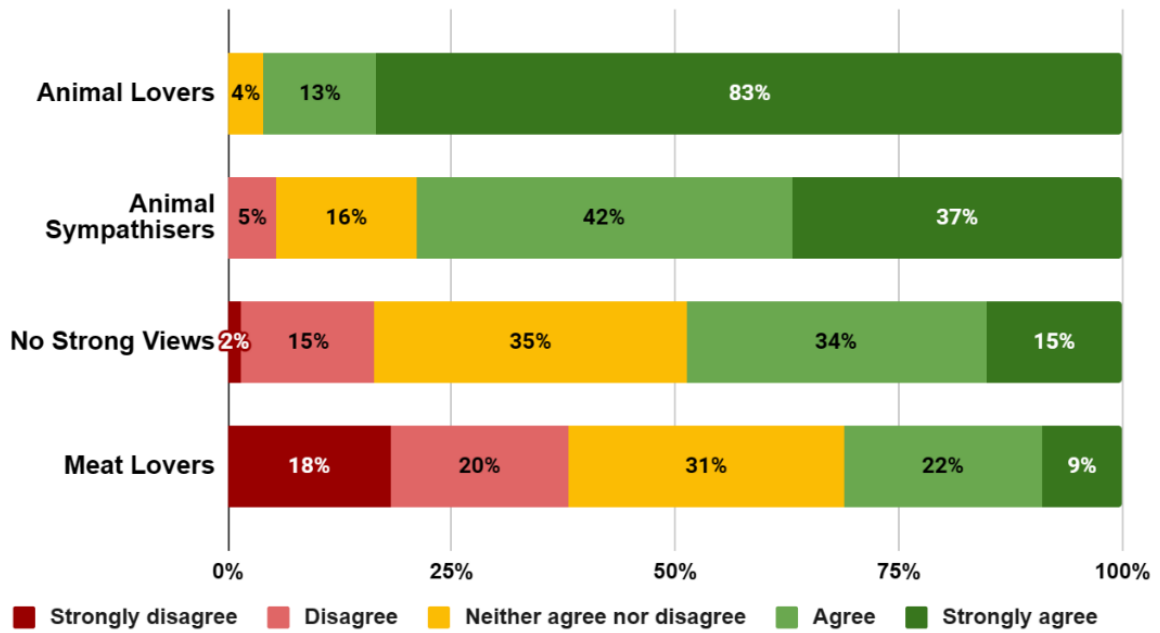
Source: SMF survey April 2023

This is an important finding, because it reiterates the importance of consciousness-raising. A majority of people (61%) say that they have some discomfort with the way that animals are treated in food production, but it is likely that most do not spend much time thinking about it. Moreover, they often have incorrect assumptions about farmed animal welfare, which may be the result of wishful thinking. The remedy to this situation appears to be repeating simple and straightforward explanations of farmed animal conditions in ways which are difficult to avoid.<sup>132</sup>

### **A ban on factory farming would have robust support in almost every segment**

For all that, the idea of ‘factory farming’ does seem to have some cut through, and the apparently wide range of people amenable to regulating or indeed banning it is quite remarkable. Figure 26 shows, unsurprisingly, that almost everybody in the Animal Lover category and the vast majority of Animal Sympathisers would be in favour of a factory farm ban. But that willingness extends to almost half of those with no strong views. Indeed, nearly a third of Meat Lovers (31%) would be open to banning factory farming.

**Figure 26: “To what extent do you agree with the following statement? I would support a UK ban on factory farming”**



Source: SMF survey April 2023

*“We’re all concerned about the way animals are kept, killed, produced for us ... if we simply legislate against factory farming, that would end these concerns.” – Animal Sympathiser*

*“I think overall, we definitely need to reduce our overall meat consumption ... the way that animals are treated and the factory farming, which, again, I don't know a lot about ... But I think we need to wake up, really, and think about how we're consuming meat.” – No Strong Views*

*“My concern goes more with the larger factory farms where the cattle are indoors 365 days ... I think that's a reason to move back into a more predictable way of farming.” – Meat Lovers*

## CHAPTER SIX – THE POLICY AND POLITICS OF ALTERNATIVE PROTEINS

In this report so far, we have shown that there is widespread sympathy for animal welfare, and a broad-based recognition that reducing meat consumption would be a good thing. Yet many people struggle to follow through on their desire to eat less meat and animal products. Moreover, while the majority of people believe society as a whole consumes too much meat, there is some resistance to political action to address the problem – especially to the idea of raising taxes.

In theory, alternative proteins ought to be able to help reconcile these tensions – allowing people to live up to their ethical ideals without having to make sacrifices in terms of taste and convenience. This chapter explores how likely alternative proteins are to fulfil this potential role, based on existing attitudes towards products on the market and policies to promote alternative proteins and reduce the consumption of animal products.

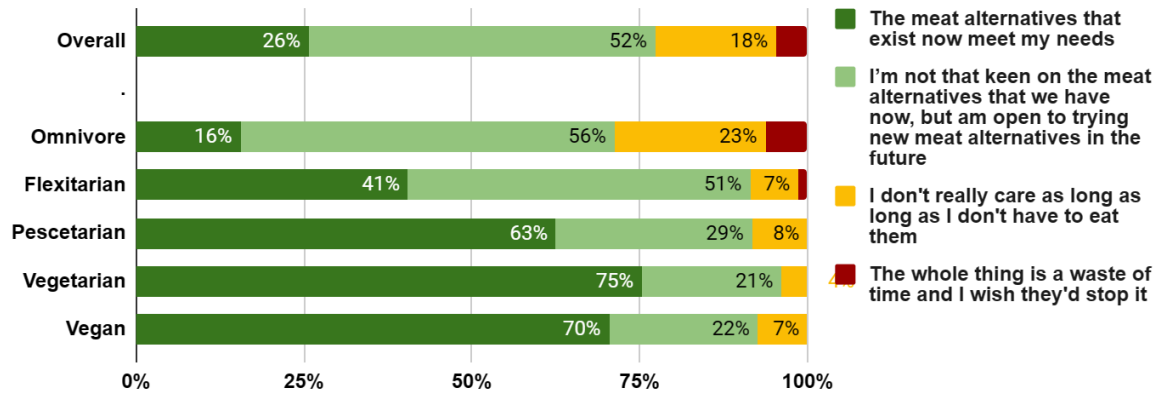
The alternative proteins currently available in the UK are plant- or fungi-based protein (e.g. pea protein burgers, oat milk, or mycoprotein products like Quorn). Further innovations including cultivated meat (i.e. grown from animal cells in a brewery-like facility) and precision fermentation (e.g. deriving dairy proteins and other food ingredients from microorganisms) are in the pipeline, but not yet on supermarket shelves.

### **A quarter of people are satisfied with existing meat alternatives, but around half are waiting on improvements**

To gauge the range of opinion on alternative proteins we started with a broad question, asking people which of a selection of statements best described their views. These allowed us to identify the extent to which people are content with the status quo, enthusiastic about potential future products or outright opposed. Figure 27 presents the results. It shows that a substantial minority (26%) of people are satisfied with the alternative protein options that already exist and believe they are sufficient to meet their needs. This chimes with the findings in our focus groups, where many of the people we spoke to reported already using alternative proteins to cut down on their meat consumption.

However, a slight majority of people (52%) do not think that existing alternative proteins are good enough, but would be open to the possibility of better products in the future. Around a quarter of people are resistant to alternative proteins in principle, though most of these (18%) take a ‘live and let live’ approach – saying they have no problem with other people eating meat alternatives. For all the efforts to whip up culture war division, only 5% are outright hostile to alternative proteins and see them as a waste of time.

**Figure 27: “Which of the following best describes your attitude towards meat alternatives?”<sup>vii</sup>**



Source: SMF survey April 2023

This data suggests that those already bought in to reducing their consumption of animal products are less likely to see any issue with existing meat substitutes. By contrast, it is those ‘swing consumers’, motivated to try and eat less meat but as yet unable to convert that desire into behaviour change, who are most enthused about the prospect of improved products. Over 70% of vegans and vegetarians believe that existing alternative proteins are good enough for them. By contrast 49% of self-described ‘flexitarians’ and 55% of omnivores would like to see improvements before eating more.

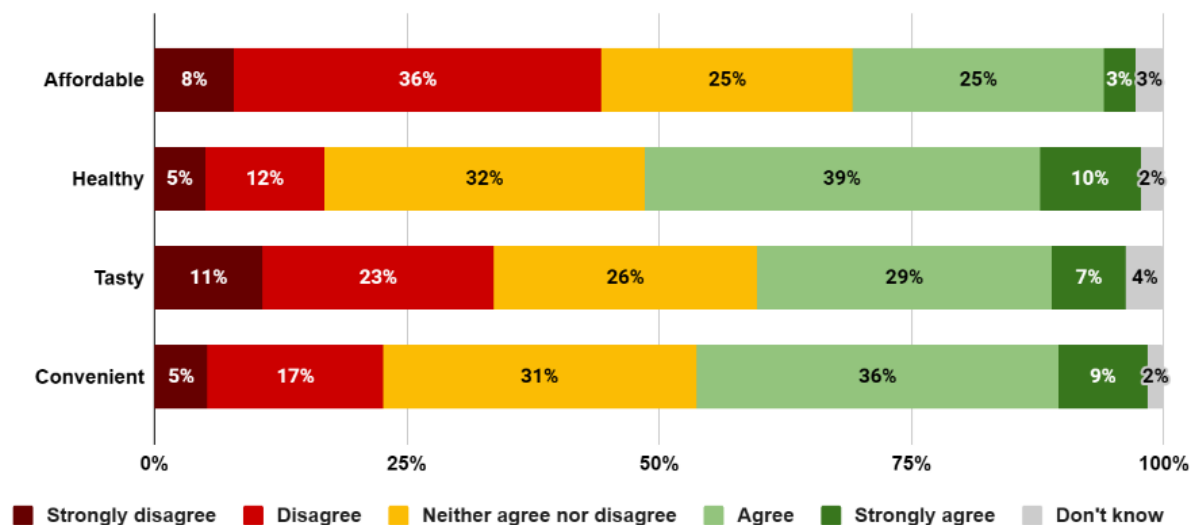
**Plant-based products are seen as healthy and convenient, with some qualms over taste and major concerns over affordability**

As we saw in Figure 6, while people generally see meat reduction as healthy and many expect it to be affordable, 51% think a lower meat diet would be less enjoyable, and 45% less convenient. How do alternative proteins compare?

Figure 28 presents survey respondents’ perceptions of plant-based meat alternatives. It shows that, on the whole, those perceptions are positive. Interestingly, 49% of people viewed plant-based meat alternatives as healthy, which jars a little with focus group findings that suggested health concerns around such products being processed.

<sup>vii</sup> The numbers in the graph do not sum to 100 because of rounding.

**Figure 28: “To what extent do you agree with the following statement? For me, plant-based meat alternatives are...”**



Source: SMF survey April 2023

Plant-based meat alternatives are also generally seen as convenient – a claim 45% of survey respondents agreed with. This is broadly positive, but may be something of a double edged sword given associations of ‘convenience’ with ‘junk food’.

*“People associate a vegan diet as being healthy but ‘vegan junk food’ is terrible – maybe a vegan burger is no healthier than a meat burger.” – Animal Lover*

Plant-based meat substitutes did less well on taste, though even on that score, the balance of public opinion is fairly even. 37% of people regard them as tasty, 34% do not, and 26% have no strong opinion. The views of many of our focus group participants reflect these mixed findings:

*“The taste of the meat alternatives is superb quality, you have to pay for it.” – Animal Sympathiser*

*“I eat the burgers, the sausages, the bacon but I’m not too keen on that.” – Animal Sympathiser*

*“The only fish I’ve tried is like the fishless fingers, like [Participant] was saying, there isn’t a great variety ... it would be interesting to see if in the future they will bring things out like that, because I mentioned they probably are working on it now.” – Animal Sympathiser*

The greatest issue with plant-based products, according to our survey, is affordability. 44% of people believe that plant-based meat alternatives are unaffordable. That said, 28% believe their cost is reasonable. Several of the focus group participants cited costliness as a relevant barrier to incorporating more plant-based alternatives into their diets:

*“The price of those meat substitute products does need to come down because the only way you're going to get people to do them is if they try them.”*  
— *Animal Sympathiser*

*“It would be better for the planet – for our children and grandchildren ... Taste is the ultimate thing, price as well.”* – *No Strong Views*

This pattern is broadly replicated for plant-based milk alternatives, though opinions are slightly less positive for them than for meat substitutes. While plant milks are broadly seen as healthy and convenient, 49% see plant milks as unaffordable, and 37% do not think they taste good.

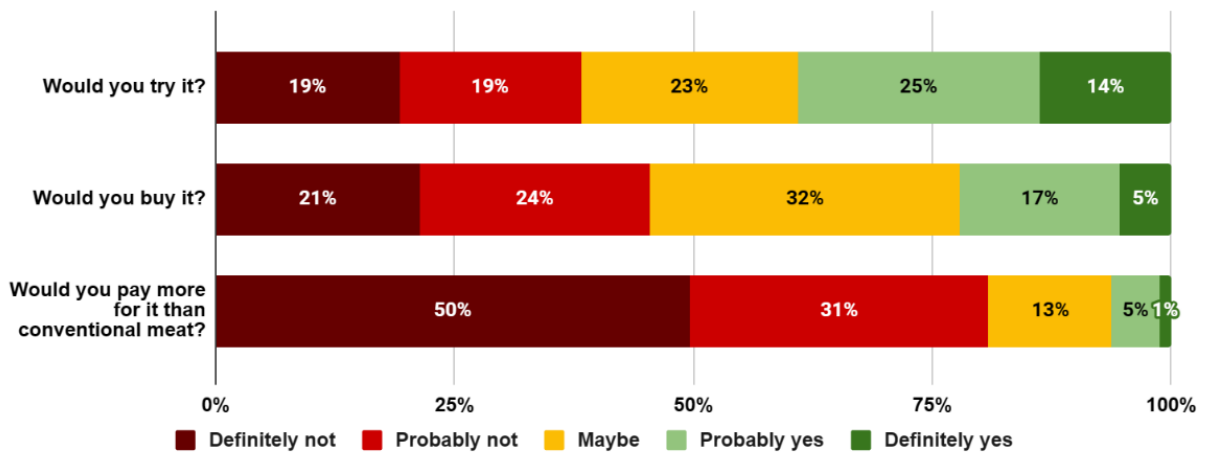
Generally, we observe significant positive correlations between perceived characteristics of meat-reduced diets and perceived characteristics of plant-based meat alternatives: that is to say, people who perceived meat-reduced diets more favourably also perceived plant-based meat alternatives more favourably. This was the case for tastiness/enjoyability ( $r=0.523$ ), healthiness ( $r=0.536$ ), convenience ( $r=0.434$ ), though less so for affordability ( $r=0.257$ ). 77% of those who view plant-based diets as tasty view plant-based meat alternative as tasty; 71% of those who view plant-based diets as healthy view plant-based meat alternative as healthy; 73% of those who view plant-based diets as convenient view plant-based meat alternative as convenient. The relationship is weaker for affordability: 37% of those who viewed plant-based diets as affordable viewed plant-based meat alternative as affordable.

### **Some people are wary of cultivated and precision fermentation products**

Beyond the currently available plant-based products, we also asked for participants' views about cell cultivated meat and precision fermentation-derived dairy products. While all alternative proteins sold to consumers in the UK just now are fungi-based (such as mycoprotein)<sup>133</sup> or plant-based (for example, burgers made from pea protein)<sup>134</sup> proteins, we asked people how open they would be to sampling both types of product. These survey findings should be treated with a bit of caution, since these products remain very hypothetical to most people at the moment, and so they may not be able to accurately predict how they would respond were they to be more widely marketed and normalised.

Many people, we discovered, are somewhat wary of novel food products like these. 39% of people said they would definitely or probably try cell-cultivated meat, in line with previous research, while 38% said they would definitely or probably not try it. Just 22% said they would buy it. That said, only a fifth of people would rule out eating cultivated meat entirely. There is certainly little appetite to pay a premium for meat produced without the animal rearing: 81% of people say they would not pay more for cultivated meat than conventional.

Figure 29: “With respect to cell-cultivated meat...”

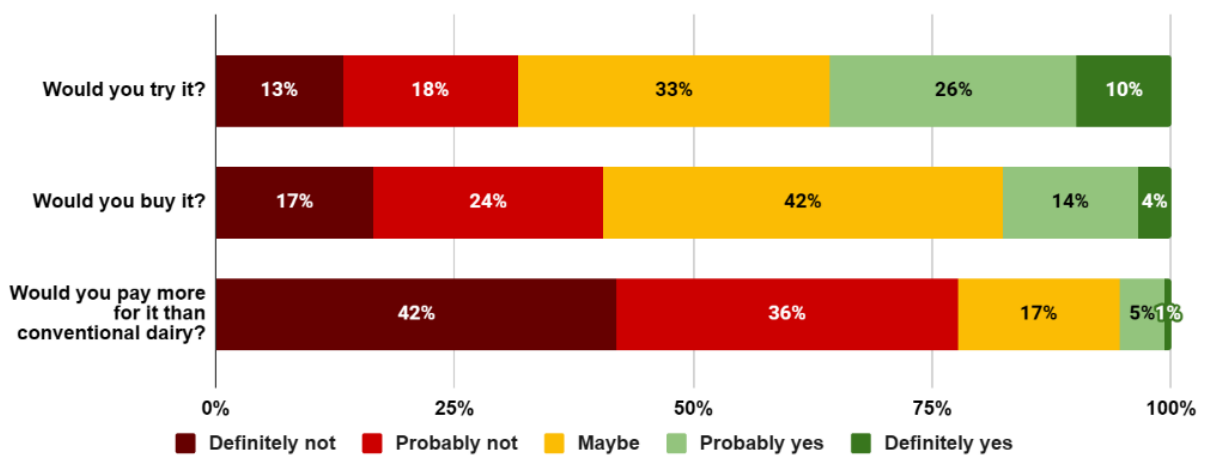


Source: SMF survey April 2023

*“My gut reaction is no to cell cultivated meat – not sure exactly why, but it sounds like we’re moving in the wrong direction.” – Animal Sympathiser*

It is a similar picture for precision fermentation dairy. 69% would consider trying it, but only 18% would be keen to buy it. 78% would be unwilling to pay any premium.

Figure 30: “With respect to precision fermentation dairy...”



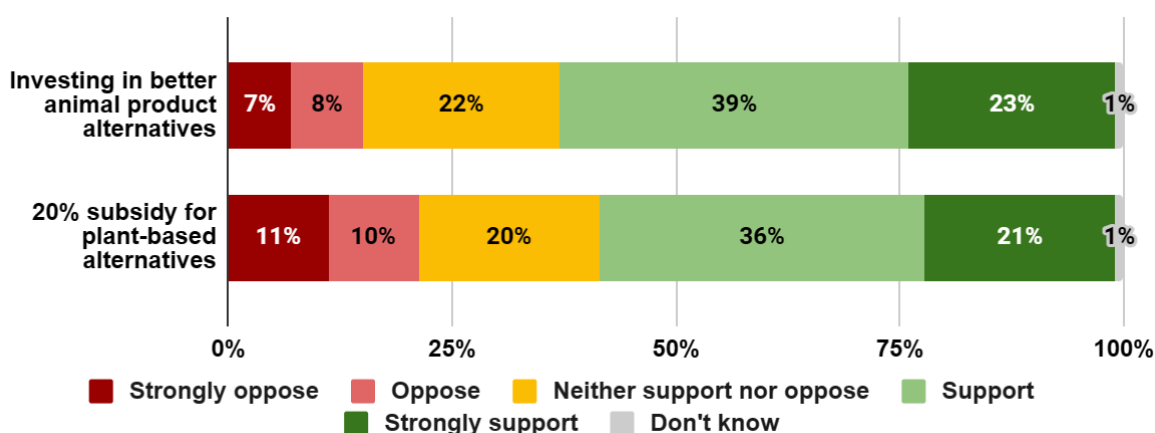
Source: SMF survey April 2023



## Nevertheless, they are amenable to government subsidy and investment in alternative proteins

Putting these two sets of findings together, we can say that British people generally have a decent amount of goodwill towards plant-based alternative proteins, and some amount of scepticism towards novel technologies like cell cultivation and precision fermentation. Yet that amounts to a decent level of support for government subsidy and investment in alternative proteins (presumably directed more at plant-based products). As we saw in Figure 12 (data reproduced in Figure 31 below), support for alternative proteins are among the most popular interventions to reduce meat consumption.

**Figure 31: Support for policies to promote alternative proteins<sup>viii</sup>**



Source: SMF survey April 2023

58% of people would be in favour of a 20% subsidy for plant-based alternatives. As with all of our polling, we should treat these findings with a little caution. This particular survey question came right after people were asked about a proposal to tax meat by 20%, so its popularity may have been boosted by seeming less extreme by comparison. All the same, this is still a strikingly positive figure given some of the culture war rhetoric around alternative proteins. Moreover, it fits with the evidence we discussed in the previous section regarding people’s concerns over the cost of alternative proteins.

<sup>viii</sup> The numbers in the graph do not add to 100 because of rounding. Rounding may also mean that numbers cited in the text differ slightly from those in the graph where multiple responses are aggregated together (e.g. ‘support’ and ‘strongly support’). Where they differ, the numbers in the text will be accurate.

62% of people support investment in improving alternatives to animal products, which, again, is a very positive figure. As with the subsidy question, a sceptic might argue that this merely reflects people's willingness to spend government money in the abstract without a budget constraint or the prospect of having to pay for it with higher taxes. Yet while respondents may be less inclined to cost control with hypothetical money, we do not believe they would support recklessly wasting it on projects they do not believe in.

At some level, then, this support reflects endorsement of the project of improving alternative proteins. This may reflect the level of dissatisfaction with their current level of taste and cost. Certainly, one of the themes emerging from focus groups was the value people put on variety and choice - people have quite different tastes in terms of the alternative protein products that they enjoy. This might explain why people favour greater development and refinement, optimistic about the prospect of further improvements and increasing the likelihood of finding more alternatives that they enjoy.

*"...The range has exploded so much in the last year or so that there is a lot of choice now. So you can try lots of different things." – Animal Sympathiser*

*"I don't like Quorn at all, but things like Beyond Burgers, Richmond vegan sausages are good – honestly, if you put them in casseroles I can't tell the difference – the taste is much better." – Animal Sympathiser*

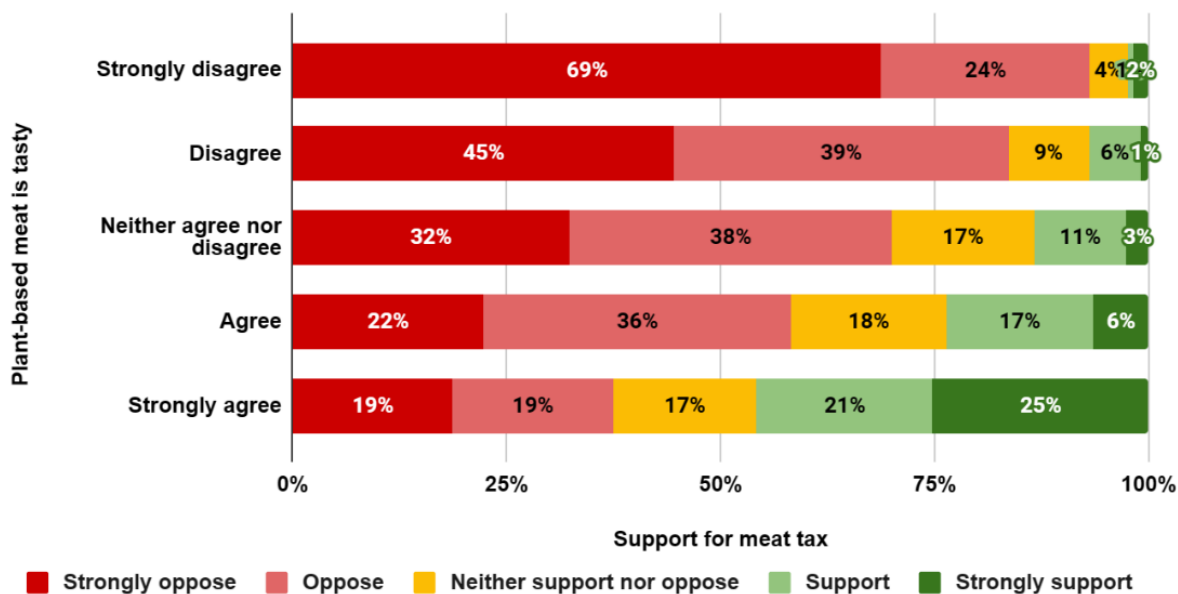
### **People with a more positive view of alternative proteins tend to be more favourable to meat reduction policies**

It has been suggested, including in previous SMF work, that voters might be more amenable to restrictive policies for reducing the consumption of animal products if alternative proteins were more attractive and accessible. That is a difficult proposition to test directly since it obviously depends on the quality, availability and affordability of products that do not yet exist.

However, using regression analysis, we attempted to analyse the link between people's perceptions of current plant-based products and their support for meat reduction policies. What we found is that people who rate plant-based products as healthier, tastier and more convenient are more likely to support policies to reduce meat consumption, controlling for a range of demographic factors. Indeed, opinions of alternative proteins are among the strongest predictors of a person's policy attitudes in our mode, with a far stronger effect than sex, age, education, income or rurality. The only comparable factor is diet, i.e. a person's opinion on alternative proteins is about as good a predictor of their policy views as whether they identify as vegan or vegetarian.

The full regression results are presented in Appendix 4. The figure below illustrates the pattern of results – in this case, those with more positive perceptions of plant-based meat are more likely to support a meat tax. It shows that 46% of people who ‘strongly agree’ that plant-based meat is tasty favour a meat tax, compared to 16% overall. 28% of people who believe plant-based meat is tasty (combining ‘strongly agree’ and ‘agree’) would support a meat tax, compared to just 6% of those who do not find plant-based meat tasty.

**Figure 32: Support for meat tax by views on whether plant-based meat is tasty**



Source: SMF survey April 2023

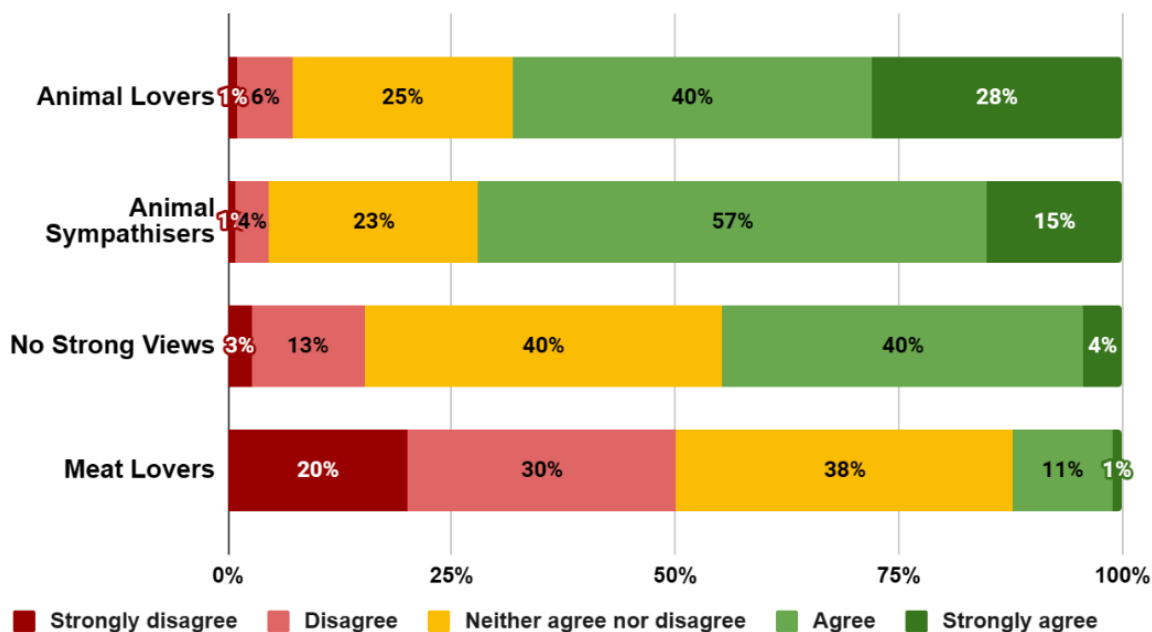
We should be careful about interpreting this relationship as a causal one. There may be lots of reasons why the sorts of people who currently like, enjoy and approve of plant-based meat substitutes might be dispositionally more favourable to meat-reduction policies. Yet it offers some tentative encouraging evidence that improving perceptions of alternative proteins could help to shift policy attitudes.

### Alternative proteins appeal most to Animal Sympathisers

A further potential benefit of improving alternative protein options is that they hold particular appeal for a pivotal segment of society - the ones we have labelled ‘Animal Sympathisers’, who are well-disposed towards animal welfare concerns, but who struggle to follow through and reduce their meat consumption.

Both Animal Lovers and Animal Sympathisers are broadly favourable towards plant-based products. While Animal Lovers were more likely to rate plant-based meat alternatives as tasty, affordable, and convenient, Animal Sympathisers were the most likely to say they are healthy.

**Figure 33: “To what extent do you agree with the following statement? For me, plant-based meat alternatives are healthy”**

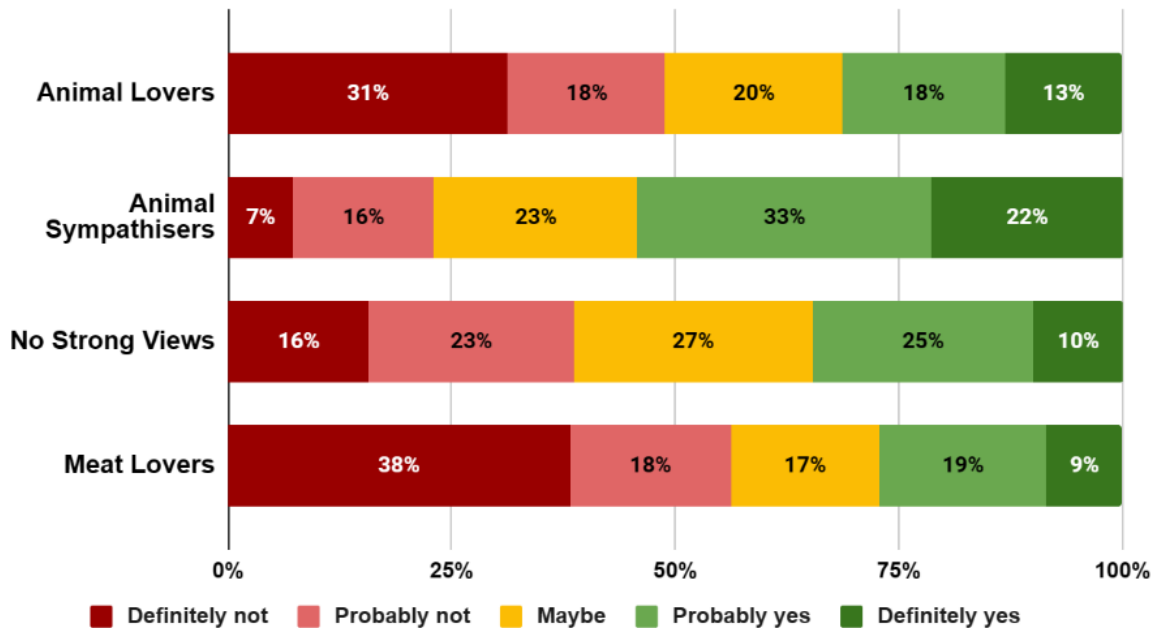


Source: SMF survey April 2023

Whereas Animal Lovers are more likely to be content with existing plant-based products, and Meat Lovers tend to be sceptical of the whole enterprise, it is the Animal Sympathisers who are most enthusiastic about the potential of novel alternative proteins, including cell-cultivated meat and precision fermentation dairy products. 55% of Animal Sympathisers would like to try cell-cultivated meat, compared to 35% of those with no strong views, and 31% of Animal Lovers. This is consistent with previous research findings, which suggest that vegetarians are less interested in trying cultivated meat compared to meat-eaters.<sup>135</sup>

Although our study did not probe whether those interested in trying cultivated meat would use it as a direct substitute, ample evidence from previous research suggests that between 48-55% of people are open to regularly consuming cell-cultivated meat and in replacement of conventional meat if made commercially accessible.<sup>136</sup> Moreover, research on the topic of displacement suggests that existing alternative proteins do displace demand for animal products,<sup>137</sup> and this may be even more likely for cultivated meat, which is typically more appealing to meat-eaters rather than vegetarians.<sup>138</sup>

**Figure 34: “With respect to cell-cultivated meat, would you try it?”**



Source: SMF survey April 2023

The focus groups backed this up, with Animal Lovers being more conservative and more content with the products already available to them. People in this group tend to feel greater aversion, even revulsion to meat, and so are more resistant to products that try to mimic it:

*“It would feel like I am eating meat even though I’m not, I don’t know what’s in it.” – Animal Lover*

*“It could be appealing for those people – but not for me, I don’t miss it or crave it so I can get it elsewhere – it exists but it is very expensive.” – Animal Lover*

By contrast, despite some broader scepticism about alternative proteins in the Meat Lovers group, there was some openness to giving more ‘realistic’ meat substitutes a chance, as 28% of Meat Lovers in our survey said they would try cell-cultivated meat:

*“If it tastes okay, I’ll go for it. I’d even go for it just to get the protein in. But as long as it tastes like meat, well, it still is meat, obviously, but as long as it tastes okay.” – Meat Lover*

By contrast, when asked about plant-based meat substitutes, the vast majority of individuals in the Meat Lovers group were closed off to trying plant-based meat. As one participant stated when describing a lack of appetising meat substitutes:

*“I couldn’t find anything that would substitute the taste.” – Meat Lover*

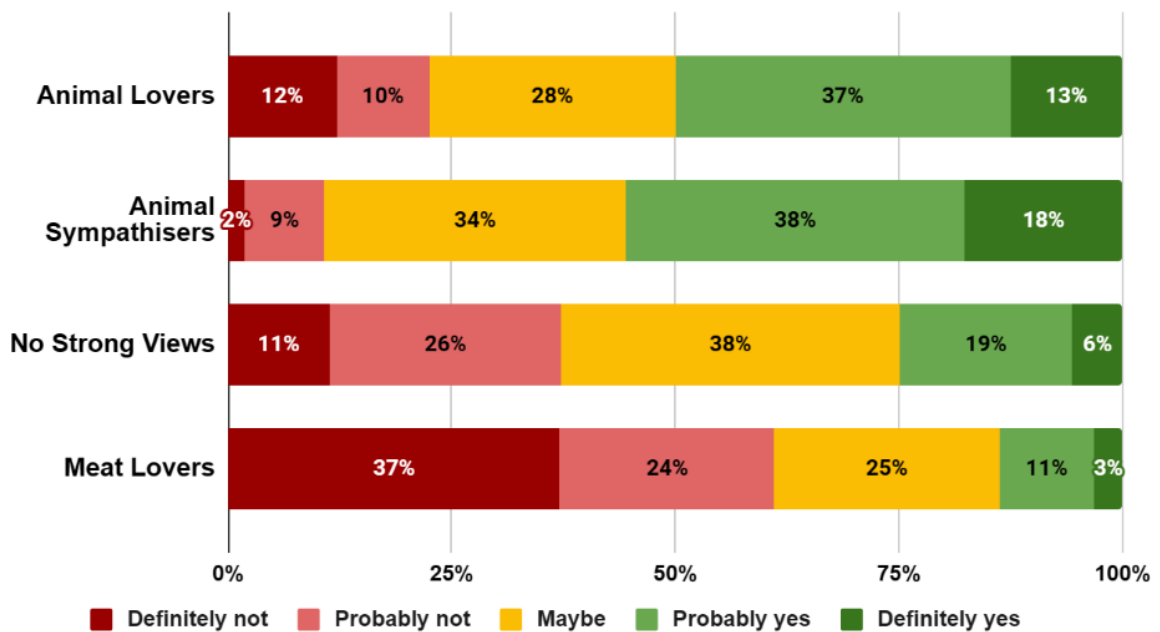
On the other hand, a handful of participants in the focus groups across all segments recognised the positive societal impact of switching to cell-cultivated meat as a primary source of meat production and consumption for largely ecological reasons. Even when personal aversion toward cell-cultivated alternative proteins was voiced, there was at least recognition of its importance for ecological and welfare concerns on a societal scale.

*“I don't know if it's physically healthy. I expect it will be made reasonably healthy, but I know from a kind of planet point of view and from an animal welfare point of view, then it is a good alternative.” – Animal Sympathiser*

*“I do find the idea less appealing because it's not as natural. But I think it might be the future of meat. To be honest, the way things are going, I don't think we're going to be able to produce meat in the future. But the growing population in the future might have to just be and maybe natural meat will be like something very rare. So this might be the future of meat.” – Meat Lover*

Despite Animal Lovers' resistance to cell-cultivated meat, focusing on the latter three segments more resistant to plant-based options could be a more effective strategy to garner greater support for cell-cultivated alternative proteins.

**Figure 35: “With respect to precision fermented dairy, would you try it?”**



Source: SMF survey April 2023

## Supporting alternative proteins could be a more politically acceptable way to reduce meat consumption than taxes

As shown in Figure 12, 69% of respondents opposed a meat tax, but 58% supported an equal subsidy for meat alternatives, and 62% supported investing in the development of better meat alternatives. Assuming that meat alternatives are competing with meat from animals, and that price is an important determinant of consumer choices,<sup>139</sup> subsidising meat alternatives is likely to have a similar effect on demand for animal products as a meat tax, but is far more politically acceptable.

*“I also think what the government should do is maybe subsidise the non-meat products, because obviously there's some good non meat products out there now that weren't there five or 10 years ago.” – Animal Sympathiser*

*“I think the meat tax, I don't think that's a good idea. I think reducing the prices of meat alternatives would be a better way to get people to try those.” – No Strong Views*

At present, the UK tax system exempts meat and dairy from VAT, while no such exemption exists for plant-based alternatives.<sup>140</sup> This means that subsidies for alternative proteins could take the form of simply extending existing VAT exemptions. This is a similar framing to some discussions of meat tax: rather than imposing a meat tax per se, German politicians have considered abolishing the VAT reduction on meat.<sup>141</sup> While choosing to provide a subsidy, impose a tax, or grant tax exemptions have different implications in terms of public spending or revenue, they are likely to have a similar effect in terms of their impact on meat consumption. Importantly, providing subsidies or granting tax exemptions are likely to be far more politically acceptable than imposing a meat tax. We can see this resistance play out among British politicians having recently rejected the proposal for a meat tax, despite the recommendation from the National Food Strategy report to reduce meat consumption by 30% in the next decade.<sup>142</sup>

Subsidising and investing in alternative proteins, therefore, may represent a political opportunity for those seeking to reap the benefits of meat reduction without awakening public ire towards efforts to encourage this change.

## APPENDICES

### Appendix 1: Literature search method

Articles indexed by Google Scholar were included in the initial literature review stage. Search terms included research papers that included the following keywords, 'UK public opinions toward' OR 'UK consumer attitudes' AND 'farm\* animal welfare' OR 'meat reduction' OR 'alternative protein\*' OR 'government policies to reduce meat'. The initial search results yielded approximately 22,000 hits. In order to narrow the relevance of the publications included for review, only articles published within the last five years were aggregated, this resulted in roughly 13,000 relevant articles that could be filtered through. For the sake of brevity, only the first 20 pages of results from google scholar were included in the next stage of review. These references were then downloaded as a CSV (comma-separated values) file and uploaded to ASReview, an AI based software used for accelerating the screening process of delineation between relevant and irrelevant publications to be included in a systematic literature review.

The final stage of screening involved carefully scanning the abstracts from the 20 pages of Google Scholar results within ASReview. Upon review of the abstracts, a final 35 ( $N=35$ ) research articles were identified as meeting the main criteria for the systematic review based on the initial search terms used for stage 1 (e.g. articles which examined UK public opinions towards (a) farmed animal welfare, (b) meat reduction, (c) alternative proteins, and (d) government policies to reduce meat consumption).

Next, we searched surveys from British pollsters. We used the pollsters listed on the British Polling Council website. We conducted Google searches on those sites for each of four search strings:

*'UK animals'*

*'UK plant based meat dairy alternative'*

*'UK vegetarian vegan flexitarian meat'*

*'UK government policy regulation meat dairy vegetarian'*

For most search strings, most pollsters' sites returned fewer than 100 results. However, for the search string 'UK animals', Ipsos, Sky Data, and YouGov returned 600, 1,330, and 399 results respectively. To keep the search manageable, for these cases, we used searches of the pollsters' websites for 'animals', and found [213 results on Ipsos](#), [no results on Sky Data](#), and [212 results on YouGov](#).



## Appendix 2: Survey variables

<p><b>Demographics</b></p>	<p>Age</p> <p>Sex</p> <p>Political party</p> <p>Region</p> <p>Urbanness</p> <p>Education</p> <p>Income</p> <p>Vocations</p> <p>Religion</p> <p>Diet</p> <p>Food frequency</p>
<p><b>Attitudes to vegetarianism and meat reduction</b></p>	<p>People should eat less meat</p> <p>Meat-free diets are better for the environment</p> <p>Meat-free diets are better for animals</p> <p>Meat-free diets are better for human health</p> <p>The government should encourage less meat</p> <p>Less meat → affordable</p> <p>Less meat → enjoyable</p> <p>Less meat → convenient</p> <p>Less meat → healthy</p>
<p><b>Attitudes to alternative proteins</b></p>	<p>PBMs → affordable</p> <p>PBMs → healthy</p> <p>PBMs → tasty</p> <p>PBMs → convenient</p> <p>PBD → affordable</p> <p>PBD → healthy</p> <p>PBD → tasty</p> <p>PBD → convenient</p> <p>CM → would try</p> <p>CM → would buy</p>

	<p>CM → pay more</p> <p>PFD → would try</p> <p>PFD → would buy</p> <p>PFD → pay more</p> <p>General attitudes to alt proteins</p>
<b>Attention check</b>	<p>What does the following sentence imply? “The family only has one car”</p> <ul style="list-style-type: none"> <li>- The family does not have access to a car</li> <li>- The family does not have three cars</li> <li>- The family only likes cars</li> <li>- The family has several cars</li> </ul>
<b>Attitudes to animal welfare</b>	<p>Animal welfare is important</p> <p>Attention check → Please select ‘disagree’</p> <p>Object to unnecessary harm</p> <p>Support ban on factory farming</p> <p>Support ban on all animal farming</p> <p>Have discomfort with animal treatment</p> <p>Try not to think about animal conditions</p> <p>Generally good treatment → most animals</p> <p>Generally good treatment → meat cows</p> <p>Generally good treatment → dairy cows</p> <p>Generally good treatment → pigs</p> <p>Generally good treatment → meat chickens</p> <p>Generally good treatment → egg chickens</p> <p>Generally good treatment → fish</p> <p>Healthiness → Beef</p> <p>Healthiness → Pork</p> <p>Healthiness → Chicken</p> <p>Healthiness → Fish</p> <p>Healthiness → Dairy</p> <p>Healthiness → Eggs</p> <p>Environment → Beef</p> <p>Environment → Pork</p>

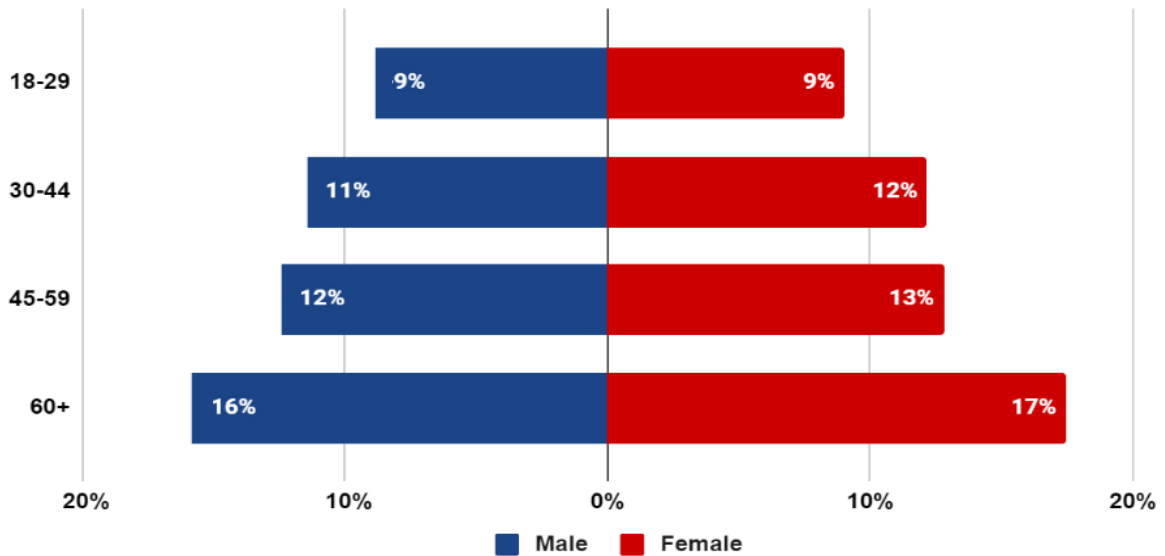
	<p>Environment → Chicken</p> <p>Environment → Fish</p> <p>Environment → Dairy</p> <p>Environment → Eggs</p> <p>WTP → Higher welfare</p> <p>WTP → Harmful to environment</p> <p>WTP → Healthier</p> <p>WTP → Better tasting</p>
<p><b>Attitudes to meat reduction policies</b></p>	<p>Support/oppose → Tax</p> <p>Support/oppose → Subsidy</p> <p>Support/oppose → Invest in research</p> <p>Support/oppose → Incentives for farmers</p> <p>Support/oppose → Improved animal welfare standards</p> <p>Support/oppose → Meat-free days in public catering</p> <p>Support/oppose → Carbon labels</p> <p>Support/oppose → Animal welfare labels</p> <p>Support/oppose → Limits on AP in dietary guidelines</p> <p>Support/oppose → Restrict meat advertising</p> <p>Affect consumption → Tax</p> <p>Affect consumption → Subsidy</p> <p>Affect consumption → Invest in research</p> <p>Affect consumption → Incentives for farmers</p> <p>Affect consumption → Improved animal welfare standards</p> <p>Affect consumption → Meat-free days in public catering</p> <p>Attention check → Please select 'somewhat oppose'</p> <p>Affect consumption → Carbon labels</p> <p>Affect consumption → Animal welfare labels</p> <p>Affect consumption → Limits on AP in dietary guidelines</p> <p>Affect consumption → Restrict meat advertising</p>

## Appendix 3: Survey demographics

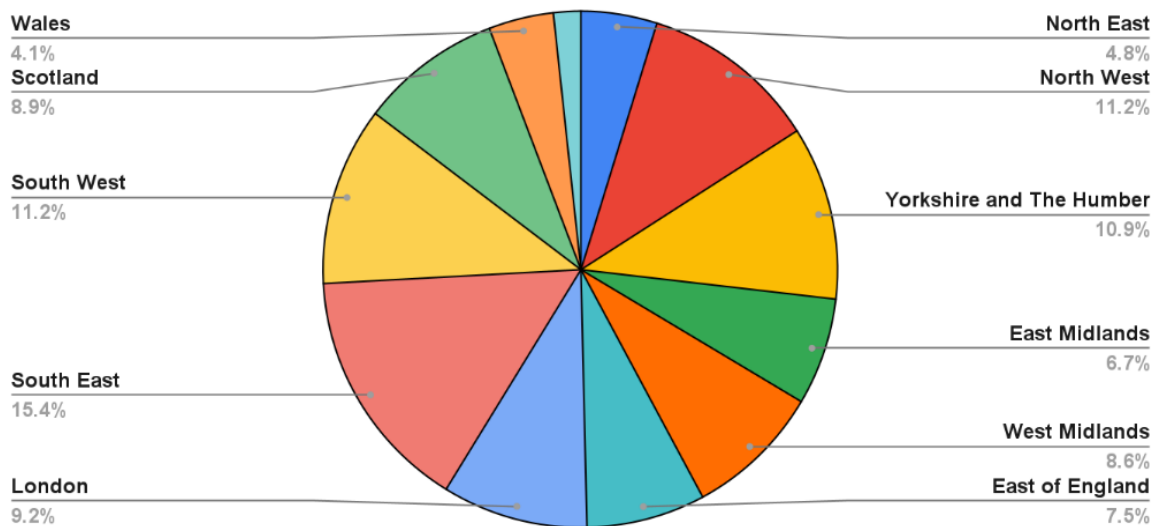
<b>Gender</b>	<b>Our sample</b>	<b><u>National</u></b>	<b>Urbanness</b>	<b>Our sample</b>	<b><u>National</u></b>
Female	51%	51%	Urban	27%	12%
Male	49%	49%	Suburban	51%	55%
<b>Age Group</b>	<b>Our sample</b>	<b><u>National</u></b>	Rural	22%	33%
18-29	18%	20%	<b>Income</b>	<b>Our sample</b>	<b><u>National</u></b>
30-44	24%	27%	Less than £20,000	17%	30%
45-59	25%	20%	£20,000 – £29,999	22%	29%
60+	33%	33%	£30,000 – £39,999	18%	16%
<b>Region</b>	<b>Our sample</b>	<b><u>National</u></b>	£40,000 – £49,999	13%	10%
North East	5%	4%	£50,000 – £59,999	10%	5%
North West	11%	11%	£60,000 – £69,999	7%	2%
Yorkshire & The Humber	11%	8%	£70,000 – £79,999	4%	2%
East Midlands	7%	7%	£80,000 – £89,999	3%	2%
West Midlands	9%	9%	£90,000 – £99,999	3%	2%
East of England	8%	9%	£100,000 or more	4%	2%
London	9%	13%	<b>Education</b>	<b>Our sample</b>	<b><u>National</u></b>
South East	15%	14%	Some school	1%	9%
South West	11%	9%	GCSEs (or eq)	17%	20%
Scotland	9%	8%	A levels (or eq)	27%	30%
Wales	4%	5%	Bachelor's degree (or eq)	39%	26%

Northern Ireland	2%	3%	Master's degree (or eq)	14%	13%
			PhD or higher degree	3%	2%

### Sample Age & Sex

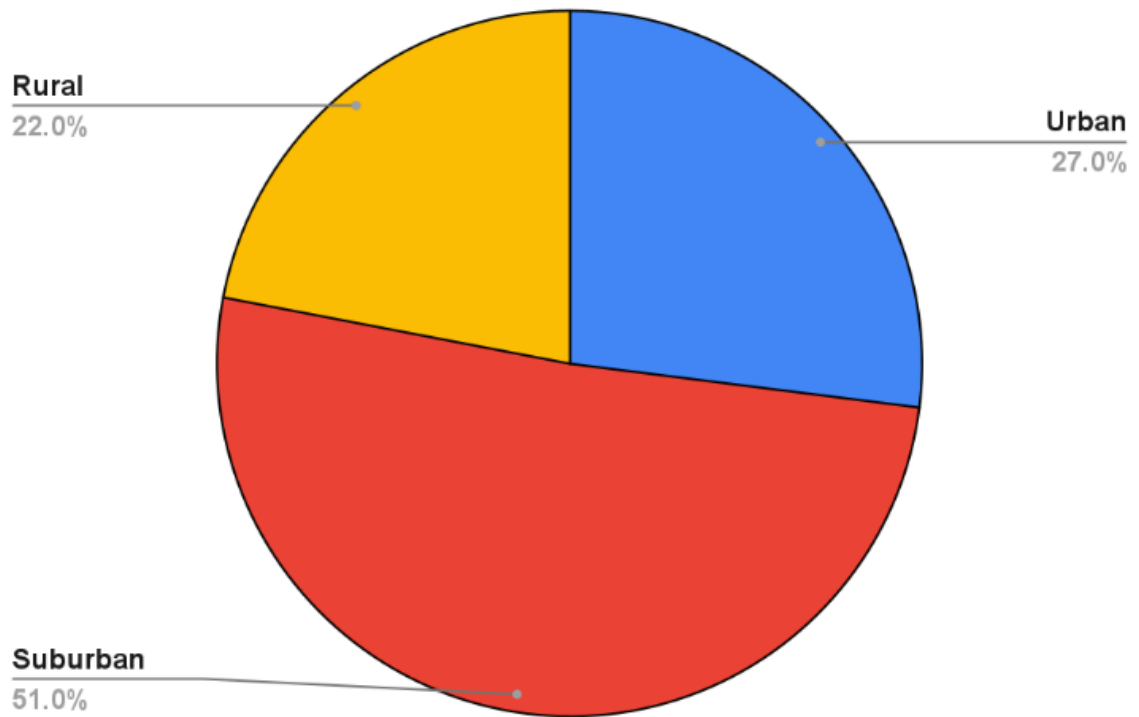


### Sample Regions

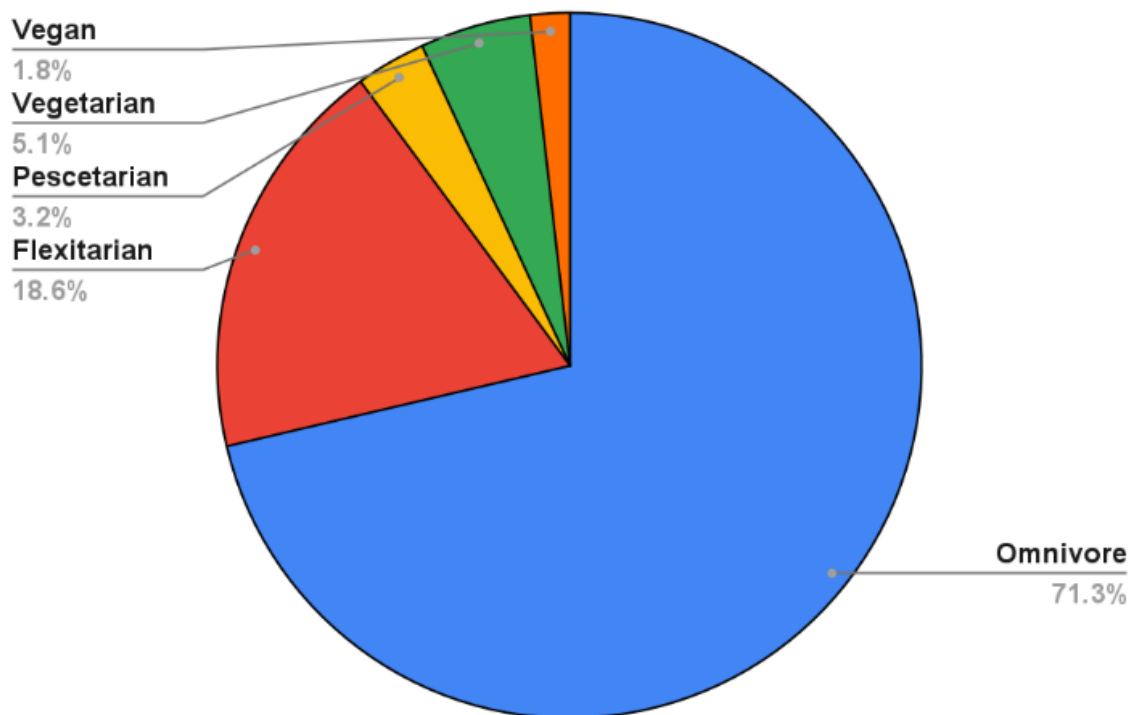


As shown, we recruited a representative sample in terms of age groups and genders<sup>143</sup>, and the different UK regions were also well represented in the sample.<sup>144</sup>

### Sample Areas

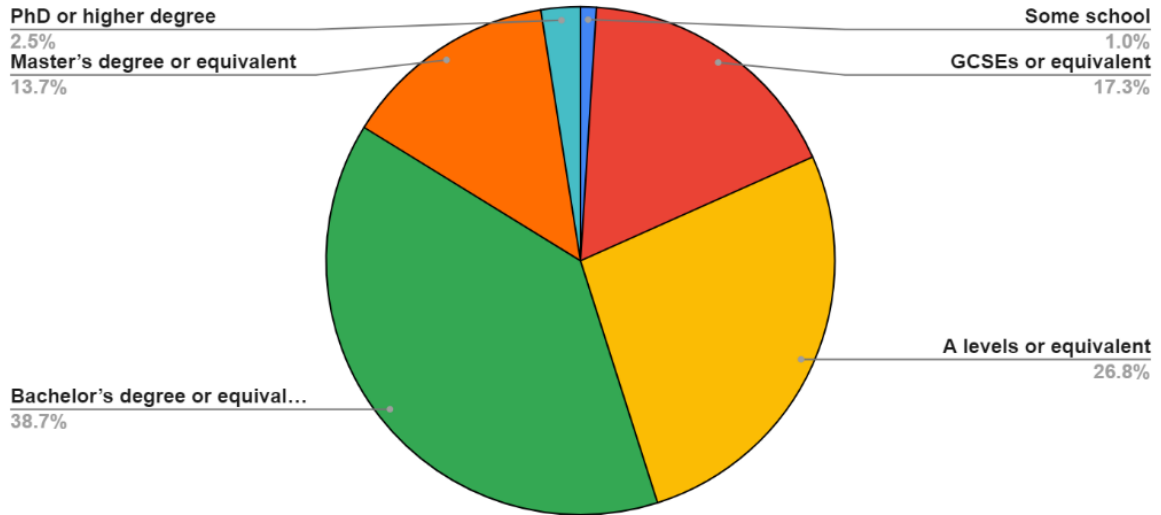


### Sample Diets

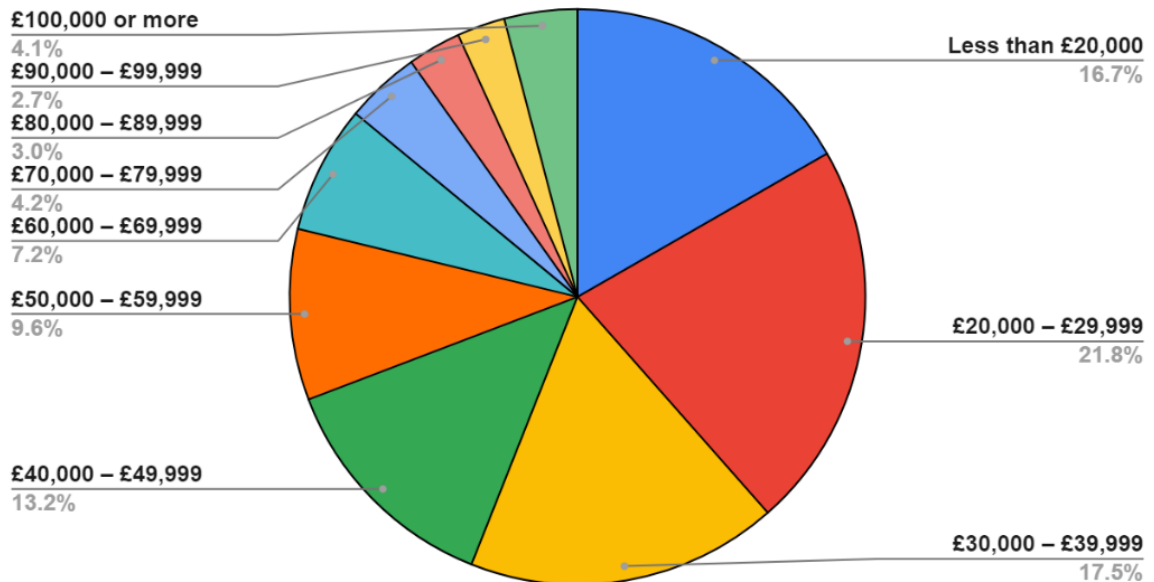


In line with existing survey data, about 50% of the sample lived in suburban areas, with close to 30% in urban areas and close to 20% in rural areas<sup>145</sup>. The reported diets are also fairly consistent with existing survey data; 71% identified as omnivores, with a further 19% identifying as flexitarian, and roughly 10% identifying as meat-avoiders (2% vegan, 5% vegetarian, 3% pescetarian)<sup>146</sup>.

### Sample Education

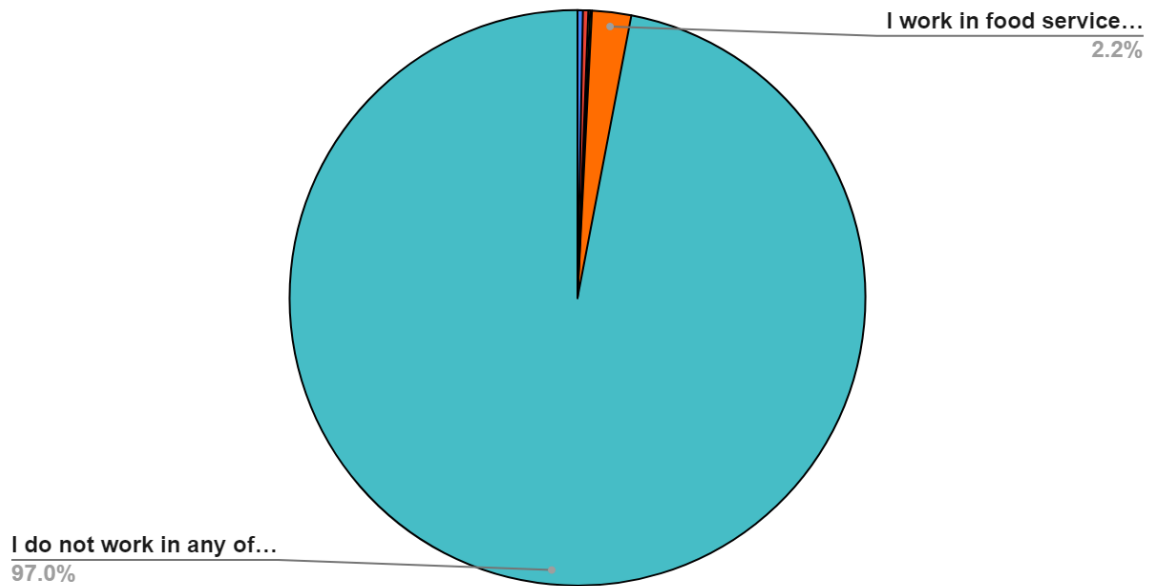


### Sample Income

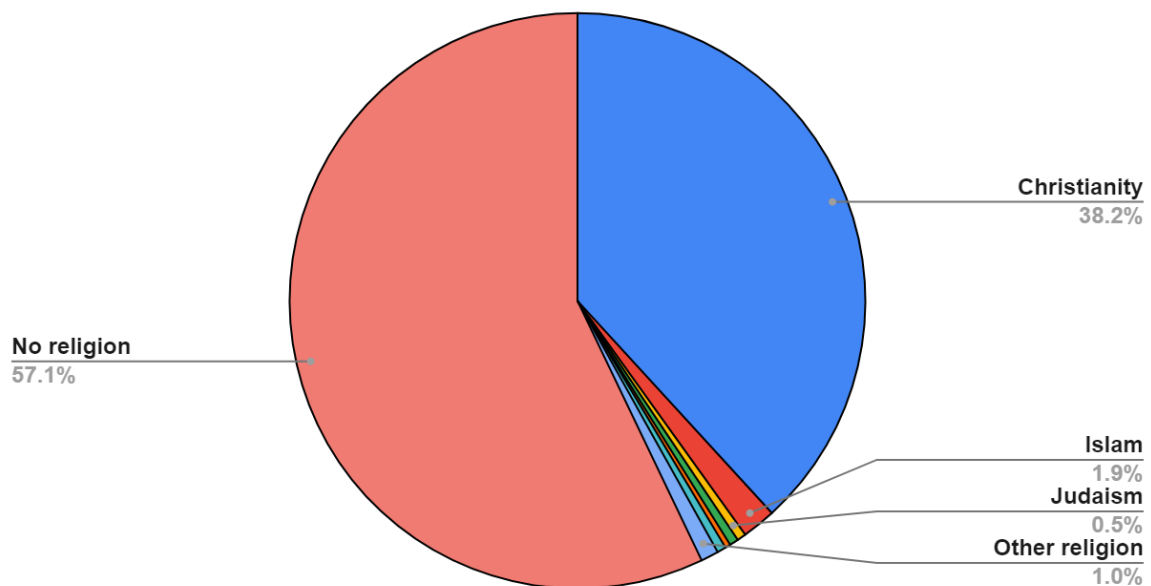


Over half of respondents were university-educated, which is slightly higher than the national average.<sup>147</sup> Over half of respondents reported pre-tax household incomes below £40,000, which is roughly in line with the national average.<sup>148</sup>

### Sample Vocations



### Sample Religions

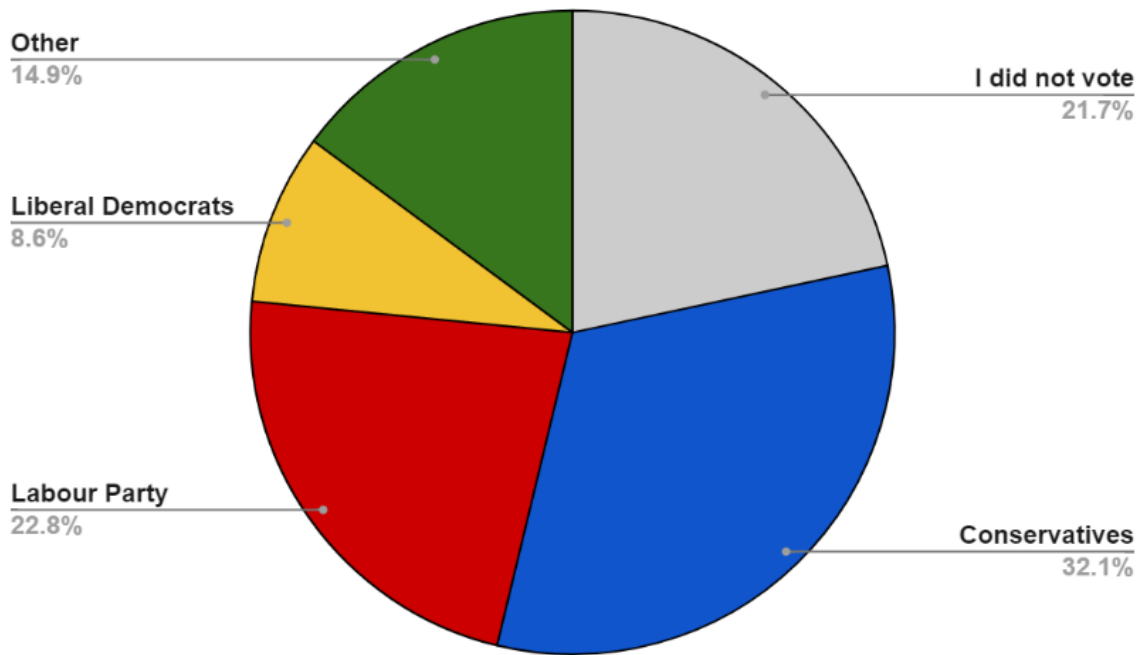


We recorded a somewhat disappointingly low proportion of people working in fields of interest including animal farming, slaughterhouses, and food policy. The proportion of people working in such jobs is likely too low to say anything meaningful about those groups vs. the rest of the population. The percentage of people belonging to different religions was roughly in line with existing population estimates.<sup>ix</sup>

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### Sample Voting 2019



The sample was recruited to be representative of political affiliations. Due to limited sample availability in older age groups, there is a slight overrepresentation of voters compared to non-voters. In particular, the 'did not vote' group was 32.7% of the population in the general election, but was just 21.7% in our sample. All party preferences have a slight overrepresentation of between 1%–7%.

## Appendix 4: Regression analysis

In order to investigate the effect of views towards alternative proteins on support for meat reduction policies, we constructed a multiple linear regression. The dependent variable was computed as the mean value of support for all of the different meat reduction policies (1–5) and the independent variables included demographic factors (age, sex, urbanness, education, income, and diet) as well as perceptions of plant-based meat alternatives (affordability, healthiness, tastiness, and convenience).

The model successfully predicted 43% of the variation in policy support. The variables which significantly predicted support for meat reduction policies are marked with an asterisk in the table below:

Adj R <sup>2</sup> =0.429, F(10,1322)=101.232, p<0.001		
	Std β	p
(Constant)	0.116	<0.001
PBM Affordability	-0.019	0.444
PBM Healthiness*	0.312	<.001
PBM Tastiness*	0.155	<.001
PBM Convenience*	0.172	<.001
Age	-0.02	0.385
Sex*	-0.072	<.001
Urbanness	0.009	0.663
Education	0.062	0.004
Income	0.042	0.056
Diet*	0.242	<.001

*Sex: Female=0, Male=1*

*Urbanness: Rural=1, Suburban=2, Urban=3*

*Diet: 1=Omnivore, 2=Flexitarian, 3=Pescetarian, 4=Vegetarian, 5=Vegan*

*For all other variables, higher values correspond to higher levels*

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