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A bowl of cereal has the same carbon footprint as a 7-kilometre journey in a 4×4. A steak is equivalent to driving 30 kilometres

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Dinner's dirty secret

Your shopping basket is spewing greenhouse gases. But don't worry, you can easily cut out the culprits, says **Bijal Trivedi**

LOCAL or imported? Conventional or organic? Can you make choices that will keep your diet healthy and reduce your carbon footprint? Is it possible to eat green? Does it even matter?

It may surprise you to learn that our diets account for up to twice as many greenhouse emissions as driving. One recent study suggested that the average US household's annual carbon food-print is 8.1 tonnes of "equivalent CO_2 emissions" or CO_2eq (a measure that incorporates any other greenhouse gases produced alongside the CO_2). That's almost twice the 4.4 tonnes of CO_2eq emitted by driving a 25-mile-per-US gallon (9 litres per 100 kilometres) vehicle 19,000 km – a typical year's mileage in the US.

As greenhouse gas emissions attract ever greater scrutiny and criticism, the fields of sustainable consumption and life-cycle carbon accounting have prompted academics to tally the greenhouse gas emissions of hundreds of products and manufacturing processes so that we can make more environmentally friendly food choices.

In the UK some supermarkets have already begun pilot programmes to label foods with their carbon footprint. One potato crisp producer is now labelling some lines with their CO_2eq footprint – the makers calculated that each 34.5-gram packet that leaves the factory accounts for 75 grams of CO_2eq. The Carbon Trust, a campaign group based in London, is working on a standardised system that companies can follow to work out the CO_2eq footprint of any product.

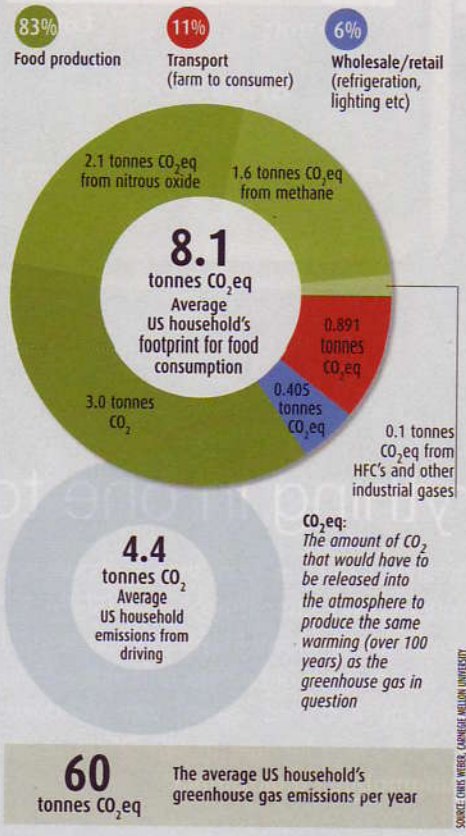
So how do you calculate your stomach's CO_2eq footprint? It's far from simple. For a start, you have to analyse every joule of energy used, from farm to fork, to measure its greenhouse gas contribution. Food produced using wind or solar power will produce lower emissions than food reliant on gas or coal, for example. For meat and dairy produce you also have to account for methane and nitrous oxide emissions – both potent greenhouse gases.

Methane remains in the atmosphere for 9 to 15 years and traps heat 21 times as effectively as CO_2. Fertilisers and manure release nitrous oxide, which is 296 times as good as CO_2 at trapping heat and remains in the atmosphere for 114 years on average.

A food's emissions total also depends heavily on where it grew and how it was transformed from raw ingredients into your dinner. This includes gases generated by tilling the land, sowing the crops, making fertilisers and pesticides, harvesting the food and shipping it to processing plants, as well as electricity for cleaning, processing and packing your food, and then transporting it to your store. Finally, the loss of carbon sinks when forests are cleared for grazing or crops has to be accounted for.

FOOD FOR THOUGHT

Household greenhouse gas emissions from food account for almost twice those produced by driving. Most of this comes from the food production process itself, rather than food-miles, as is often believed



SOURCE: CHRIS WEBER, CARNEGIE MELLON UNIVERSITY

The calculations can become "fiendishly complicated", says Astrid Scholz, an ecological economist at Ecotrust, a think tank based in Portland, Oregon. Scholz led the development of a carbon calculator for the Bon Appétit Management Company Foundation, which developed a Low Carbon Diet for its 400 plus cafeterias in the US.

For example, to calculate the CO_2eq impact of eating an industrially raised chicken breast, you would factor in the following. First, there's the emissions from preparing the feed pellets. This would include the fertiliser, growing and processing the grain, and finally transforming it into bite-sized pellets that will feed the chicken while it sits in a hut with 250,000 other birds. Add to that the energy for heating the structure, the fuel for transporting the chicken to the slaughter facility, and the emissions from running the slaughtering facility and manufacturing the packaging.

Then there are emissions from transporting the animal to the wholesaler, the refrigeration costs of storing the meat, the trip to the retailer, and further refrigeration in the shop. Then you drive to the store, buy your chicken, drive home and cook it – all those emissions count too. Chicken is a relatively simple example, but the more stages involved in a food's production, the harder it becomes to calculate its true CO_2eq footprint.

Scholz found that until recently there had been no wide scale effort to calculate CO_2eq for foods in the US. In Europe, however, there are fledgling programmes that have calculated CO_2eq emissions for some foods, so she used these figures to create a carbon calculator that she says gives comparable figures for the US. "We took a Dutch chicken farm and plopped it in Texas and assumed that it worked in a similar way," she explains.

She describes the resulting carbon calculator as "version 1.0 of a good idea". It doesn't give you the derivation of the figures, but it will tell you that 333 grams of CO_2eq is emitted to make one hard-boiled egg. Compare that with a bowl of cereal with milk: 1224 grams of CO_2eq – equivalent to driving a typical SUV 6 km. ▶

Think about the carbon footprint before it goes in the basket

4800g
per 300g pack

2600g
per 300g pack

2800g
per 300g punnet (greenhouse-grown)

240g
per 1kg bag

500g
per 250g pack (wild caught)

60g
per 750g bag

45g
per 1kg pack

1650g
per half-dozen box

1050g
per litre bottle

110g
per 4-apple pack

55g
per 25g packet

Greenhouse emissions expressed as carbon dioxide equivalents (figures obtained from individual case studies, collated by Peter Tyedmers and Nathan Ayer)