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Will beef and sheep farmers use breeding technologies to reduce carbon footprints?

Mitigating the environmental impact of cattle and sheep: animal genetics and farmers' readiness for uptake

Dr Ann Bruce

Sheep and beef farmers around the UK were interviewed to find out if they would adopt breeding and genetic technologies to reduce methane emissions*.

Key Findings

- Farmers do not see themselves as major net producers of greenhouse gas emissions.
- Intensive farming practices to reduce methane emissions do not match with perceived consumer values of naturalness and meat quality.
- Farmers who are not using Estimated Breeding Values (EBVs) see little incentive to do so.
- System level factors impact on farmer decisions.



Methane emissions

"I don't believe what [carbon footprinting is] saying... Those lambs are outside all year round, they're eating grass, they're for all intents and purposes as close to nature as the majority of sheep are in this country and yet we're still given a carbon footprint of nearly half a tonne per lamb."
 Sheep and beef cattle farmer

- The statistics on the impact of methane emissions from grass-fed animals are not credible to farmers.
- Farmers see no direct economic gain from reducing methane emissions.
- The main option farmers perceive they have is to reduce methane emissions is

to reduce animal numbers something that threatens their very existence.

- Methane is an unfair target – farmers feel more focus should be paid to the transport involved in the food chain and other human activities.
- Practices to reduce methane emissions (changes in feeding, breeding or rumen vaccination) will be viewed negatively by those who pay a premium for local, grass-fed, slow grown meat.
- Where environmental payments are heavily relied upon, changing grass varieties or additional feeding is not an option.

Opportunities for the sector to manage methane emissions

- Emphasise increasing production efficiency, rather than focus on reducing methane emissions in the first instance.
- Provide evidence of ways to reduce methane emissions in practice.
- Include farm level actions, such as improved grass management or planting trees.

Breeding for production

"For several years I did go and selected [sheep] slightly on the look of them but it was mainly on the performance. I brought them here [to this hill environment] and thought they did really badly."

Upland sheep and beef farmer

- Some farmers make extensive use of Estimated Breeding Values (EBVs).
- However, EBVs are commonly doubted because they rely on farmer measurements.
- Excessively narrow selection targets for dairy cattle have resulted in physiological problems and have generated cynicism and lack of trust in animal breeding 'experts'.

Opportunities for the sector to manage methane emissions

- Provide more evidence that high EBV animals perform well in hill conditions.

Breeding Systems

"The sheep industry is a very strange industry, there's all sorts of traits in breeds that have nothing to do with economics... But when you're involved in it, it's not easy to change it."

Sheep and beef farmer

- Sheep farming is dominated by a 'show-ring' culture. For a farmer to breed



sheep counter to this culture, and be economically successful, they need to be confident a market exists for their animals.

- Economic benefits from faster growth rates, improved feed efficiencies or superior quality carcasses are not immediately visible to sheep farmers.
- Dairy farmers produce around 50% of beef and yet milk production is their core business. Beef calves are 'icing on the cake' or even a 'by-product' - genetics is of little concern.
- Limited availability of labour is a major determinant of many farming systems and drives the desire to keep things simple.

- Farmers without family members to succeed them may be reluctant to start new initiatives.

Opportunities for the sector to manage methane emissions

- Develop initiatives to secure a market chain for sheep breeders who do not adhere to the prevailing show culture.
- Encourage schemes that allow dairy farmers to use good EBV beef sires without having to put much thought into it.
- Encourage work placements in different industries and Nuffield Farming Scholarships to allow travel to different countries. These exchanges have been shown to inspire farmers to work in novel ways.

*Research study details:

42 in-depth interviews were conducted between Sept 2010-March 2011, of which 30 were with farmers and 12 with people working in the broader industry.

Farms were located from the South of England to the North of Scotland and included organic and conventional, upland and lowland, specialist breeders

as well as commercial producers and producers selling liveweight, deadweight and direct to consumers.

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