



Consumer attitudes and preferences towards the new technologies: investigations in Spain and the UK.

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Introduction

Consumer acceptance of the technologies developed in Feed-a-Gene will be critical to their future commercial success.

A **quantitative consumer study** focusing on **egg production** was conducted in March 2019. Eggs were chosen for the study as they are a relatively homogeneous product and consequently easy to define (cf cuts of meat), are purchased on a frequent basis, and purchased by a broad range of consumers including vegetarians.

Separate surveys were developed for Spain and the UK survey using Qualtrics software. Both were administered on-line to a sample drawn from a Qualtrics panel. Final sample sizes were 1047 (Spain) and 700+ (UK).

Findings

1. What factors are important to UK consumers when buying eggs?

Animal welfare and **'Use by' date** were the most important factors whereas **environment** was middle-ranking.

Importance of individual factors when buying eggs, UK respondents (100=Very Important, 0=Not at all important)

FACTOR	Importance, mean score (n=728)
High animal welfare standards	74.29
Production system e.g. cage, barn, free range	73.70
The 'Best before' or 'Use by' date	70.31
Impact on the environment	59.24
The size of the egg	58.83
Whether the price is low.	58.26
The egg is produced locally	53.29
A specific brand	32.88

2. How acceptable do UK consumers find different livestock management technologies which aim to improve feed efficiency?

Technologies where there was a **perceived lowering of animal welfare were least acceptable** (large flocks; all indoors; lack of human contact) although they **are potentially able to reduce GHG emissions**. Techniques improving access to feed & better use of agricultural land were most acceptable.

UK Consumer scores for the acceptability of poultry farming production technologies (100= Totally acceptable, 0= Totally unacceptable)

Technology	Acceptability mean (n=735)
Using equipment that improves poultry feeding (e.g. so food is always available when the hen wants it).	74.41
Using specially bred hens which convert more of their feed into eggs. (This does NOT involve genetic modification).	63.52
Replacing part of the diet with feed made from processed plant materials such as grass or clover. This reduces the area of good agricultural land needed.	63.23
Replacing part of the diet with feed made from by-products of industrial processes. This reduces the area of good agricultural land needed.	52.15
Using indoor production systems that offer the hens no access to outdoor areas. Some evidence suggests this can reduce greenhouse gas emissions and increase feed efficiency.	29.60
Using conventional concentrated animal feeds that contain up to 30% of grains or oil meals derived from genetically modified plants.	25.98
Keeping hens in large flocks. Some evidence indicates this may reduce global warming potential.	22.60
Automated monitoring of animal health and feeding behaviour using sensitive remote detectors (machines). This may reduce human contact but detect some problems earlier.	22.00

3. Estimates of consumer willingness to pay for improvements in the levels of various egg attributes

Choice experiments allow us to test consumers' **willingness to trade-off changes in the price of eggs** against varying levels of other characteristics (attributes).

UK: eggs defined by different levels of 4 attributes: **price, size, production method & carbon footprint (CFP)**

Spain: eggs defined by different levels of 4 attributes: **price, production method, water use & carbon emissions**

N.B. In this context, **production method is a proxy for animal welfare**.

Respondents are asked to consider a series of **choice cards** which gives details of **alternative boxes of 6 eggs** with differing level of attributes. For each choice card respondents select the box of eggs they would prefer to buy. By asking participants to consider many different choice cards (i.e. choose between different bundles of attributes), it is possible to calculate their marginal willingness to pay (WTP) for a change in the level of each attribute compared to the baseline box (represented by Box 1 in this example).

* The UK sample was split into **a treatment group who watched a short video about global warming** before considering the choice experiment, and a control group (no video).

Key results from Choice Experiments in UK and Spain

- Choice experiment of **UK egg consumers** calculated a willingness to pay (WTP) **a large premium for free range eggs** compared to barn eggs (£1.04 for treatment group* and £0.64p for no treatment group) **Animal welfare matters**.
- Carbon footprint (UK): respondents in the with-treatment sample* were **willing to pay an extra £0.83** to buy eggs that have a 1kg **lower carbon footprint** (or £0.083 for every 100g reduction in associated carbon emissions). WTP of the No-treatment group was around £0.25 more to buy eggs with a 1kg lower carbon footprint. **Suggests price premium for reduced CFP may increase in the event of greater future public concern**.
- In UK, WTP price premium was linked to reduced carbon emissions, but was smaller than the premium for better standard of animal welfare.
- SPAIN:** Consumers exhibited a positive and significant WTP for a **20% or 30% reduction in GHG or water use** in both caged and free-range eggs (though 10% reduction was non-significant).

Example of a choice card (UK)

Which of these boxes of 6 eggs would you buy?

Attribute	Box 1	Box 2	Box 3	None of these
Rearing	Cage	Barn	Free range	
Egg size	Small	Small	Mixed	
CFP	1440g	1440g	1150g	
Price	£0.80	£0.80	£0.95	

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Feed-a-Gene is a European H2020 project involving 23 partners which aims to adapt feeds, animals and feeding techniques to improve the efficiency and sustainability of pig, poultry and rabbit production systems. It is coordinated by INRAE (France), started in March 2015 and will last 5 years. The project aims to reduce the environmental impact of monogastric livestock production by improving and diversifying animal diets and feed technologies and by integrating new selection criteria for these animals. The Feed-a-gene project further aims to develop new management systems for precision feeding and precision farming and to evaluate the overall sustainability of the different management solutions proposed in the project.



www.feed-a-gene.eu



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