

# 'Livestock are not the global warming enemy'

**ffinlo Costain** argues that the focus on ruminant methane in causing global warming is ill-informed and in fact restoration of grass-based systems can result in net zero emissions from UK agriculture by 2030.

FARMERS own and manage more than 70 per cent of land in the UK. Unfortunately, many of them feel marginalised and threatened by the current focus on ruminant methane in causing global warming. However, this focus is ill-informed and runs the risk of alienating precisely the constituency we must inspire in the race to mitigate and adapt to climate change, restore biodiversity, and increase our food security. It could also drive dangerously unsustainable land use and the further intensification of animal and arable agriculture.

New science, by a team of researchers for the Intergovernmental Panel on Climate Change (IPCC), based at the University of Oxford, categorically shows that methane from the UK's ruminants is not causing global warming – instead ruminants provide a viable pathway to net zero emissions from UK agriculture by 2030.<sup>1,2,3</sup>

Although livestock produce methane almost constantly, the focus on their emissions is misleading – it's the warming impact of those emissions that actually matters.

Far from being unsustainable, as many people have argued, grass-based cattle and sheep systems can be climate neutral by 2030, and they can help to restore biodiversity and soil health.

Until now, climate science has accounted for all greenhouse gases in the same way, using a 'global warming potential over 100 years' metric (GWP100), which characterises emissions rather than their warming potential. This has fed the myth that ruminant methane is a critical contributor to the global warming problem.

Yes, methane is powerful, but it's a short-lived greenhouse gas.

## ffinlo Costain,

ffinlo Costain is the chief executive of Farmwel, a think tank working on climate and food security.



**Grass-based cattle and sheep systems can be climate neutral by 2030, and help to restore biodiversity and soil health**

While carbon dioxide (CO<sub>2</sub>) and nitrous oxide (N<sub>2</sub>O) are active in our atmosphere for many generations, methane is broken down in about a decade.<sup>4</sup> This means that the methane emissions of a herd of 100 cows today are simply replacing the emissions that were first produced when that herd was established by a previous generation of farmers. There was an initial pulse of warming when the herd was established, but there is no ongoing warming from that herd.

Under the new, accurate metric, which has been termed GWP\*, total UK agricultural emissions fell from 45.6 million tonnes of CO<sub>2</sub> equivalent (MtCO<sub>2</sub>e) in 2016 to just 9.5 MtCO<sub>2</sub>e\*. Of these emissions, warming from CO<sub>2</sub> and N<sub>2</sub>O are the same as previously reported (5.6 + 14.3 = 19.9 MtCO<sub>2</sub>e), but methane is recalculated as -10.6 MtCO<sub>2</sub>e\*. That's a negative value because methane levels have fallen since the base year of 1996 (the reference point for comparing current emissions).

This science was well received at the Katowice Climate Change conference in December 2018. Since then, Farmwel and FAI Farms have been working closely with IPCC researchers from the University of Oxford to advise the UK government and the Committee on Climate Change – an independent public body that advises the UK and devolved governments and parliaments on tackling and preparing for climate change – on this science and the resulting land use implications.

Cattle and sheep are not the enemy. Benefits under GWP\* can be gained through well-managed, grass-based agriculture; by a diverse patchwork of rural businesses, and the restoration of our rural economy.

Farmwel and FAI Farms are working with farmers in Northumberland to help show how we can use GWP\* and mitigate the global warming impact of agriculture by growing trees, hedges, and establishing ponds and species-

rich grasslands. These interventions should be integrated within farm systems to offer the greatest benefit, so that in addition to absorbing CO<sub>2</sub> they help to restore biodiversity, improve soil health, and restore and manage water flows. Renewable energy generation can be used to mitigate emissions even further.

Additional flora for climate mitigation will also create the potential for greatly improved animal health and welfare, with more shelter from extreme weather, more nutritional diversity in the sward, and better natural management of pests and diseases.

For clarity, GWP\* is not a prescription for business as usual. As the population grows, humanity must reduce its per capita meat and dairy consumption. And for methane to continue having a neutral impact, emissions must still fall, but there only needs to be a 10 per cent reduction by 2050, rather than a 40 to 50 per cent reduction.

Cattle and sheep have been part of the British landscape for generations and this research shows that they should be for many years to come – providing we can adapt our farm management systems to continue to produce not only food, but climate mitigation and biodiversity restoration as well.

We need a new consensus to emerge – one that focuses on warming from emissions rather than on the emissions themselves – and which mobilises more farmers to produce nutritious, affordable, quality food, while sequestering carbon, restoring nature, and helping to establish rural economic resilience.

Vets can help by sharing this information, and by helping farmers to link excellent farm animal health and welfare with environmental improvements, such as better soil and nutrient cycling, improved water management, and an increased use of agroforestry.

## References

- 1 Farmwel. Warming impact of methane can be mitigated while farming cattle and sheep. <https://bit.ly/2pdjYsA>. (accessed 9 October 2019)
- 2 Allen, MR, Shine, KP, Fuglested, JS *et al.* A solution to the misrepresentations of CO<sub>2</sub>-equivalent emissions of short-lived climate pollutants under ambitious mitigation. *Nature* 2018;1:16
- 3 Oxford Martin School. Climate metrics under ambitious mitigation. <https://bit.ly/2mUuU2r> (accessed 9 October 2019)
- 4 Cain M. A new way to assess 'global warming potential' of short-lived pollutants. <https://bit.ly/2LAWnwN> (accessed 9 October 2019)