**The Carbon Footprint of Food – How to Eat Well and Save the Planet!**

**Introduction**

The carbon footprint of food is a complicated topic, with lots of interested parties keen to promote their own products, and even the most well-meaning can fall foul of over-simplification. We’ve pulled together this information sheet to highlight the issues involved – we can’t provide all the answers, but at least we can give some of the questions!

**Where do the emissions come from?**

Greenhouse gas (we’ll call it “GHG”) emissions come at every stage of the food production and distribution process – and even beyond it, in the disposal of waste. GHG emissions from food account for about 14% of the total emissions from Scotland’s consumption of all goods and services.

The emissions come from:

|  |  |  |
| --- | --- | --- |
| Agriculture | 45% | Fertiliser manufacture, soil cultivation, methane from cows and sheep, fuel for tractors and heated greenhouses |
| Food manufacture | 12% | Processing of food |
| Transport | 12% | Getting both the food and customers to the shops |
| In the home | 9% | Cooking, refrigerating, freezing, washing up |
| Other | 22% | Equally split between packaging, energy used in shops, and catering |

All of these sectors include refrigeration, which has quite a high carbon footprint – it’s estimated that it accounts for 15% of total food chain emissions.

Waste disposal only accounts for a very small proportion of food’s carbon footprint, but it’s still important because all the food that’s wasted still has to be grown, processed, transported and refrigerated – so reducing waste not only cuts the GHG emissions associated with waste disposal, it cuts all the emissions from producing, distributing and storing the food.

Another major impact, not included in these figures, is land use change, particularly deforestation. It’s difficult to measure how much of this is due to food production, but worth bearing in mind that if this was included, the true carbon footprint of our food could be a lot higher.

**How can we reduce our carbon footprint?**

Here are a few tips.

1. Reduce red meat consumption

Sorry about this, all you died-in-the-wool carnivores, but the carbon footprint of red meat is unavoidably high. Partly that’s because of those methane emissions (we know this sounds like a joke, but it really is an issue) and partly it’s because growing grain to feed cows inevitably leads to higher emissions than growing grain to feed humans. And, of course, meat needs to be refrigerated throughout its journey from abattoir to oven. If cutting out meat altogether is too big a step, consider switching from red meat to chicken and pork, or maybe try one or two meat-free days a week. There are some great vegetarian cook books out there which might help, we particularly like Hugh Fearnley-Whittingstall’s “River Cottage Veg Every Day”.

2. Eat Local, Seasonal Food

Growing food out of season takes a lot of energy, whether it’s British tomatoes grown in heated greenhouses or Peruvian asparagus brought in by air. So, local and seasonal is best, but if you really must have tasteless tomatoes in May, Spanish ones grown without artificial heat are better than British ones from heated greenhouses.

3. Only buy what you can eat

Some waste is unavoidable, even if it’s just peelings and rind, but buying food that goes off isn’t just a waste of food, it’s a waste of money, and of course, the carbon footprint of the food could have been avoided – by not producing it in the first place!

4. Grow your own

Growing your own fruit and veg has lots of advantages.

* You can avoid fossil-fuel-based fertilisers by using your own compost;
* You reduce your trips to the supermarket, so less emissions there;
* There’s no packaging;
* By definition, you end up with local, seasonal food (see number 2!);
* It’s hugely satisfying;
* You get fresher, tastier veg, and sometimes things you wouldn’t be able to buy in the supermarket;
* And of course you can save money.

5. Avoid chilled and frozen food

Anything that needs chilling uses more energy, and therefore has a higher carbon footprint. Ice-cream, unfortunately, is a good example, so really it should be an occasional treat rather than a staple.

**More Information**

The table on the next page shows the carbon footprint of a range of food, depending on whether it’s produced in the UK, elsewhere in Europe, or further afield. Some of the numbers need treating with caution, for example the figure for UK-produced cucumbers and tomatoes, which assume a proportion are grown with artificial heat.

Most of the information reproduced here came from the Low Carbon Route Map for Food, produced by the Scottish Government’s Climate Challenge Fund. It can be downloaded from <http://www.keepscotlandbeautiful.org/media/43522/ccf-low-carbon-route-map-food-2011.pdf>.

and includes recommendations for further reading.

**Carbon Footprint of Food by Area of Production**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Kg of CO2e per kg food (see note below) | | |
| Type of food | UK | Rest of Europe | Rest of the  World |
| Apples | 0.46 | 0.62 | 1.27 |
| Beans, green | 2.24 |  | 15.45 |
| Beef | 17.52 | 17.70 | 32.00 |
| Bread | 1.62 |  |  |
| Cabbages | 0.32 | 0.69 | 0.92 |
| Carrots and turnips | 0.51 | 0.66 |  |
| Cauliflowers and broccoli | 2.80 | 3.20 | 3.45 |
| Cereals | 0.53 | 0.71 |  |
| Chicken | 4.10 | 4.26 | 3.75 |
| Cucumbers | 5.47 | 1.88 |  |
| Eggs | 4.24 | 4.39 |  |
| Fish | 7.74 |  |  |
| Leguminous vegetables | 2.24 |  |  |
| Lettuce and chicory | 1.66 | 1.44 | 14.44 |
| Milk | 1.72 |  |  |
| Oats | 0.55 | 0.17 |  |
| Pears | 0.46 | 0.62 | 1.27 |
| Pig meat | 6.42 | 6.58 |  |
| Potatoes | 0.38 | 0.74 |  |
| Raspberries and other  berries | 1.21 | 1.37 | 2.04 |
| Rice |  |  | 5.05 |
| Sheep meat | 21.09 |  | 17.32 |
| Strawberries | 1.21 | 1.53 | 2.01 |
| Tomatoes | 5.47 | 1.88 |  |
| Wheat | 0.75 | 0.91 | 0.95 |

Note: CO2e means CO2 or its equivalent in other gases – so for instance methane is generally taken as having 27 times the warming effect of CO2, so 1 kg of methane would be 27 kg CO2e.