Sustainability starts with genetics

The global population is expanding with predictions estimating nearly 10 billion people on the planet by 2050. Today, more than two billion people suffer from food insecurity, lacking access to affordable and nutritious options.

Why this matters to you

UK farmers play a vital role in supplying food for domestic and global food supplies through efficiency, productivity and sustainability.

While there is much discussion around what we eat, how it is produced, and how that production impacts the planet, beef and dairy products are critical in supplying high quality protein and essential nutrients to people. Regardless of whether you are a UK dairy farmer or operate in the supply chain, the continued population growth reflects a growing global demand for animal proteins that will likely need to be accomplished by producing more from existing resources, making sustainable animal production systems vital to bridging this supply gap.

However, with tighter margins, rising costs, and shifting market demands, efficiency and sustainability are more critical than ever. Dairy farmers need animals that produce more with less-less feed, less waste, and less environmental impact.

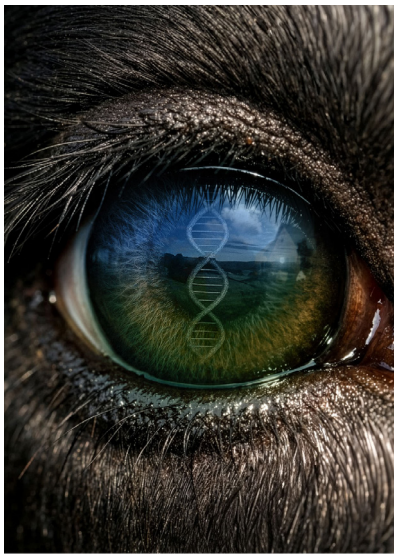
A critical factor of sustainable animal production

A more sustainable food supply chain starts with genetics, making genetic improvement a critical factor in meeting market expectations and supporting the population increase. Genetic selection enables farmers to optimise their success by breeding healthier animals that are more productive, efficient, and aligned with their business objectives.

Future Global Protein Needs

The global population is expanding - the increase in protein needed is anticipated on continents like Asia and Africa, where local production cannot meet the growing demand. However, in regions like the UK, the need for higher-quality protein continues to grow.

(Ritchie, H and L Rodes-Guirao. 2024.; FAO, IFAD, UNICEF, WFP and WHO. 2024.)



> **"Sustainability isn't just a buzzword for us; it's at the heart of what we do."**

Genetic improvement simultaneously lowers environmental impact and benefits YOU with a more sustainable and future-ready herd.

At Genus ABS, we believe that farm profitability-driven by productivity and efficiency-is the first step towards more sustainable food supply chains.

Sustainability isn't just a buzzword for us; it's at the heart of what we do. Our solutions already make customers more efficient, profitable, and sustainable and are the foundation of our sustainability pillars:

- Creating greater efficiencies
- Creating better animal health
- Creating conscious communities

These pillars represent GENETICS FOR GOOD, our approach to helping farmers produce more from less while protecting the environment and the people in it.

Quantifying the impact of genetics for a sustainable future

At Genus ABS, we are proud to have completed the industry's first comprehensive beef-on-dairy (BxD) Life Cycle Assessments (LCAs) to uncover the impact of genetics on sustainability. An LCA is the gold standard in evaluating environmental performance and assesses every stage of a product's life.

Developed according to International Standards Organization (ISO) guidelines and reviewed by a panel of experts, our LCAs were carried out by a leading independent consultancy as part of an Innovate UK project and included input from specialists at top universities in the US, Canada, and Europe.

Co-funded by Innovate UK and DEFRA, in partnership with Scotland's Rural College (SRUC), the Climate Smart Beef Genetics project is at the forefront of developing innovative ways to measure and reduce the environmental impact of beef production. This holistic approach is advancing our understanding of how genetic traits influence methane emissions. By identifying the genetic links between rumen microbes and methane output, we aim to drive more sustainable farming practices.

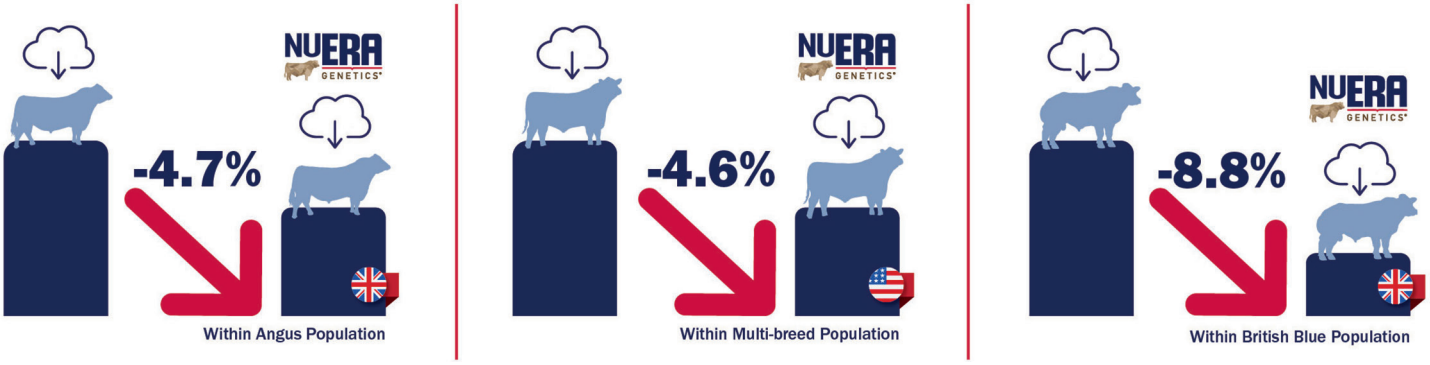
Our research with Innovate UK, DEFRA, and SRUC positions genetics as the most impactful intervention to support:

- Farmers' future profitability, efficiency, and sustainability
- Industry-wide net zero targets
- Long-term sustainability of supply chains

Environmental advantages from improved genetics

Through strategies like our sexed and beef programme, we optimise dairy and

Figure 1: Results from the industry's first comprehensive beef-on-dairy Life Cycle Assessments, conducted by Genus ABS.



beef production on-farm and through supply chains.

By helping farmers create the right females to maximise milk production and breed high-value, fast-growing calves that meet the beef market demand, we can drive profitability across the supply chain and develop more sustainable systems-all driven by increased productivity and enhanced efficiency.

Using real-world performance data from more than 60,000 BxD animals in UK and US commercial systems, the assessments show that using ABS' proprietary NuEra Genetics® leads to higher growth rates, reduced inputs, enhanced feed conversion, and a measurable reduction in greenhouse gases (GHG) emissions intensity. The results reveal that with a targeted genetic improvement programme, farmers can reduce emissions intensity by up to 9% per year-all by choosing the right genetics. *(Lai, E and MA Cleveland. 2025.; Lai, E., et al. 2025.)*

How our genetics stacked up against competitor average genetics:

NuEra Genetics progeny from the best sires emits less CO_2e per kilogram of carcass weight when compared to average genetic merit progeny.

Specifically, the UK results showed:
(see figure 1)

- Within the Angus population, NuEra Genetics progeny have a potential 4.7% reduction in emissions intensity.
- Within the British Blue population, NuEra Genetics progeny have a potential 8.8% reduction in emissions intensity.

Likewise, in the US, the data showed:

- Within a multi-breed population, NuEra Genetics progeny have a potential 4.6% reduction in emissions intensity.

NuEra Genetics provides farmers with the chance to generate higher-quality, more sustainable protein while reducing environmental impact and improving profitability. By leveraging NuEra Genetics and a targeted genetic improvement programme, farmers can expect to create more with less, driving the entire supply chain's efficiency, profitability, and reduction of GHG emissions.

Long-term impact of genetics

Genetic improvement is a long-term solution for sustainability. The impact of genetics delivers permanent and cumulative benefits for farmers, supply chains, communities, and nature-all around the world.

The ability of animal agriculture to provide consumers with high-quality beef and dairy products that contribute to meeting human nutritional needs (and that they enjoy consuming!) is a win for society. Through genetic improvement, our industry can support the culture and livelihood of the 10 billion people expected to inhabit this planet by 2050.

Our data highlights that sustainability isn't an added cost but a competitive advantage for producers globally. A focus on creating healthy, productive, efficient, and profitable animals leads to sustainable farms.

Looking at our portfolio of solutions-genetics, tools, and technology-with a sustainability lens enables us to support farmers in complying with changing environmental regulations, tapping into financial gains, and improving public perception of animal agriculture.

Our research marks a major advancement for the industry, providing farmers with the resources to make informed, data-driven breeding choices that align with environmental objectives.

Financial incentive for implementing sustainable practices

Sustainability incentive schemes within the UK dairy supply chain are increasingly recognising the role of genetics as a long-term lever for improving efficiency and reducing emissions.

By encouraging both the use of genetic tools and measurable on-farm outcomes, these programmes reflect a growing understanding that genetic progress supports both environmental and economic performance. While these programmes are not found in every supply chain, increased discussion about their development is happening globally.

Your partner for profitability and sustainability

Sustainability is not a new concept for us. In fact, it is a part of everything we do.

Our ground-breaking research quantifies how NuEra Genetics and other Genus ABS genetics can lessen GHG emissions intensity, reduce input needs and costs, improve efficiency, and increase feed conversion and growth rates which all contribute to improving our environment and society.

By providing tools to select the best genetics, Genus ABS helps UK farmers increase productivity, improve profitability and minimise environmental impact, empowering you to lead the charge towards a more sustainable agricultural industry.

Our dedicated team is focused on driving our sustainability strategy by concentrating on how we help you and your supply chains become more efficient, profitable, and sustainable. Choose us to be your partner for profitability and sustainability.

Current Population Growth Rate

With the current population growth rate, the demand for beef and dairy production in the next 25 years will significantly increase; predictions estimate 36% more milk consumed and 38% more beef needed by 2050.

(Bojovic, M., McGregor, A., 2023.; International Farm Comparison Network (IFCN). (2025).; Ritchie, H., Rosado, P.., Roser, M., 2025.)