

# Meat-eaters on bicycles versus vegans in SUVs:



## how to bring a good argument into disrepute

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**The claim that a vegan in a Sports Utility Vehicle (SUV) or four-wheel drive car causes less global warming than a meat-eater on a bicycle has been doing the rounds for a couple of years. Nice sound-bite, but is it true?**

**Based on DEFRA's figures for the global warming impact of producing different types of food in the UK<sup>1</sup>, producing the ingredients of a typical omnivorous diet (to the point of being ready for distribution to a wholesaler) results in about 1,200 kg CO<sub>2</sub> equivalent per year compared with about 350 kg for a simple vegan diet - an advantage of about 850 kg to the vegan.**

**The average distance travelled by private cars in the UK is about 6,500 km per person per year<sup>2</sup> and a typical SUV emits 0.27 kg per km<sup>3</sup>. Based on average distance, this adds up to 1,750 kg per person per year - a clear win for the meat-eater on a bicycle.**

If instead of an SUV we take the Toyota Prius, a common petrol-electric hybrid car, emissions drop to 0.104 kg per km or 680 kg per person per year. Other things being equal, therefore, a vegan in a Prius hybrid (a far cry from an SUV) clocks up slightly less emissions than a meat-eater on a bicycle.

Overall US emissions per capita are double those for the UK, so comparable US figures are higher both for food and for travel. US figures<sup>4</sup> indicate that producing a typical US diet causes 1,500 kg more emissions than producing a vegan diet. As the average distance travelled by car is about double the UK value at 13,000 km per person, typical SUV emissions also double to 3,500 kg.

In fact, Eshel and Martin estimate 4,760 kg per year for the US SUV example, which is even less efficient than the average UK SUV.

Both the UK and the US comparisons show that the increase in global warming emissions from using an SUV rather than a bicycle is two to three times the reduction in emissions from following a vegan diet rather than a typical omnivorous diet.

If the comparison is made *per kilometre travelled*, the difference is even more dramatically in favour of the meat-eating cyclist. Burning roughly an extra 25 calories (kcal) per kilometre, the cyclist on an average UK diet would generate just one tenth of the emissions of the SUV and even a vegan in a Prius would generate more than three times the emissions per kilometre of the meat-eater on a bicycle.

Only by taking a hypothetical meat-eater consuming large amounts of beef and lamb rather than a typical meat-eater can the comparison be tilted in favour of the vegan, but we could just as easily tilt it the other way by taking a hypothetical vegan consuming lots of hothouse-grown Dutch or British tomatoes which account for essentially the same emissions per kilogram as beef (and per calorie far more)<sup>1</sup>.

So long as we avoid eating large quantities of hothouse vegetables or foods transported by air, a vegan diet can have substantial environmental benefits, but if we want to be taken seriously we should not overstate the case. Although *worldwide* the global warming impact of livestock exceeds that of transport<sup>5</sup>, this is because most developing countries have poorly developed transport systems. The statement is far from true in Europe and the US, where typical transport use, and indeed typical home energy consumption, each has a far greater impact in terms of global warming than typical consumption of animal-derived foods.

So the "vegan in an SUV" sound-bite is best binned before it leads people who might be genuinely interested in the real and significant environmental advantages of a vegan diet to regard us as hypocrites or fools with little real concern for or awareness of our overall environmental impact. Being vegan *can* make a real difference for the environment – somewhat greater than changing from an average car to a Prius (as noted by Eshel and Martin) – but it is only one part of the picture.

Vegans seeking to engage with environmentalists can get to grips with the overall issue through books such as Chris Goodall's *How to live a low carbon life* or Gabrielle Walker and David King's *The Hot Topic*.

## **Beyond Vegan – how to reduce our environmental impact still further and get the better of the meat eater on a bicycle**

Apart from the obvious solution of getting your own bicycle, there are a number of areas where we can make a difference at least as important (in environmental terms) as going vegan.

### **Population**

Generally speaking, more people mean more land taken to meet human needs, more pollution and less space for non-domesticated animals, so the number of children we have is arguably the biggest decision we make in relation to the environment. That said, there are also plenty of ways to reduce the impact we and our families have on the environment from day to day.

### **How many vegans does it take to change a light bulb? Energy conservation begins at home.**

Average home energy use in the UK amounts to about 2,500 kg of carbon dioxide emissions per person per year. Significant reductions can be achieved with no loss of comfort or functionality. Topping up loft insulation, getting wall cavities insulated, choosing high efficiency appliances can all save money as well as reduce emissions. Condensing boilers are considerably more efficient than older types of boiler as they lose less energy in the form of water vapour.

Energy-saving light bulbs can make a major saving, though you may find you need a 20W energy-saving bulb (claiming to be equivalent to 100W) to replace a 60W incandescent bulb. Switching off lights and other appliances when not in use can also reduce emissions.

A short shower is a much more efficient way to stay clean than filling a bath, though energy-guzzling power showers are best avoided.

Cooking with gas causes less emissions than cooking with electricity, with the possible exception of microwave ovens. Boiling food in the minimum amount of water is generally the most efficient cooking method, while cooking small amounts of food in a conventional oven is the least efficient as most energy goes into warming up the whole oven rather than the food.

## **Is your journey really necessary? The environmental costs of travel.**

Travel emissions per person also equate to about 2,500 kg per year of carbon dioxide. Estimates for the impact of flying vary greatly as they depend on the factor used for the increased impact of emissions at high altitudes. Chris Goodall uses a factor of 3, but DEFRA guidelines now suggest a factor of 1.9. Using the lower factor, UK emissions from air travel and from car travel are each about 1,200 kg per person each year.

Car-sharing can greatly improve the efficiency of travel by car. With four people, the typical 0.18 kg CO<sub>2</sub> per km becomes 0.045 kg per person - slightly better than travelling by train (0.06 kg/km) and beaten only by express coach (0.03 kg/km). A small diesel car can reduce emissions considerably compared with a larger petrol car and a hybrid such as the Prius can do even better, though at a much higher cost to buy. If you are replacing a particularly old and fuel-hungry car, consider whether you can afford to scrap it rather than reselling it to continue its damage driven by someone else.

Airlines like to tell us that emissions per kilometre from economy class long-distance air travel are less than those from one person travelling in a typical car (about 0.11 kg CO<sub>2</sub> per km compared with 0.18 kg per km by car), but the unique impact of air travel is that it allows us to travel stupendous distances very rapidly and to increase emissions in a way that would not be possible by any other form of transport. A 7,500-mile round trip from London to New York generates more than 1,400 kg of CO<sub>2</sub> emissions per person and has become a commonplace weekend journey. There are no easy answers to making air travel more efficient, so for the foreseeable future the only answer is to fly as little as possible or preferably not at all.

### **Food - environmentally friendlier choices within the vegan diet**

Total food-related emissions per person in the UK are about 2,000 kg of carbon dioxide equivalents per year. Switching from a conventional diet to an entirely vegan diet can save about 850 kg of emissions.

Buying locally produced, minimally processed, in-season food can generate significant further reductions.

Two key types of food to avoid are air-freighted produce (salad vegetables from outside Europe and highly perishable items such as berries will generally be transported by air) and foods produced in heated greenhouses such as out-of-season tomatoes. Tomatoes grown unseasonally in heated greenhouses in Britain and Holland cause comparable emissions per kilogram to beef. Sea-freighted produce from within Europe is much less environmentally damaging and a reasonable means of maintaining quality and variety in the diet when local fruit and vegetables are particularly scarce.

Choosing organic foods is often recommended as a way to reduce environmental emissions, but the evidence is not clear cut. Organic farming avoids the energy costs of synthetic fertilisers, but requires more land and more energy for cultivation. Overall there is unlikely to be a major emissions reduction from choosing organic food, though there may be other good reasons for doing so. Stock-free organic food (see page 39) avoids reliance on animal manure and hence dependence on a major source of emissions but currently has very limited availability.

About a third of food purchased in the UK is wasted, so reducing food waste by careful storage and not buying too much can make a substantial difference to the environmental cost of our food.

### **References**

- 1 *Determining the environmental burdens and resource use in the production of agricultural and horticultural commodities*, Williams, A.G., Audsley, E. and Sandars, D.L. 2006
- 2 *How to live a low-carbon life*, Chris Goodall, 2007
- 3 <http://www.carpages.co.uk/co2/co2-suv-226-to-999-1.asp>
- 4 *Diet, Energy and Global Warming*, Gidon Eshel and Pamela Martin in *Earth Interactions*, volume 10, pp 1-17, March 2006
- 5 *Livestock's long shadow*, United Nations Food and Agriculture Organization, 2006