



What about the farmers? A qualitative investigation of farmers' attitudes towards the new technologies

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INTRODUCTION

Farmer acceptance of Feed-a-Gene's novel technologies is crucial for their further development and commercialization. In spring 2019, a **small qualitative study** of pig farmers (UK) and pig or poultry farmer representatives (Spain) was conducted to **elicit opinions about three technologies** which aim to improve feed efficiency: **precision feeding, novel feeds, and breeding solutions**.

The study identifies factors for inclusion in a larger-scale evaluation.

METHOD

- Seeking to explore and **gain understanding of attitudes and preferences** i.e. hypothesis-generating rather than hypothesis testing.

- » **Semi-structured interviews**, audio-recorded and transcribed.

- **'Presentation packs'** developed to explain underlying concepts and anticipated mode of operation in **lay terms**. Multi-disciplinary co-operation critical. Interviewees asked to read them and discuss their reactions.

- Require interviewees with specific knowledge and experience of pig or poultry farming » **a purposive sample**

Interview schedule

Context	<ul style="list-style-type: none"> • Production systems • Number of animals • Vertical integration & autonomy over decision-making
The Feed-a-Gene technologies	<ul style="list-style-type: none"> > Reactions / interest > Pros and cons > Barriers to use > Drivers of uptake

The sample

Spain	<p>Representatives of organisations in pig or poultry sector with close contact with producers.</p> <p>Located in Catalonia (2) Barcelona (3) and Lleida provinces (1)</p>
UK	<p>6 pig farms (owners/managers) mostly located in major pig-producing areas (E.Yorkshire / East Anglia)</p> <p>5 farms are 'all indoors', take pigs from birth to slaughter weight. Size: 50 to 8000 breeding sows</p> <p>1 has multiple sites, breeding and meat production. 40% outdoors</p>

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FINDINGS

• General

Need for authoritative, unbiased trials to demonstrate benefits, economic and management implications, capital costs and return on investment before farms willing to adopt.

- Trials needed to demonstrate **impacts for different farm sizes**
- Farmers **working to very tight margins** so small changes in prices or feed conversion rates can make the difference between profit and loss.
- Production of feed **within EU is a secondary consideration**. Novel feeds must produce returns that are equal or better than current.
- Interviewees open to adapting systems **within their operational constraints**.

External factors are also critical for acceptance.

- If **strong vertical integration and low farmer autonomy** (e.g. Spanish poultry industry) then production technology determined by group specifications, not individual farmers
- Perception that **nutritionists working for large feed manufacturers** will be mediators of change.
- Market demand, especially **consumer concerns** in the event of any negative impacts on animal welfare or the environment.

• Precision feeding

- Response from **pig sector was enthusiastic**. Envisaged improved feed conversion efficiency, reduced under-feeding and bullying
- **Capital costs**, payback period and risk are critical.
- Perception that adoption will **require change, not adaptation**, of existing buildings, infrastructure and systems.
- Expected **upskilling of labour force** and higher wages (= good rural jobs)
- Possible **reduction in human contact and delays** in noticing feeding, behavioural, animal health problems
- Need **reliability** and excellent after-sales service.
- Good **broadband connection** needed for data downloads

• Novel Feeds

Farmers need to know palatability, protein content, performance and cost **relative to alternatives**.

Require an **adequate and consistent supply**. Is growing these crops attractive to arable farmers too?

Form and stability of feed, and compatibility with current **on-farm handling infrastructure** e.g storage, mixing

Any **impact on pollution** if protein source changed?

Green protein: The least familiar, but of greatest interest.

Can grass from **poorer land** be used? Strange use of good agricultural land unless grown as a break crop in arable rotation.

Closed system (biofuel, cattle feed) is interesting but a radical departure.

OSR: UK – Produced in UK, but concern about **stability** of supply (total ban on neonics; biofuel policy). Imported into Spain and **expensive**.

Soya (GMO-free): Improbable? Awareness in UK and Spain of unsuccessful plant trials

• Breeding Solutions

Awareness of issues raised in Feed-a-Gene (Improved gut microbiota as key to future productivity gains. Also disease resistance)

Biomarkers (e.g. nitrogen; disease detection) would be advantageous.

On-farm testing – very useful but adoption depends on ease, expense, interpretation of results

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