Longevity and herd health

Sarah Bolt, Technical Knowledge Exchange Manager at Kingshay, discusses the hidden drivers of sustainable farming.

At COP26, the UK Government committed to cutting methane emissions by 30% by 2030; a target that puts livestock farming firmly in the spotlight. Ruminants account for nearly half of the UK's methane emissions, so change is going to be inevitable.

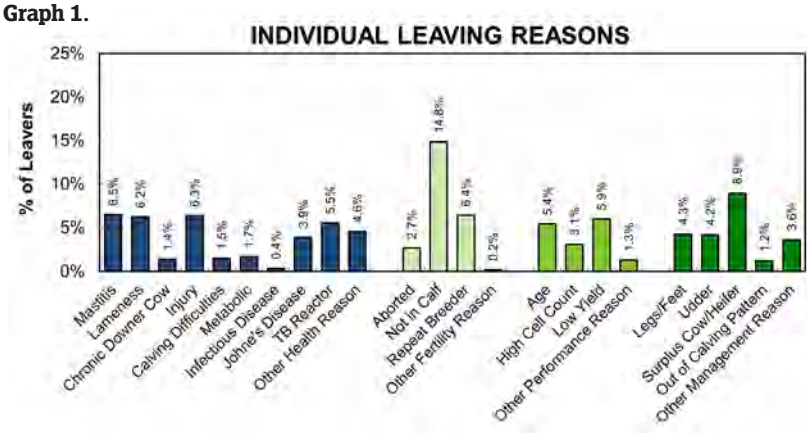
Reducing herd numbers certainly is not the answer, as food security and farm viability are as important as reducing the impact of climate change. Instead, the challenge is finding practical ways to cut emissions while keeping your business strong.

Sustainability in dairy farming rests on three interconnected pillars: environmental, economic, and social. Livestock emissions affect all three, often stemming from inefficiencies where inputs fail to become outputs. Animal health plays a critical role in this equation. Healthy cows make more efficient use of resources, and research consistently shows that better animal health is strongly associated with lower emissions.

Poor health and reduced longevity lead to inefficiencies that drive excess methane production. Conversely, healthier cows remain in the herd longer, achieve more productive lactations, and reduce the need for replacements.

This benefits profitability, enhances animal welfare, and strengthens consumer trust. This article explores how improving health and longevity can deliver a triple win: reducing your carbon footprint, boosting economic resilience, and reinforcing your commitment to sustainability.

Graph 1.



> **"Sustainability isn't just about carbon, it's about demonstrating stewardship of both animals and the planet"**

Reasons for cows leaving the herd

Longevity of dairy cows is influenced by culling decisions and health. Dairy cow longevity has generally decreased in high milk-producing countries, and the UK is no exception.

Kingshay's Dairy Costings Focus Report for 2025 suggests that the age at exit has steadily declined from 3.76 lactations 10 years ago to 3.43, meaning cows are having a shorter productive life. The same source states that 29.2% of cows leave the herd each year. Only 37% of the cows leaving were selected culls, leaving 63% as forced (involuntary) culls.

Infertility is the predominant reason for cows leaving the herd, with almost a quarter of culls for this reason. Mastitis and lameness are the next most prevalent, with just over 6% for each (see graph 1). Among infectious diseases, other than TB, Johne's disease is the most common reason for culling, while other infectious diseases account for only 0.4% of culls.

On-farm costs for each culling reason vary, ranging from £552 per cow for BVD to £182 per cow for infertility (see table 1). While data is not available for all conditions, these figures provide insight into potential financial impacts.

In 2015, ADAS studied the impact of various conditions and diseases on greenhouse gas emissions (GHGE) from milk production. They estimated these as a percentage increase in emissions per 1,000 litres of milk above that of a healthy animal (see table 1). A healthy animal emits 0.89 t CO_2e per 1,000 litres of milk, while the national herd average was over 6% higher at 0.95 t CO_2e, highlighting room for improvement.

Johne's disease had the largest impact on GHGE, increasing emissions by almost one quarter, followed by BVD and infertility. The same study assessed

Table 1: Reasons for leaving the herd and the associated greenhouse gas emissions

Reason for leaving the Herd	Percentage of cows leaving for this reason* (%)	Costs (£)	Estimated Impact on GHGE** (% per 1000 litres above a healthy animal)
Infertility	24.1%	£182 per cow*	15%
Mastitis	6.5	£367 per case *	6%
Lameness	6.2	£322 per case*	7%
Johnes Disease	3.9%		21%
BVD	Infectious diseases 0.4%	£552 per cow$	17%
IBR			7%

** Kingshay's Dairy Costings Focus Report 2025 https://www.kingshay.com/shop/dairy-costings-focus-report-2025/*
*** ADAS (2015). Study to Model the Impact of Controlling Endemic Cattle Diseases and Conditions on National Cattle Productivity, Agricultural Performance and Greenhouse Gas Emissions. Final Report to Defra/ AHVLA on Project FFG1016. 210*
$ Yarnall MJ, Thrusfield MV. Engaging veterinarians and farmers in eradicating bovine viral diarrhoea: a systematic review of economic impact. Vet Rec. 2017 Sep 30;181(13):347. doi: 10.1136/vr.104370.

interventions such as biosecurity, vaccinations, and management changes (e.g., colostrum management for Johne's, improved housing for lameness). These interventions provided substantial benefits in reducing GHGE.

The reasons for cows leaving the herd will vary from farm-to-farm. It is essential that records are kept for Farm Assurance, but they should also be analysed to establish why cows are being removed and where improvements can be targeted to prevent losses in your herd.

Replacement costs associated with cows leaving

Every replacement heifer carries an embedded carbon cost. Rearing youngstock is energy and resource intensive, and those inputs all contribute to the carbon footprint of your milk. Extending the productive life of cows already in your herd reduces the need for replacements, directly lowering emissions intensity (GHGE per litre of milk). Longer-lived cows mean fewer heifers in the pipeline and less enteric methane from youngstock.

Example: A 200-cow herd with a 30% annual replacement rate (60 heifers/year). Improving health and management to increase longevity by one lactation and reduce replacement rate to ~22% means only 44 replacements instead of 60. That's 16 fewer heifers to rear, feed, and house, saving cashflow, labour, and shed space while trimming your footprint per litre.

Age at first calving

The productive life of a cow is influenced by both entry and exit from the herd. Calving at 23 to 25 months reduces rearing costs and improves efficiency. Benefits include:

- Rearing costs are lower.
- Less replacements are kept on farm, lowering associated time and management costs.
- Less heifers need assistance with calving.
- Heifers live longer - heifers with an age of first calving (AFC) of 22 to 23 months have an 86% chance of still being in the herd at five versus 41% at 26 to 28 months.
- Higher lifetime yields - heifers calving at 22 to 23 months are likely to produce around 5,000 litres more 'total five year milk yield' than heifers calving at 24 to 25 months, and almost 8,500 litres more than heifers calving at 26 to 28 months.

Currently, only 10% of Kingshay Dairy Costed herds achieve an AFC of 22 to 24 months, while 77% hit 24 to 30 months. Improving this metric offers financial and environmental benefits.

Conclusion

Healthier cows are more efficient cows. The biggest slice of a dairy farm's emissions is enteric methane.

Anything that lifts milk output per cow; better rumen function, fewer disease setbacks, smooth reproductive performance, reduces emissions per litre. Improving health (lower mastitis, lameness, and reproductive disease) helps cows convert feed more effectively, turning inputs into milk instead of waste. It is a win for milk production and a win for the environment.

Beyond the environmental and economic gains, there is a powerful social dimension to sustainability. Consumers increasingly value transparency and animal welfare. A long-living, healthy herd signals responsible farming, ethical care, and commitment to quality. This fosters positive public perception, strengthens trust in dairy products, and aligns your business with evolving societal expectations.

Sustainability isn't just about carbon, it's about demonstrating stewardship of both animals and the planet, creating a story consumers want to support.

Put simply: when disease pressure is low and cows remain in the herd longer, you produce more milk from fewer animals and achieve greater sustainability all round.