

# Consumer Attitudes towards Sustainability Attributes on Food Labels

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# Presentation Outline

- Project objectives
- Choice modelling
  - Attributes
  - Choice set
  - Label presentation formats
  - Random parameter logit models
- Willingness-to-pay estimates
- Cross country and cross label format comparison
- Conclusions



# Objectives

- Identify sustainability attributes for fruit in export markets
  - Relative importance of attributes
  - Willingness to pay
- Explore the role of label presentation format
- Compare United Kingdom and Japanese consumers

# Choice Modelling

Stated preference non-market valuation methodology

Simulate context in which consumers normally make choices among a set of competing product alternatives

Experiments in which product characteristics are systematically varied to produce multiple scenarios

Choices are then analysed to develop probabilistic discrete choice models for relevant samples of consumers

<b>Price</b>	Price for the fruit in the survey compared to the price you currently pay for the fruit you normally buy.	-10%, No change, +10%, +20%
<b>Carbon/ GHG emissions</b>	Amount of carbon dioxide (CO <sub>2</sub> ) and other greenhouse gases emitted during production and distribution.	-30%, -20%, -10%, No change
<b>Water efficiency</b>	Greater efficiency means that less water is used to grow the fruit and get it to the consumer.	No change, +20%, +40%, +60%
<b>Waste/ packaging reduction</b>	Reducing waste and packaging in production and distribution.	-60%, -40%, -20%, No change
<b>Vitamins</b>	Vitamin content of fruit.	No change, +33%, +66%, +100%



**Set 1  
of 12**

Compared to the fruit you normally buy, which of the two types of fruit below would you prefer to buy at the price indicated? Select your choice and click on >> below.


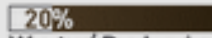






	Product A	Product B
Price	10% increase in the price	No change in the price
Waste/Packaging	40% less waste in production and packaging	20% less waste in production and packaging
Vitamins	Twice as much vitamins	2/3 times more vitamins
Water efficiency	60% greater water efficiency	20% greater water efficiency
Carbon/greenhouse gas	30% reduction in carbon emission	20% reduction in carbon emission

More Info

Selection	<input type="radio"/>	<input type="radio"/>	>>
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**Set 1  
of 12**

Compared to the fruit you normally buy, which of the two types of fruit below would you prefer to buy at the price indicated? Select your choice and click on >> below.

	Product A	Product B	<a href="#">More Info</a>
Waste/Packaging	 40% Waste / Packaging Reduction	 20% Waste / Packaging Reduction	
Price	10% increase in the price	No change	
Carbon/greenhouse gas	 Reduced 30% Greenhouse gases	 Reduced 20% Greenhouse gases	
Increased Water efficiency	 60% Water Efficiency	 20% Water Efficiency	
Vitamins	 100% more Vitamin Content	 66% more Vitamin Content	
Selection	<input type="radio"/>	<input type="radio"/>	

**Set 1  
of 12**

Compared to the fruit you normally buy, which of the two types of fruit below would you prefer to buy at the price indicated? Select your choice and click on >> below.

	Product A	Product B	<a href="#">More Info</a>
Price	10% increase in the price	No change	
Label	<p>Reduced Greenhouse gases</p> <p>Increased Vitamins</p> <p>Water Efficiency</p> <p>Reduced Waste/Packaging</p>	<p>Reduced Greenhouse gases</p> <p>Increased Vitamins</p> <p>Water Efficiency</p> <p>Reduced Waste/Packaging</p>	
Selection	<input type="radio"/>	<input type="radio"/>	<a href="#">&gt;&gt;</a>

# Random parameter panel logit models

	United Kingdom			Japan		
	<i>Text</i>	<i>Graphic</i>	<i>Compass</i>	<i>Text</i>	<i>Graphic</i>	<i>Compass</i>
<b>ASC</b>	0.09	0.15*	-0.08	0.21***	0.17**	-0.05
<b>Price</b>	-14.04***	-9.08***	-12.83***	-6.68***	-10.06***	-10.59***
<b>Carbon</b>	5.5***	3.18***	3.68***	2.35***	2.3***	2.30***
<b>Water</b>	2.42***	1.88***	1.86***	1.37***	0.73***	0.72***
<b>Waste</b>	3.12***	1.58***	1.61***	0.47**	0.91***	1.54***
<b>Vitamins</b>	0.85***	1.52***	1.71***	0.51***	2.67***	2.93***
AIC	0.89	1.01	0.93	1.11	1.03	0.94
BIC	0.93	1.05	0.97	1.15	1.05	0.98
Pseudo-R <sup>2</sup>	0.37	0.28	0.34	0.20	0.31	0.33
Observations	1143	1199	1196	1229	1210	1193

# Willingness-to-pay

- WTP measures how much a consumer will pay for an attribute

$$WTP_k = \frac{\beta_{\text{Attribute } k}}{-\beta_{\text{Price}}}$$

# Willingness to pay estimates

	United Kingdom			Japan		
	<i>Text</i>	<i>Graphical</i>	<i>Compass</i>	<i>Text</i>	<i>Graphical</i>	<i>Compass</i>
<b>Carbon</b>	39%	35%	29%	35%	23%	21%
<b>Water</b>	17%	21%	15%	21%	7%	7%
<b>Waste</b>	22%	17%	12%	7%	9%	14%
<b>Vitamins</b>	6%	17%	13%	8%	23%	28%

# Willingness to pay differences

	Carbon	Water	Waste	Vitamins
<i>Within country-across presentation format</i>				
UK text vs. UK graphical	0.29	0.84	0.11	0.99***
UK graphical vs. UK compass	0.22	0.06	0.11	0.13
UK compass vs. UK text	0.08	0.21	0.01**	0.99**
Japan text vs. Japan graphical	0.08	0.00***	0.68	0.99***
Japan graphical vs. Japan compass	0.44	0.46	0.93	0.91
Japan compass vs. Japan text	0.05	0.00***	0.98**	1.00***
<i>Within presentation format-across country</i>				
Japan text vs. UK text	0.69	0.21	0.99***	0.28
Japan graphic vs. UK graphic	0.93	0.99***	0.98**	0.07
Japan compass vs. UK compass	0.86	0.98**	0.30	0.00***

# Summary

- Sustainability attributes of fruit are important in export markets
- Overall, Both Japanese and UK consumers value reductions in carbon the least.
- Overall, UK consumers value increases in vitamin content the most.
- Overall, Japanese consumers value reductions in production and distribution waste and packaging most.
- Carbon reduction wtp least sensitive to country and label format.
- Increased Vitamin level most sensitive to country and label format.
- Further research needed exploring identified differences.



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