



Climate friendly farming

The facts about British meat



British beef is produced to some of the highest welfare and environmentally sustainable standards in the world. Shoppers are looking to buy local, sustainably produced meat and most retailers are now increasingly sourcing British beef and lamb to meet this demand.

British farming with its extensive, grass-based, grazing systems produces some of the most sustainable beef in the world. According to the Government's Committee on Climate Change, greenhouse gas emissions from UK beef are about half the global average¹. So, not all red meat production around the world is the same. British farmers are very proud of their high standards of production and aim to farm in as climate friendly a way as possible with a view to achieving net zero greenhouse gas emissions.

The question is not whether to eat meat or not. The key consideration must be where the livestock was farmed and the environmental and welfare standards of where it was produced. And this is where British beef has a great story to tell.



“Balanced diets featuring plant-based foods, such as coarse grains, legumes, fruits and vegetables, and animal-sourced food produced sustainably in low greenhouse gas emission systems, present major opportunities for adaptation to and limiting climate change”

Debra Roberts

Co-Chair of the Intergovernmental Panel on Climate Change Working Group II, following publication of the IPCC's Special Report on Climate Change and Land, August 2019

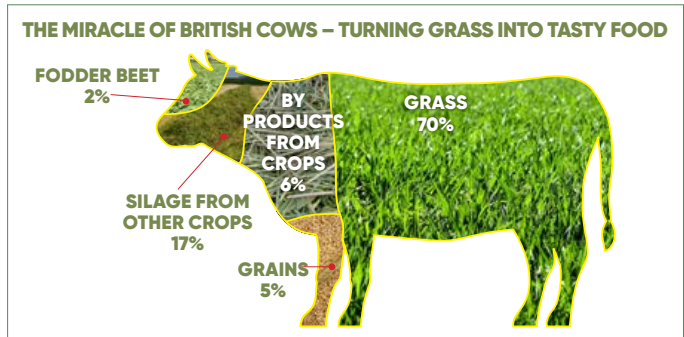
Environmental benefits

The UK climate is ideal for growing grass for animals to eat. Around 65% of farmland in the UK is best suited to growing grass rather than other crops.² If we did not graze livestock on it, we could not use it to produce food. Grazing livestock on this land allows us to turn inedible grass into high quality, nutrient-rich beef and lamb. This land also provides a valuable habitat for many native wildlife species that need open grassland to forage, such as hedgehogs and lapwings.



British beef and lamb is among the most efficient and sustainable in the world due to our extensive, grass-based systems. Emissions from beef production in the UK are about half the global average, according to the Government's Committee on Climate Change³.

87% of UK beef is produced using predominantly forage-based diets⁴, with only a very small amount of soya in rearing diets. This means UK beef production is not a driver of deforestation in other parts of the world.



Livestock plays an important role in maintaining and enhancing the soil used to grow crops too. The introduction of grass and clover leys and livestock into arable crop rotations is beneficial to soil health and fertility⁵, with manure from grazing livestock helping to boost soil organic matter⁶. Leicestershire arable farmer Phil Jarvis (pictured right) has introduced four-year grass and clover leys and shorter two-year herbal leys which are grazed by both his neighbour's sheep and his own Leicester Longwools.



This regenerative approach helps build soil fertility, health and combat grass weeds while using some of the current agri-environment options in Countryside Stewardship.

There are also several examples where livestock are critical to the lifecycle of wildlife – for instance, the Large Blue Butterfly. The Large Blue breeds in warm and well-drained unimproved grassland and livestock play a key role in producing suitable habitat conditions through grazing⁷.

“Land abandonment poses one of the greatest threats to biodiversity as it removes the brakes on succession. Most open landscapes in the UK will revert from grassland to scrub and, ultimately, to woodland as large plants reach for the light and outcompete many smaller species. Grazing and disturbance by livestock – particularly by native breeds that can outwinter – ‘re-sets’ this ecological clock, allowing a high diversity of these valuable early-succession flowers to thrive in open sunlight.

“Early succession habitats like hay meadows and permanent pastures, grazed by the right amount of livestock at the right time, can support an astonishing 770 species of wild flower and are crucibles of biodiversity. Nearly 1,400 species of pollinators and other insects rely on species-rich grassland for their survival and they, in turn, support a myriad of bird and animal life. Re-creation of these open habitats must be seen as a priority as urgent as planting trees.”

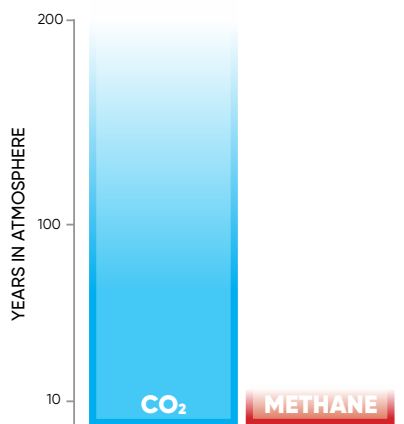
Dr Trevor Dines

Botanical Specialist, Plantlife, on the publication of Plantlife research showing meadows face mounting risks from poor legal protection, and from land abandonment and undergrazing, July 2019

In the UK, 81% of total greenhouse gas emissions are carbon dioxide (CO₂), 11% are methane, and 4% are nitrous oxide. For UK agriculture, 12% of its emissions are CO₂, 56% are methane and 31% are nitrous oxide⁸. So, methane emissions from UK agriculture account for around 5.5% of the country's total GHG emissions.

The production of GHGs is a significant issue for the livestock sector and livestock farmers in this country are striving to reduce these emissions. Emissions from UK livestock are estimated to be around 5% of the country's total GHG emissions⁹, significantly lower than the estimated EU-wide figure for livestock of around 9.1% of all emissions¹⁰. This is in part due to the UK's efficient production systems.

But science is emerging on the differing behaviour and impact of long-lived GHGs like CO₂ and nitrous oxide, and short-lived GHGs like methane. Methane is classed as a short-lived gas because it lasts in our atmosphere for around ten years until it gets broken down to water and CO₂. The concentration of this CO₂ 'breakdown' is insignificant in terms of climate warming impact, measuring in parts per billion and happening at a scale that grassland and vegetation can readily re-absorb. In contrast, CO₂ is a long-lived gas which is released directly into the atmosphere by energy suppliers and transport sectors, among others, and stays there for hundreds of years, continuing to contribute to global warming.



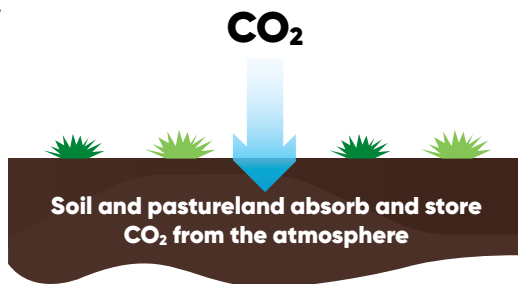
The conventional interpretation of methane emissions suggests that falling methane emissions would continue to lead to global warming. But recent research results from Oxford University¹¹ show this is wrong. Falling methane emissions would, in fact, lead to stable or lower global temperatures. This research is important as improvements in the productivity of grazed livestock should significantly decrease the climate heating impact of current levels of red meat and dairy production.



British farming is ambitious to reach net zero GHG emissions by 2040¹² and work to achieve further production efficiencies is a key part of this. Measures like using natural feed additives and further improving cattle and sheep health will help reduce methane emissions from livestock. These steps, along with the British herd size remaining steady, mean the impact of methane from livestock will decrease gradually, provided the number of animals does not increase.

To stop further global warming, the priority must be reducing the levels of long-lived gases like CO₂, while progressively reducing methane levels will cool the climate.

Actively managed pastures that are grazed by livestock are a good carbon sink, capturing CO₂ in the vegetation and storing carbon in the soil which could otherwise be released into the atmosphere, as are hedgerows that separate fields. If this land was put to other uses, and the soil was disturbed, there is a risk that much of that carbon stored within it would be lost to the atmosphere as carbon dioxide.



Reducing greenhouse gas emissions and improving efficiency go hand in hand. Steady improvements in production efficiency have taken place over recent years, with 5% fewer prime cattle and lambs required to produce each tonne of meat in 2008 than in 1998¹³.

Research indicates that breeding, nutrition and animal health offer opportunities to make further reductions and farmers are already making improvements in these areas¹⁴. By using better genetics and making further improvements to animal welfare we will continue to reduce our emissions.

FARMERS PRODUCE RENEWABLE ENERGY THAT HELPS POWER AN AVERAGE OF 10 MILLION UK HOMES

The infographic features a central white wind turbine. To its left, there is a silhouette of a cow and two smaller silhouettes of sheep. To its right, there is a silhouette of a sheep and a smaller silhouette of a lamb. The text is in green and black, with the number '10' in a larger font.

Beef and sheep farmers across the UK are also embracing a range of practices which both reduce greenhouse gas emissions and enable them to be better prepared for the impacts of a changing climate¹⁵. For example: by using co-products like brewers' grains and by-products like bread crusts, livestock farmers help

reduce the food chain's greenhouse gas footprint. Many livestock farmers are also helping deliver clean, renewable energy which contributes towards powering millions of homes¹⁶.

Sheep also produce wool, which is worth £100 million to the British economy¹⁷. Wool offers a range of solutions to problems we currently face. It is 100% natural, a renewable fibre source as sheep produce a new fleece every year, and is biodegradable.

WOOL IS WORTH £100 MILLION TO THE BRITISH ECONOMY

The infographic features two stylized sheep, one larger and one smaller, in a light orange color. The text is in orange and brown, with the number '100' in a very large font.

British sheep are shorn by experts to high standards of animal welfare

Around 40% of the weight of clean wool is pure biogenic carbon¹⁸ – carbon captured by formerly living matter which has absorbed carbon through its life. Sheep consume this biogenic carbon when they eat grass and transform it into the amino acids of the wool fibre. Wool can be used in clothing without any concerns over microplastics and microfibrils, and is a natural insulator which can help reduce domestic carbon emissions when used in the home. But we only have this fantastic natural resource if we have a profitable livestock industry.

Animal health and welfare

The UK offers some of the best farm animal welfare standards in the world¹⁹, with a robust and comprehensive legal framework protecting animal welfare; extremely mature and well-developed industry bodies that recognise the importance of animal health and welfare; and a significant number of credible quality assurance and health and welfare schemes and/or initiatives. In general, the principal producing and exporting countries located in South America, North America, Oceania and Asia have a much less developed legal framework compared to the UK.



The UK is the fifth lowest user of on-farm antibiotics across 31 European countries, beaten only by the Nordic countries (Norway, Iceland, Sweden, Finland) where the dry, cold climate is a key factor in stopping bacteria breeding and therefore reducing demand. The amount of antibiotics used on UK farms has been reduced by 53% between 2014 and 2018²⁰.

The Animal Protection Index²¹, which ranks countries around the world for their commitments to improving animal welfare, identified the UK as one of only four countries to receive the highest grade.

In the global context, the UK's regulations set, and British livestock farmers operate to, some of the best animal health and welfare standards in the world. Voluntary codes of practice and a well-developed system of farm assurance further build on legislative standards to offer a high level of welfare protection.

Nutritional benefits of red meat²²

Red meat is recognised as an important part of a balanced diet. Red meat is one of the richest sources of essential nutrients such as iron, zinc and B vitamins in the diet, as well as a significant source of protein. Red meat now has much lower fat contents than it did 20 years ago, with fully trimmed lean beef containing just 5% fat. Currently 91% of UK households regularly enjoy red meat as part of a healthy, balanced diet.



References:

1. **Land use: policies for a net zero UK**, Committee on Climate Change, January 2020
2. **Farming Statistics: provisional crop areas, yields and livestock populations at June 2019 – United Kingdom**, Defra/National Statistics, 2019
3. **Land use: policies for a net zero UK**, Committee on Climate Change, January 2020
4. **Cattle Farm Practices Survey 2019**, Defra
5. **Livestock and the arable rotation**, AHDB, 2018
6. **The benefits of sheep in arable rotations**, National Sheep Association, 2017
7. **Large Blue priority species factsheet**, Butterfly Conservation/Defra
8. **Final UK greenhouse gas emissions national statistics: 1990 – 2017**, Department for Business, Energy and Industrial Strategy/National Statistics, March 2019
9. **Final UK greenhouse gas emissions national statistics: 1990 – 2017**, Department for Business, Energy and Industrial Strategy/National Statistics, March 2019
10. **Evaluation of the livestock sector's contribution to the EU greenhouse gas emissions**, European Commission Joint Research Centre, 2010
11. **Climate metrics for ruminant livestock**, Allen, Cain et al, Oxford Martin School, Oxford University, 2018
12. **Achieving net zero: Farming's 2040 goal**, NFU
13. **Change in the air: the English beef and sheep production roadmap, phase 1**, AHDB Beef and Lamb
14. NFU, NFU Cymru, NFUS, UFU, **British Livestock and Climate Change**.
15. NFU, NFU Cymru, NFUS, UFU, **British Livestock and Climate Change**
16. NFU, NFU Cymru, NFUS, UFU, **Delivering Britain's Clean Energy From The Land**.
17. **Producer information and wool values**, British Wool website
18. **Wool and the carbon cycle**, International Wool Textile Organisation website
19. **Farm animal welfare: Global review summary report**, Evidence Group/NFU, 2018
20. **Targets Task Force: Two Years On**, Responsible Use of Medicines in Agriculture Alliance (RUMA), October 2019
21. <https://www.worldanimalprotection.org.uk/>
22. AHDB, **Red meat and nutrition: the facts**