

Food miles

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Working out the environmental impact of the food we buy can be confusing. It's no longer just about food miles - there's production, processing, packaging and storage to weigh up too.

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What are food miles?

“Half the vegetables and 95 per cent of the fruit eaten in the UK comes from beyond our shores”

Thanks in part to concerns about climate change, more people are stopping to consider the impact that everyday goods - including food - have on the environment. Food miles, the distance food travels from field to plate, is a way of indicating the environmental impact of the food we eat. Half the vegetables and 95 per cent of the fruit eaten in the UK comes from beyond our shores.



Increasingly, it arrives by plane - and air travel gives off more CO₂ than any other form of transport. Agriculture and food account for nearly 30 per cent of goods trucked around Britain's roads and, according to a Government report in 2005, the resulting road congestion, accidents and pollution cost the country £9bn a year.

The end of the road for food miles?

“While the idea of food miles has become common currency, many other processes contribute to the carbon footprint of our food”

The term 'food miles' was coined in the 1990s by Dr Tim Lang, professor of food policy at London's City University. While the idea of food miles has become common currency, many other processes contribute to the carbon footprint of our food. Agriculture, processing, storage and the way we shop all have to be factored into the bigger carbon emissions picture.

Together these factors combine to make the food we eat responsible for a third of UK households' impact on climate change.

Air grievance

The most contentious food miles are clocked up by the fresh fruit and vegetables arriving by plane from across the globe. Reducing the carbon footprint of food is not as simple as choosing not to buy fresh fruit and vegetables flown in from Africa or South America, however.

Although air-freighted produce accounts for less than one per cent of total UK food miles, it is responsible for around 11 per cent of the total CO₂ emissions from UK food transport. That's because transport by plane generates 177 times more greenhouse gases than shipping does, for example, and it's the fastest-growing way of moving food around, according to latest figures from the Department for Environment, Food and Rural Affairs (Defra).



The most recent increase is affected by imports of animal feed from Brazil and the USA, but it is the green beans grown in Kenya, 70 per cent of which are destined for UK supermarkets, that draw much of the anti-air freight fire.

Because of concerns about the carbon emissions generated by air-freighting, Marks and Spencer and Tesco now label fresh produce flown in from abroad with a sticker depicting an airplane.

Miles in the balance



Others believe that highlighting the fact that the food is air-freighted can demonise such produce and threaten the livelihoods of some of the world's poorest people, who are dependent on exporting by plane. The £200million fresh fruit and vegetable trade with the UK supports one million people living in Africa.

To support environmentally friendly food production without unnecessarily harming vulnerable developing economies, the Soil Association has decided that, in order to qualify as 'organic', all air-freighted food will have to meet ethical trade standards from 2009. Incidentally most Fairtrade fruit, such as pineapples, bananas and mangoes, is transported by sea.

Lorry loads

Food transport is responsible for 25 per cent of the kilometres clocked up by HGVs on our congested roads. Supermarkets have national distribution systems, so even food grown near a particular branch may have travelled by lorry to a central depot and back to its place of origin.

Ingredients used in the food processing industry travel around the country from factory to factory before reaching the shops.

All these journeys around Britain mean that HGVs transporting food transport are responsible for a quarter of CO2 emissions.

Car culprits



It's easy to overlook the fact that the food we eat clocks up extra miles on the drive to the supermarket and back. The last set of figures looking at the distance food travels found a seven per cent increase in city car journeys making longer and more frequent trips to the shops. Cars are responsible for 20 per cent of the UK's CO2 emissions from food transport.

Is home-grown always better?

Even locally grown and organic food can be kept chilled for months. Refrigeration requires energy; trying to cheat our climate by growing fruit and vegetables outside their natural season is also contributing to climate change.

A 2005 Defra report indicated that it can be more energy-efficient to import tomatoes from Spain by lorry than to grow them in a heated greenhouse in the UK. Lettuce grown out of season in the UK also compared unfavourably with Spanish salad when total carbon emissions were measured.

A study carried out at Lincoln University in New Zealand concluded that rearing and distributing British lamb produces more CO2 emissions than importing the meat 11,000 miles by sea. New Zealand farmers use more renewable energy and less fertiliser, so agriculture is much more energy efficient than the UK's, making up for the food miles.

Carbon 'foodprint'

Different farming systems use varying amounts of energy. The reckoning of all the carbon emissions produced in the growing, processing and distribution of our food starts in the field. Measuring the environmental impact, from fork to plate, is known as the life cycle.

Organic farming uses less energy because it relies much less heavily on fertilisers and chemicals used in intensive farming, the manufacture of which creates greenhouse gases.

“Meat is the most energy-intensive of all foods to produce, taking up larger amounts of water than any other food production”

Meat is the most energy-intensive of all foods to produce, taking up larger amounts of water than any other food production - 2,400 litres of water to produce a 150g hamburger compared to 13 litres of water for a 70g tomato. Cows give off methane which contributes to global warming, too. Livestock rearing generates more greenhouse gases than transport does.

Processing and packaging also contribute to food's carbon footprint, as does keeping it chilled or frozen. All these carbon emissions can outweigh those produced by food miles.

Is there still mileage in food miles?

While some think the term food miles will be superseded by a life cycle carbon footprint, it is still important to keep track of the distance food travels.



Food miles have jump-started the debate about the carbon footprint of our food. Paul Steedman of the Food Ethics Council insists they're still a valuable concept, although only one component of the life cycle of food. 'It's heartening the way people are now thinking about the ethics of food, and we don't want to throw the baby out of the bathwater,' says Steedman.

He and others would argue that comparing English and New Zealand apples in July and finding that the imports score lower on carbon emissions is a red herring, because consumers shouldn't expect to eat apples out of season and that supermarkets shouldn't be selling unseasonal fresh fruit and vegetables all year round. That way, he argues, the responsibility wouldn't lie with shoppers having to weigh up which foods are better for the environment.

Carbon labelling

But a global food economy seems here to stay and consumers will doubtless continue to demand the out-of-season produce that they've grown used to. The challenge is to reduce the impact food production has on climate change.



By working out a way of measuring how much CO₂ is given off at every stage of production that's partly what the Carbon Trust is helping organisations to do. Look for the pilot label showing the carbon emission in grams on Walkers cheese and onion crisps. Innocent smoothies are being measured and already the fruits' journey from India has been shown to make up less than a quarter of the carbon emission tally on its mango and passion fruit smoothie.

Following a pledge by its chief executive Sir Terry Leahy, Tesco is working with the Carbon Trust to map the carbon footprint of foods including tomatoes, potatoes and orange juice. Companies opting for the Carbon Trust scheme must commit to reducing emissions or lose the right to use the label.

Only when several similar foods have their carbon footprint measured can shoppers choose their foods accordingly. Until then, shopping locally for what's grown locally (and, preferably,

organically) and in season, may be the only guarantee that the food we buy is doing the least possible damage to our environment.

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Have your say

To what extent do the issues raised (and the measures being taken) affect your purchases? Will you go out of your way to source local food or are you happy to enjoy the wealth of global produce available? Find out what others have to say and [join in the the discussion on our message board](#).

http://www.bbc.co.uk/food/food_matters/foodmiles.shtml

Food miles

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Food miles is a term which refers to the distance [food](#) is [transported](#) from the time of its production until it reaches the consumer. It is one dimension used in assessing the [environmental](#) impact of food. The concept of food miles originated in 1990 in the United Kingdom. It was conceived by Andrea Paxton, who wrote a research paper that discussed the fact that food miles are the distance that food travels from the farm it is produced on to the kitchen in which it is being consumed (Iles, 2005, p.163). Engelhaupt (2008) states, that “food miles is the distance food travels from farm to plate, are a simple way to gauge food’s impact on climate change” (p. 3482). Food travels between 1,500 to 2,500 miles every time that it is delivered to the consumer. The travel of products from the farms to the consumers is 25 percent farther now than it was in 1980 (“Counting our food miles,” 2007). Some scholars believe that the pollution is created due to the globalization of trade overseas; the focus of food supply bases into fewer, larger supplies; the drastic change in the delivery pattern; increase in processing and packaging foods; and making fewer trips to the supermarket. Others state that the GHG (Greenhouse Gas) emissions are created by the production phases which create 83 percent, 8.1 tons of CO2 foot printing or food miles. (Engelhaupt, E., 2008). The goal of the Environmental Protection Agencies is to make people aware of the environment impacts of food miles and show the pollution percentage and the energy used to transport food over long distances, at this time there are researchers that are working to provide the public with more information.

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[edit] Overview

The concept of food miles is part of a broader issue of [sustainability](#) which deals with a large range of environmental issues, including [local food](#). The term was coined by Tim Lang (now Professor of Food Policy, [City University, London](#)) who says: "The point was to highlight the hidden ecological, social and economic consequences of food production to consumers in a simple way, one which had objective reality but also connotations." ^[1] However, it has increasingly come under attack as an ineffective means of finding the true environmental impact.^[2]

A [DEFRA](#) report in 2005 undertaken by researchers at [AEA Technology](#) Environment, entitled *The Validity of Food Miles as an Indicator of Sustainable Development*, included findings that "the direct environmental, social and economic costs of food transport are over £9 billion each year, and are dominated by congestion."

Recent findings indicate that it is not only how far the food has traveled but the method of travel that is important to consider. The positive environmental effects of specialist [organic farming](#) may be offset by increased [transportation](#), unless it is produced by local [farms](#). But even then the logistics and effects on other local traffic may play a big role.^[citation needed] Also, many trips by personal cars to shopping centers would have a negative environmental impact compared to a few truck loads to neighborhood stores that can be easily accessed by [walking](#) or [cycling](#).

[edit] Food miles in business

Business leaders have adopted food miles as a model for understanding inefficiency in a [food supply](#) chain. [Wal-Mart](#), famously focused on efficiency, was an early adopter of food miles as a profit-maximizing strategy. More recently, Wal-Mart has embraced the environmental benefits of [supply chain](#) efficiency as well. In 2006, Wal-Mart, [CEO, Lee Scott](#) said, "The benefits of the strategy are undeniable, whether you look through the lens of [greenhouse gas](#) reduction or the lens of cost savings. What has become so obvious is that 'a green strategy' provides better value for our customers".^[3] Wal-Mart has since made a series of environmental commitments that suggest the company is looking more holistically at supply chain sustainability, such as restricting [seafood](#) suppliers to [fisheries](#) independently certified as sustainable, a practice that may increase food miles.^[3] Still it is undeniable that Wal-Mart's strategy of using supply chains from as far away as [China](#) exorbitantly increases greenhouse emissions. They are often criticized for "[green washing](#)" and only adopting large-scale green tactics, which make them appear earth-friendly but actually have little positive environmental impact.^[citation needed]

Some other alternatives for reducing food miles are to create Co-op grocery stores. A Co-op is a small business strictly owned and managed by its members. The way that this works is that people come together, they create equity and then they purchase their products. They grow organic food and their food miles are drastically reduced. "Choosing to buy organic has value, the hidden costs of shopping increase substantially when road miles are factored in"(Holt and Watson, 2008, p. 321). The first co-op was created in 1844 in England with twenty-eight people. They started out by selling just sugar, flour, butter and oatmeal. Today there are over 47,000 coop corporations in the United States alone. Not only are Co-op markets reducing the

food miles, but they are also providing the consumers with healthy food, organic food. The facts and figures for 2005 state that organic foods contains higher levels of vitamin C, calcium, magnesium, iron, phosphorus and chromium; and 15 percent lower levels of nitrates (Siner, 1996).

[edit] Food mile calculation problems



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The calculation of food miles ignores questions of scale. Consider the following simplistic example: a small family farm produces 10 tons of produce, but has a small truck with capacity for only 1 ton. If the farm is located 100 miles (160 km) away from market, each piece of produce only travels 100 "food miles"; however, 10 trips are required to bring that produce to market. Now consider a farm located 1,000 miles (1,600 km) away but with a 10-ton truck. That farm's produce would travel 1000 "food miles" while consuming a slightly higher amount of **[energy](#)** (as a bigger truck needs less fuel per unit of mass transported).^{[\[citation needed\]](#)}.

Furthermore, the mode of transportation is not included. Ships are much more effective than trucks, cars or planes. However there is still a debate on whether it is more environmentally friendly to use trucks or planes for long distance shipping. Some believe that trucks give off only 30% of the carbon emissions that planes do (Edward-Jones, 2008, p.267). Therefore there is a need when reporting food miles to standardize by some quantity measure. Frozen and fresh food use much more energy to transport. Red meat has an average total distance of 20, 400 km, which includes the grain used to feed the cows, with a shipping distance of around 1,800 km, which is only about 9% of the total distance. Beverages are the product with the least average shipping distance with around 330 km, but including all production there is around 1,200 km of shipments to make the beverage. Of the total distance for fruits and vegetables, 50% of the distance is shipping (Weber, 2008, p.3511). Packaging and preparation can also add or remove weight to the food transported, so the same quantity of food can require different quantities of energy depending on where the packaging and preparation is done. For example, orange juice is often transported in concentrated form, and only diluted and put in bottles near the customers. A more relevant indicator would be the "average number of food miles per ton" or per other unit of measure for a certain shipment. A better all round indicator, which would address some of the problems below, also, would be a measure of total embodied energy per ton.

One way to be able to track food miles would be by the creation of food labels. Countries such as Sweden, the U.K. and Canada are creating their own labels that are making people more aware of food miles. Sweden's labels are called "climate friendly" and with the use of these labels "Sweden will be able to choose food according to the impact its production and transportation methods have on the climate ("Counting our food miles," 2007, p. 33). The United Kingdom uses "carbon labels" created by Tesco. In Canada they are not only creating food labels, but also developing a system in which they can track farmers and processors and then link them to the purchasers. They tested their carbon labels on products such as Walkers crisp and Cadburys chocolates. What they did was create labels that had small C's with a downward arrow that showed the grams of carbon dioxide created for the production (McKei, 2008). McKie (2008) results showed that "packets of Walker's Ready Salted and Salt and Vinegar crisps each generate 75g of carbon, while the cheese and onion variety produced only 74g" (para. 19). As one can see, it is easier to calculate the carbon dioxide for a product with fewer toppings, then one such as a pizza or spaghetti. Due to the large numbers the scientists are trying to reduce food miles.

[\[edit\]](#) A non-holistic approach

Critics of food miles point out that transport is only one component of the total environmental impact of food production and consumption. In fact, any environmental assessment of food that consumers buy needs to take into account how the food has been produced and what energy is used in its production. A recent DEFRA case study indicated that [tomatoes](#) grown in [Spain](#) and transported to the [United Kingdom](#) may have a lower carbon footprint in terms of [energy efficiency](#) than tomatoes grown in heated [greenhouses](#) the United Kingdom.^[4]

A 2006 research report from [Lincoln University, New Zealand](#) counters claims about food miles by comparing total energy used in [food production](#) in [Europe](#) and [New Zealand](#), taking into account energy used to ship the food to Europe for consumers.^{[5][6]} The report states, "New Zealand has greater production efficiency in many food commodities compared to the UK. For example New Zealand [agriculture](#) tends to apply fewer [fertilizers](#) (which require large amounts of energy to produce and cause significant [CO2 emissions](#)) and animals are able to [graze](#) year round outside eating grass instead of large quantities of brought-in [feed](#) such as [concentrates](#). In the case of [dairy](#) and sheep meat production NZ is by far more [energy efficient](#), even including the transport cost, than the UK, twice as efficient in the case of dairy, and four times as efficient in case of [sheep meat](#). In the case of [apples](#), NZ is more energy-efficient even though the energy embodied in capital items and other inputs data was not available for the UK."

Studies of the total [carbon footprint](#) of food production in the US have shown transportation to be of minor importance, compared to the carbon emissions resulting from pesticide and fertilizer production, and the fuel required by farm and food processing equipment^[7].

A commonly ignored element is the local loop. The act of driving further to a more "right-on" food source increases the total carbon footprint. A shopper may buy say 5 kg of meat and use about a gallon to get it. That piece of meat could have gone over 60,000 miles (97,000 km) by road (40tonner at 8mpg) to require the same carbon in transportation. However, this is an extreme scenario, in which a consumer burns a gallon of gasoline (30 or 40 miles (64 km) of travel) to buy a single food item, 5 kg of meat. While extreme consumer behaviors can certainly cancel any environmental benefit arising from any food-buying choice, it is a different question whether consumer behaviors do so *in practice*.

After analyzing food miles the scholars have concluded that food miles are negative in general. People should strive to reduce the production of food miles by either buying products locally such as buying products in Coop markets or eating less red meat, chicken and dietary products. There is no simple answer for that question of "How to stop Greenhouse gasses?" The scholar's state that "in the U.S. and Europe policy-makers and activist have recognized that environmental education may change the behavior of people as consumers, politically active citizens and producers" (Iles, 2005, p. 164). The only thing that one can do is share their knowledge about food miles and to educate people. So the next time when one goes to the supermarket and buys their groceries they should think about how many miles their food has traveled.

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- ¹ [^](#) Tim Lang (2006). 'locale / global (food miles)', Slow Food (Bra, Cuneo Italy), 19, May 2006, p.94-97
- ² [^ http://network.nationalpost.com/np/blogs/fpcomment/archive/2008/11/06/food-mile-myths-buy-global.aspx](http://network.nationalpost.com/np/blogs/fpcomment/archive/2008/11/06/food-mile-myths-buy-global.aspx)

3. ^a ^b [Al Gore takes his green message to Wal-Mart headquarters | By Amanda Griscom Little | Grist | Muckraker | 19 Jul 2006](#)
 4. ^a ["Comparative life-cycle assessment of food commodities procured for UK consumption through a diversity of supply chains. 19 March 2003"](#)
 5. ^a ["Food Miles – Comparative Energy/Emissions Performance of New Zealand's Agriculture Industry"](#)
 6. ^a ["Food that travels well" New York Times Aug. 6 2007](#)
 7. ^a ["Food-Miles and the Relative Climate Impacts of Food Choices in the United States Environ. Sci. Technol., 2008, 42 \(10\), pp 3508–3513"](#)
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[[edit](#)] See also

- [Farm to fork](#)
- [Low carbon diet](#)
- [Sustainable food system](#)
- [Urban agriculture](#)

[[edit](#)] External links

- [99MILES.ORG - Promotion Program for Local Products](#)
- [Food miles](#) at [DEFRA](#)
- [The Validity of Food Miles as an Indicator of Sustainable Development](#)
- [Food miles](#) at [Wordspy](#)
- [Farmers Weekly Food Miles Campaign - Local Food is Miles Better](#) at [Farmers Weekly interactive](#)
- [Food Miles Info and Calculator](#)

- [News/Views from Kenya](#)
- [Falls Brook Centre Food Miles Project](#)
- [Falls Brook Centre Food Miles Calculator - Canada](#)
- [Food miles - A corrida do alimento \(portuguese\)](#)

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