



All-Party Parliamentary Group on Science and Technology in Agriculture

Genetic Technology (Precision Breeding) Bill – Animal Welfare Issues

Open statement supported by a coalition of professional/scientific organisations and individuals

The Genetic Technology (Precision Breeding) Bill presents a significant opportunity to harness our improved understanding of genetic science to help develop better solutions to the urgent global challenges of food and nutrition security, human and animal health, climate change and the conservation of natural resources.

The potential benefits of precision breeding techniques in addressing these challenges apply as much to farmed animals as they do to agricultural and horticultural crops. **We therefore fully support the inclusion of animals in the Bill's provisions.**

In considering the potential implications of the Bill, and in particular the issues affecting farmed animal health and welfare, it is critical that discussions focus on the Bill's provisions, and are based on up-to-date information about modern livestock breeding and production.

The Bill does not seek to replace or change in any way existing farm animal welfare regulations or statutory controls on early-stage laboratory research. **These rules will continue to apply to precision-bred animals in the same way as conventionally bred livestock.**

In addition, the Bill provides specific welfare safeguards to ensure the use of precision breeding techniques does not lead to negative effects on animal welfare. While the majority of gene editing applications currently under development in farmed animals are focused on improving welfare, for example through improved disease resistance or reducing the need for culling, **we recognise and endorse the Bill's introduction of proportionate and evidence-based welfare safeguards to provide transparency and public reassurance, and to future-proof the legislation.**

Claims made by some animal welfare organisations that standards of health and welfare on UK farms are poor and deteriorating, and that technologies such as gene editing will make the situation worse, are not supported by the facts.

Standards of animal welfare on UK farms are among the highest in the world, and the evidence indicates that the direction of travel is positive and improving, whether in terms of stocking densities, antibiotic use, live transport, housing conditions, biosecurity or training, as the following examples demonstrate:

Antibiotic use

The Veterinary Medicines Directorate recently [reported](#) that antibiotics sales for use in food-producing animals in the UK have fallen by 55% since 2014 to their lowest ever level. The UK has one of the lowest levels of antibiotic use in Europe and, importantly, 'last-resort' antibiotics essential for human health, known as highest priority critically important antibiotics or HP-CIAs, make up only 0.4% of total sales, down 83% since 2014.

Live transport

New UK provisions were [announced](#) in 2021 to improve welfare standards for farm animals during transport by introducing shorter maximum journey times, providing more space, and

imposing stricter conditions during extreme hot or cold temperatures. This example underlines that moving away from EU legislation can be positive for animal welfare as these new regulations were previously blocked by the EU.

Housing

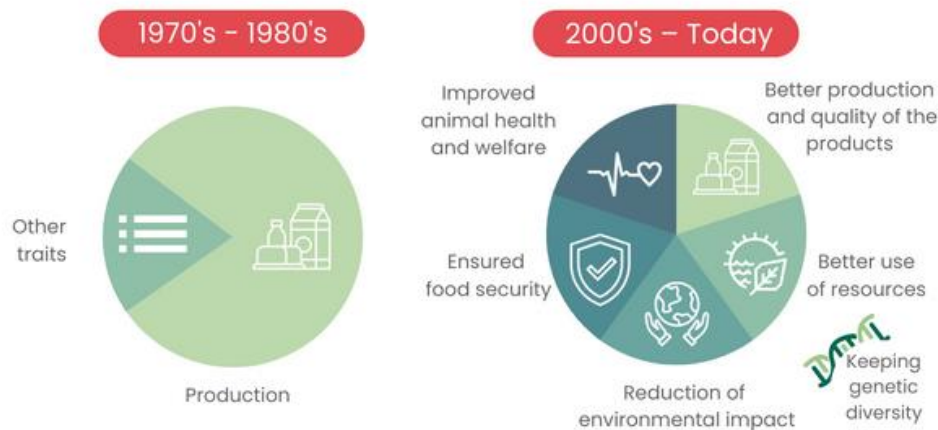
In 2012, battery cages were banned and replaced with enriched and colony cages in laying hens. It is well documented in research that reducing stocking density and increasing enrichment improves both the health and welfare of laying hens. The UK also took the lead in banning sow stalls in pig production in 1999, some 14 years ahead of the rest of the EU.

Training

The UK Pig Industry Welfare Training platform was [launched](#) on 1 March 2022, with the first module focusing on the moving and handling of pigs. Everyone involved in the care, moving, and handling of pigs on farm must complete the training as part of Red Tractor standards, highlighting the industry's commitment to consistent and improving welfare standards.

Standards of welfare on UK farms are continuing to advance in response to both regulatory change and industry-led initiatives. These improvements are also supported by the **enormous progress made by farm animal breeders in recent decades to adopt more balanced breeding programmes**, taking account of a range of production, sustainability, health and welfare factors.

Based on an improved understanding of animal biology, genomics and genetic function, modern breeding programmes have also been on a trajectory to improve welfare and target and select for a much wider range of characteristics than previously. This ensures that selection for traits such as productivity and meat quality improvements do not compromise health, robustness, welfare or environmental impacts.



Breeding for health and welfare improvements

Poultry

Broiler and turkey breeding companies use breeding goals including a wide range of welfare and health related traits, eg leg health and skeletal integrity, heart function, walking ability, liveability and robustness. The use of leg health related traits in broiler and turkey breeding goals is documented in scientific literature, eg Kapell, *et al.*, [2012](#) and [2017](#).

The ongoing expansion of balanced breeding goals and the use of technology applied to improve welfare of broilers and turkeys through breeding has been recognised in the [FAWC breeding opinion](#) to Defra in 2012, and the [EC assessment](#) of broiler breeding in 2013.

Pigs

Examples of welfare-related traits currently selected for in modern pig breeding programmes include resistance to [F18 E-coli](#), which previously resulted in double-digit mortality in affected herds, and selection for [leg strength](#) to prevent problems with front leg weakness.

A combined improvement in both productivity and piglet survival rates has seen the sow herd in most European countries *decrease* by 25% since 2000 while the number of pigs slaughtered has *increased* by a similar proportion. Alongside reductions in piglet mortality, this has made a significant contribution to reducing the overall environmental footprint of pig production.

Aquaculture

Alongside efforts to improve housing, transport, handling and health monitoring in aquaculture production, significant progress has been made in recent years to identify sources of resistance to a range of health conditions for use in breeding programmes. For example, genetic markers for resistance to the viral disease [Infectious Pancreatic Necrosis](#) (IPN), discovered by UK-led collaborative projects between academia and industry partners, were rapidly applied in all major commercial salmon breeding programmes. This has resulted in a striking [reduction](#) in incidence of outbreaks of this disease to near zero, highlighting the power of genetic technologies as sustainable solutions to disease challenges in aquaculture systems.

UK-based research has also identified the potential to use genomic selection in farmed salmon to confer genetic resistance to [salmonid alphavirus](#) (SAV), [sea lice infestation](#) and [amoebic gill disease](#), all major threats to health and welfare in salmonid aquaculture and whose current treatment can impact the environment.

Responsible breeding

Increased genetic knowledge and data capture, allowing access to technologies such as genome sequencing and marker-assisted selection, have already transformed breeders' ability to select for a much broader range of desired characteristics. Farmed animal breeders in the UK also adhere to codes of best practice such as [CODE-EFABAR](#) to demonstrate their commitment to sustainable breeding.

More precise breeding tools such as gene editing represent the next progression in the development of more balanced and responsible programmes of genetic improvement, in response to consumer demands for more sustainable, high-welfare and ethical livestock production.

It is wrong to associate gene editing with any particular farming system or philosophy, just as it is wrong to associate scientific innovation and technological advance with poorer animal health or welfare. These technologies have as much to offer organic or extensive free-range producers, for example, who routinely use the most advanced livestock genetics in their farming systems today, precisely because they offer a better balance of production, sustainability, health and welfare factors.

Importantly, precision breeding techniques such as gene editing provide the opportunity to tackle previously intractable health and welfare challenges such as flu in poultry and pigs, African Swine Fever and Porcine Reproductive and Respiratory Syndrome (PRRS) in pigs, or increasing the frequency of polled cattle.

The Precision Breeding Bill will provide greater certainty to scientists and stimulate more R&D activity and investment in research such as this. Following the devastating Covid pandemic, and as

the country faces its worst bird flu outbreak ever after the disease over-summered in the UK for the first time, it is important to consider the ethical implications of not embracing and enabling the use of these technologies, both to support improvements in the health and welfare of farmed animals, and to reduce the risk of zoonoses which could lead to future pandemics in the human population.

The UK has established capacity and strengths in academic and commercial research in livestock genetics. Faced with the challenges of climate change and a predicted doubling of global demand for meat protein by 2050, the Precision Breeding Bill presents an opportunity to cement the UK's position as a global leader in productive, sustainable, high welfare farmed animal production.

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