



## The carbon fallacy

### *Cows are not cars*

In discussions about climate change, all carbon emissions are seen as equally bad. It is saddening to observe that even a quality journal like Nature includes cattle-produced methane when calculating greenhouse gas emissions from food and comparing 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. Capturing of anthropogenic carbon in million-year repositories will likely be required to decrease atmospheric carbon to pre-industrial levels.

Vandenbergh and Steensen Nielsen (2019) *Nature Climate Change* 9:8  
<https://doi.org/10.1038/s41558-018-0357-9>

Camilleri et al. (2019) *Nature Climate Change* 9:53 <https://doi.org/10.1038/s41558-018-0354-z>

