

# Quantifying public attitudes towards consumption of meat produced from gene edited animals

Tom Kirk, John Crowley\*, Daniel Martin-Collado and Bruce Whitelaw

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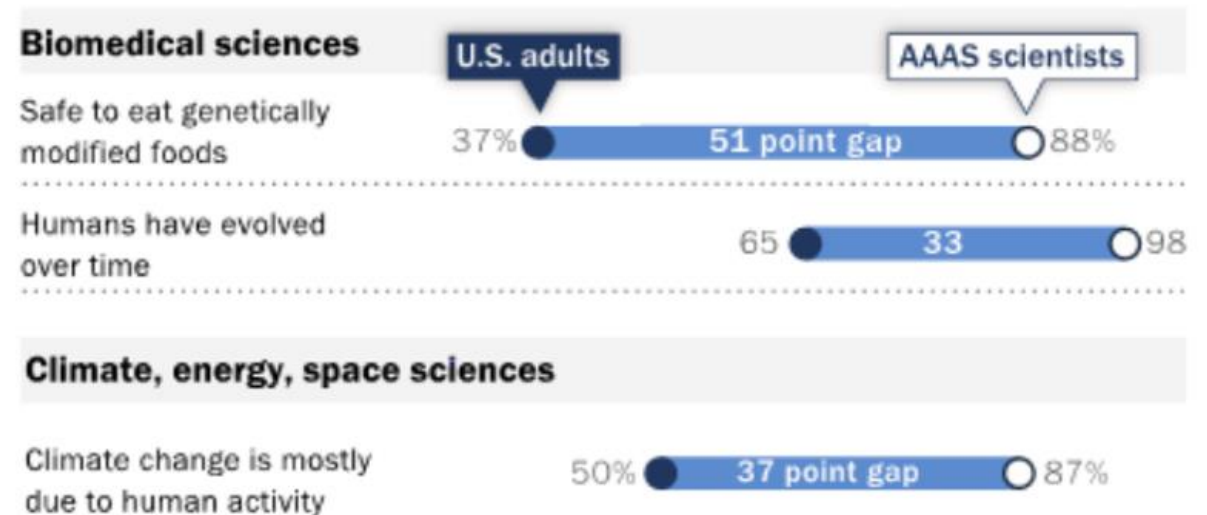


# Consumer focus is important

- Gene Editing (GE); achieve same effects as GMO without transferring new genes (from one organism to another)
- Negative public perception of GMOs
- Most research focused on plants

## Opinion Differences Between Public and Scientists

*% of U.S. adults and AAAS scientists saying each of the following*



*Pew Research Centre, 2014*

# Objective

Provide market information to support advancement of research toward commercialisation by quantifying public attitudes towards consumption of meat produced from genome edited animals

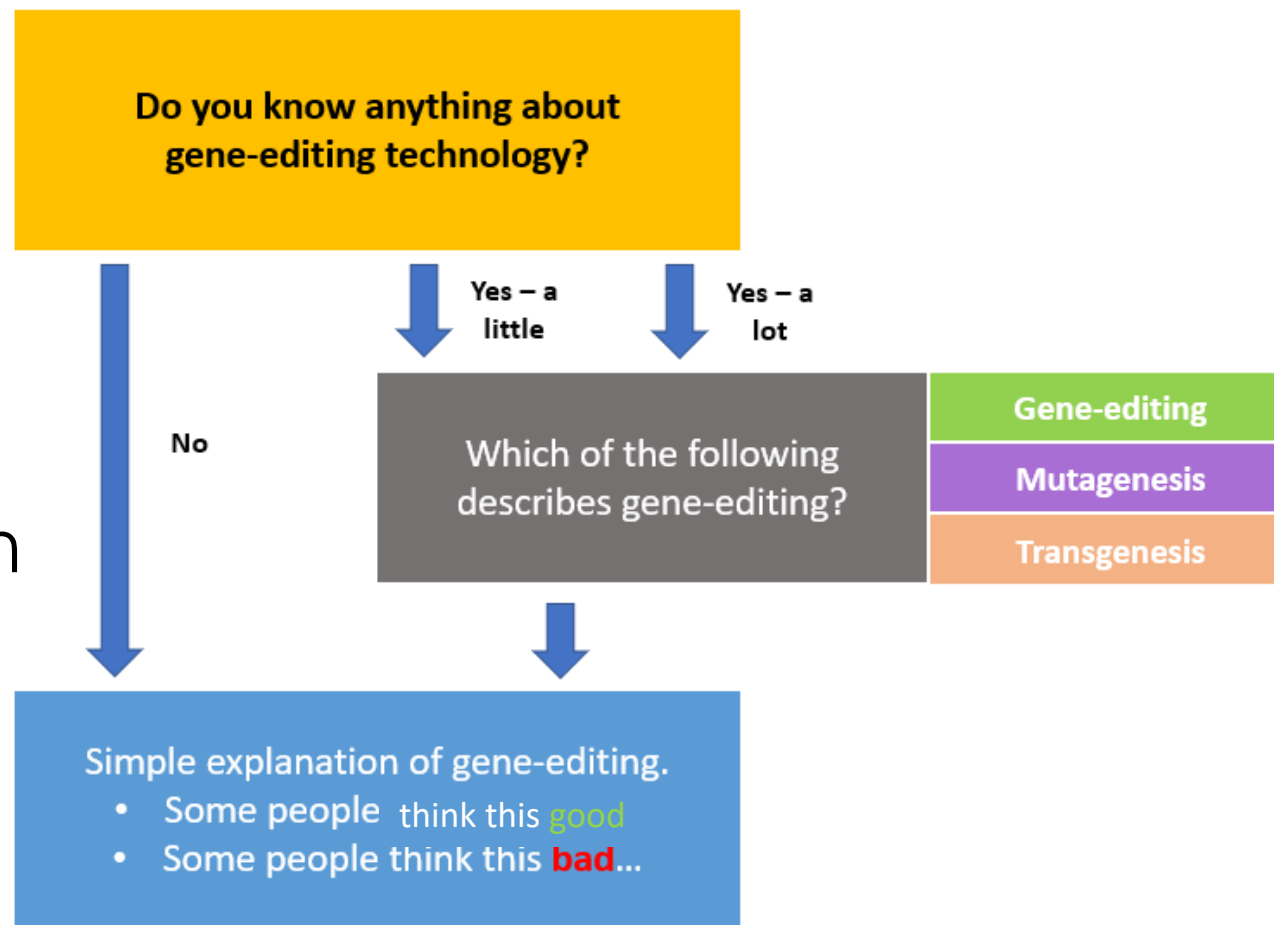
# Approach

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- Survey, distributed through social media
  - Advertised to general public (UK)
  - 1088 respondents (self-selected)
  - Skewed older, female, rural
- Demographic information
- Likert-scale questions
- Bidding war (i.e. “would you rather?”)

# Survey: what we tested

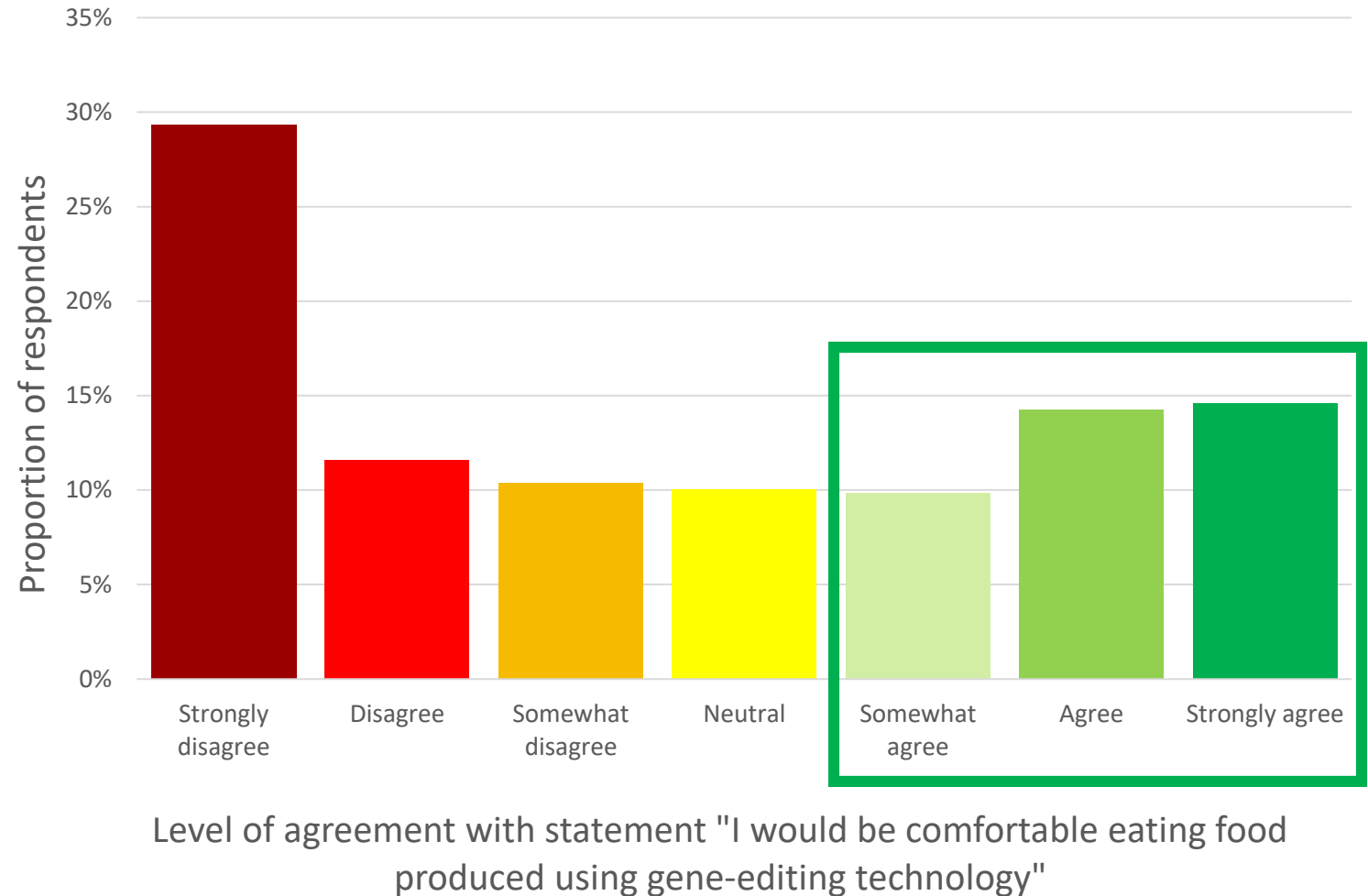
- Knowledge
  - Real vs. perceived
- Attitudes
  - Ethics of gene-editing
  - Barriers to consumption
- Behaviour
  - Purchasing decisions
  - Willingness to pay



# Outcomes

# Attitudes

- Consumers have view of a “package” including both GE and GMOs
- Attitude to GMO foods strongly predicts attitudes towards gene-editing in foods





# But: Strong group differences

- Young, urban, males are very positive
  - Reflects previous research on GMOs
  - Inverse: Older, female, rural are negative
  - Given skew, population may be more open to biotechnologies than results suggest
- Higher education associated with more positive attitudes towards GE & GMOs

# 4 consumer groups identified

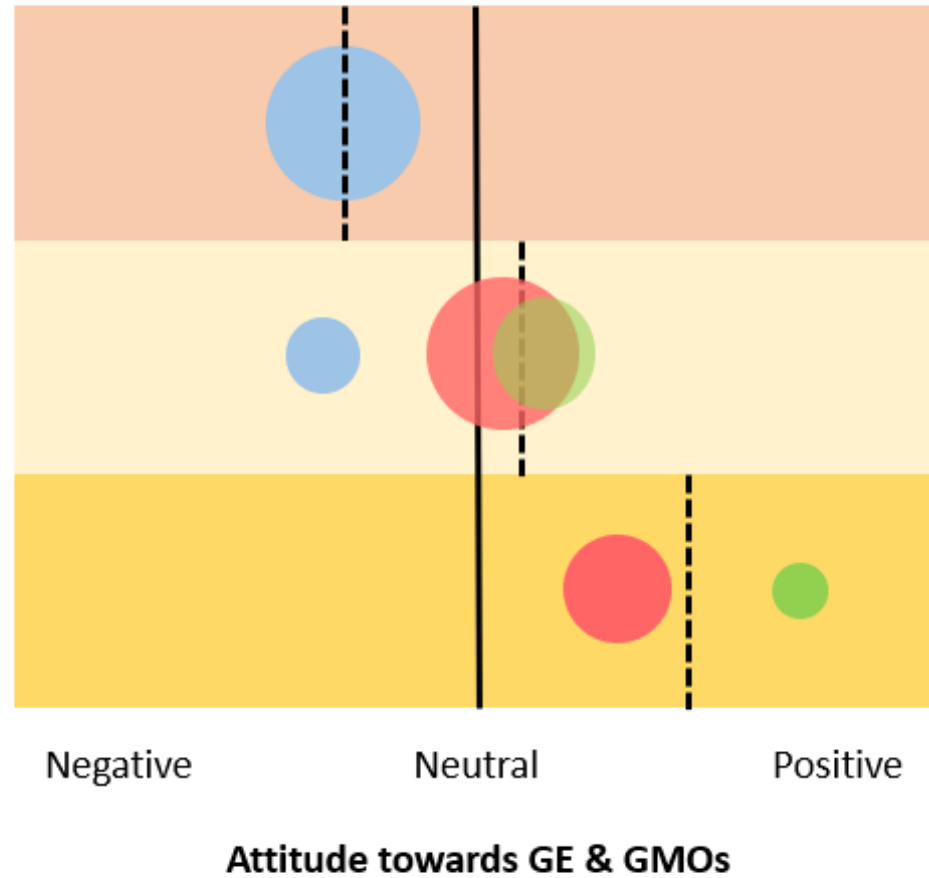
<b>Attitude towards GE &amp; GMOs</b>	<b>Treatment of animals vs. plants</b>	<b>Proportion of respondents (%)</b>
Anti GE & GMOs	Treat differently	28.6
Anti GE & GMOs	Treat equally	18.6
Moderates	Neutral	39.5
Pro GE & GMOs	Treat equally	13.2

*All differences were statistically significant ( $p < 0.001$ )*

# What's relevant to GE acceptance?

	Anti-GE & GMO Animals/plants same	Anti-GE & GMO Animals/plants different	Moderates	Pro GE & GMO Animals/plants same
Less Important	Endorsements	Endorsements	Endorsements	Endorsements
	Friends eat GE food	Friends eat GE food	Friends eat GE food	Friends eat GE food
	Trustworthy brands	Trustworthy brands	Trustworthy brands	"GE" Labelling
	Govt approval	Govt approval	Govt approval	Trustworthy brands
	Support from independent scientific organisations		"GE" Labelling	Learning more
	Learning more	Learning more	Learning more	Govt approval
More Important	"GE" Labelling	"GE" Labelling	Support from independent scientific organisations	

# Actual vs. “perceived” knowledge



Greater **perceived** knowledge associated with acceptance

**Perceived knowledge of gene-editing**

Correct

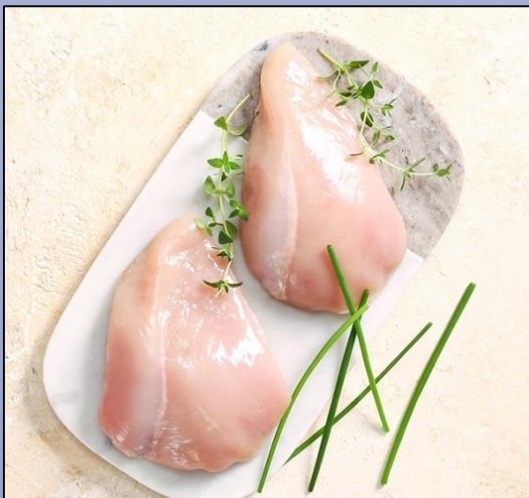
Incorrect

Not sure

# Consumers value benefits

- Benefits of gene-editing in food were identified by 3 categories;
  - Lower environmental impact
  - Human health
  - Animal welfare
- All 3 areas have value to consumers
- How would this affect purchasing decisions?

# Consumers value benefits



1kg Chicken breast  
£6  
"Regular" meat

Price decreases by £1  
if respondent prefers  
"Regular" meat

Start at premium!

No  
preference



1kg Chicken breast  
£7  
Gene-edited meat  
Improved Welfare/Disease  
Resist.

# Consumers value benefits



1kg Chicken breast  
£6  
"Regular" meat

No  
preference



1kg Chicken breast  
£7  
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# Consumers value benefits



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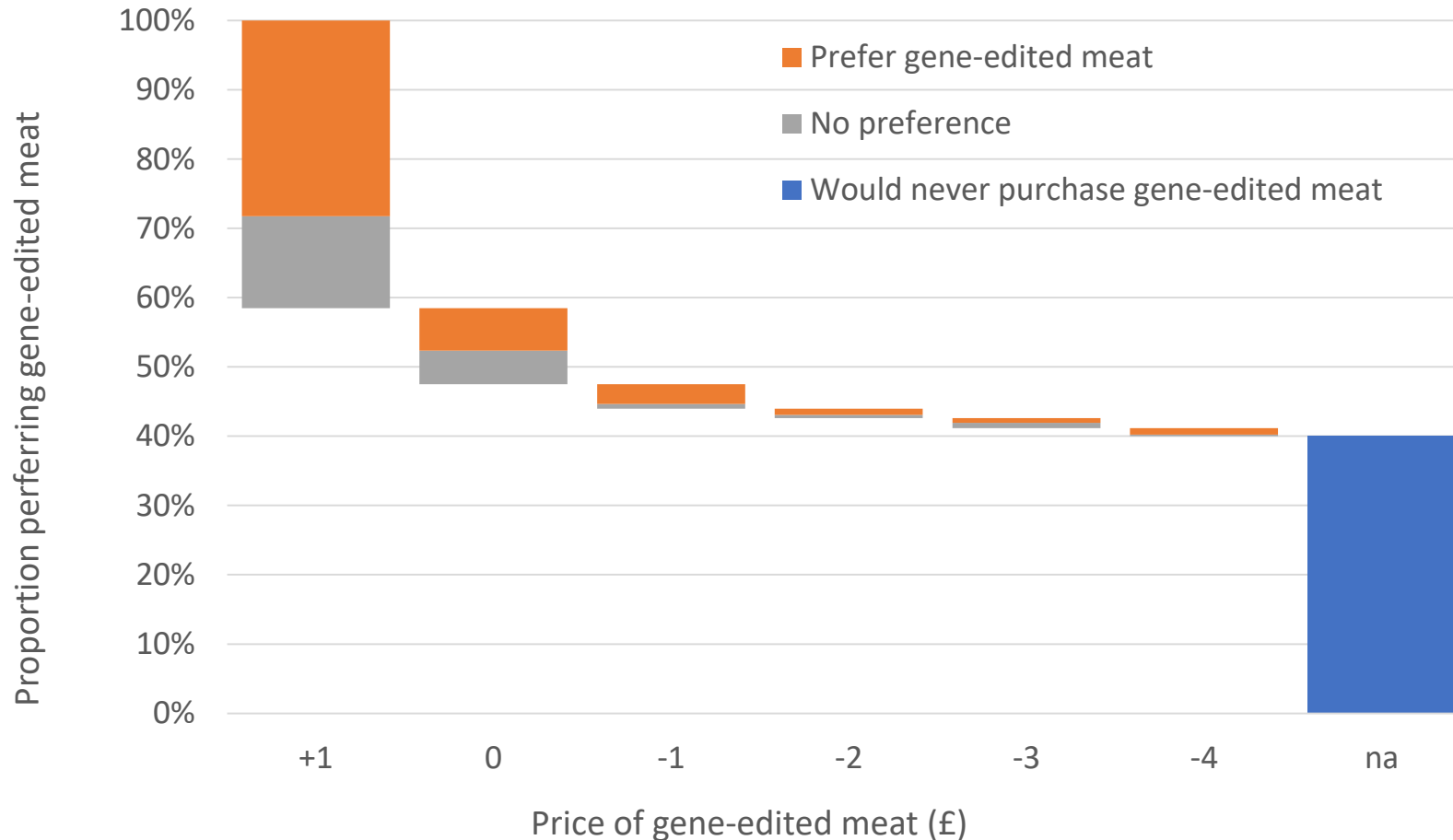
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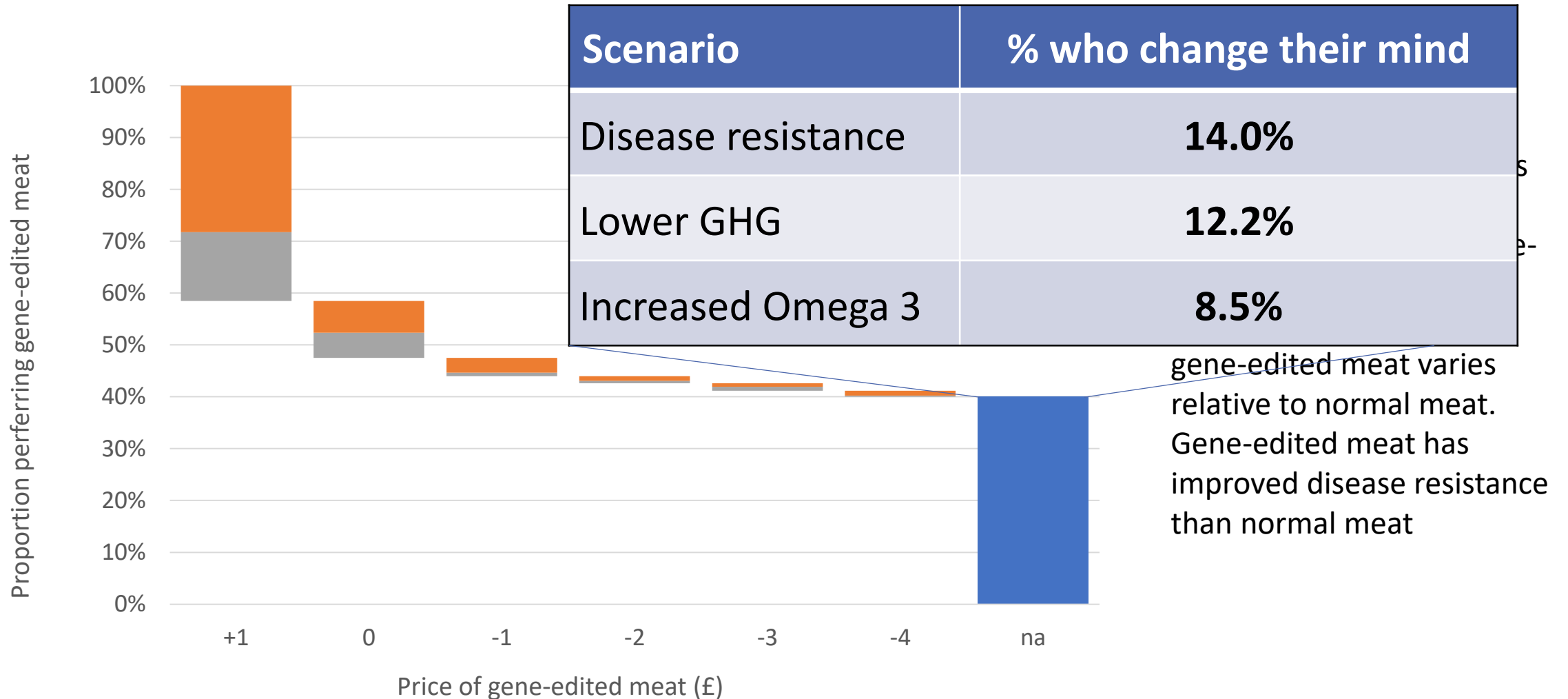


# Consumers value benefits



Proportion of respondents who prefer (or have no preference between) gene-edited meat to normal meat, where the price of gene-edited meat varies relative to normal meat. Gene-edited meat has improved disease resistance than normal meat

# Consumers value benefits



# Premium for GE + benefits

	<b>Disease resistance</b>	<b>Lower GHG</b>
Group		
Anti-GE & GMO, Animals/plants same	-0.15 <sup>b,c</sup>	-0.71 <sup>b</sup>
Anti-GE & GMO, Animals/plants same	-1.00 <sup>c</sup>	-1.56 <sup>b</sup>
Moderates	0.49 <sup>b</sup>	0.38 <sup>a</sup>
Pro GE & GMO, Animals/plants same	0.70 <sup>a</sup>	0.54 <sup>a</sup>
<b>Overall</b>	<b>0.44</b>	<b>0.26</b>

# Accepting GE

- GE acceptance higher for Animal Welfare, Human Health and Environmental Impact
- Labelling and education are main drivers of increasing acceptance
- Independent scientific body approval ranks above government approval (all groups)

# Thank you

