



## The carbon fallacy

### *Cows are not cars*

In discussions about global warming and climate change, often all carbon emissions are seen as equally bad. It is saddening to observe that even a quality journal like Nature (1) includes cattle-produced methane when calculating greenhouse gas emissions from food and compares these to those of electrical appliances that are powered by fossil fuels.

Carbon released by livestock, mostly methane and carbon dioxide, is derived from plants. This “surface carbon” will be incorporated from the atmosphere back into plants and other photosynthetic organisms within days, years or centuries. However, the “deep carbon” released from oil, coal and gas by power plants and combustion engines will not be put back in its original form (buried deeply under earth's surface, inaccessible to the atmosphere) for millions of years.

Cycling of “surface carbon” by herbivores and plants has been part of life almost since its inception. Large ruminants, such as the bison herds roaming US prairies in the past, have been belching methane into the atmosphere for millions of years as part of the natural carbon cycle. This cycle has only been broken since humans started releasing “deep carbon” into the atmosphere by combusting fossil fuels. We wouldn't be discussing the carbon footprint of livestock if the fossil fuel industry hadn't been invented.

Those arguing that a methane molecule is a methane molecule regardless of source may want to note that the IPCC includes biofuels (derived from 'surface carbon' just like livestock feed) among net-zero CO<sub>2</sub> energy systems (2). The 'carbon opportunity cost' (“the likely carbon losses from land clearing to produce an additional unit of a product”) of livestock also applies to biofuels. Another analogy is the water footprint calculation that distinguishes between blue, green and gray water (3).

1. Camilleri et al. (2019) Nature Climate Change 9:53 <https://doi.org/10.1038/s41558-018-0354-z>
2. [https://report.ipcc.ch/ar6wg3/pdf/IPCC\\_AR6\\_WGIII\\_SummaryForPolicymakers.pdf](https://report.ipcc.ch/ar6wg3/pdf/IPCC_AR6_WGIII_SummaryForPolicymakers.pdf)
3. <https://waterfootprint.org/en/water-footprint/what-is-water-footprint/>