

The tricky truth about food miles



Food miles almost need a health warning.

Tackling them will support local food, but won't always cut carbon emissions.

Food miles in perspective

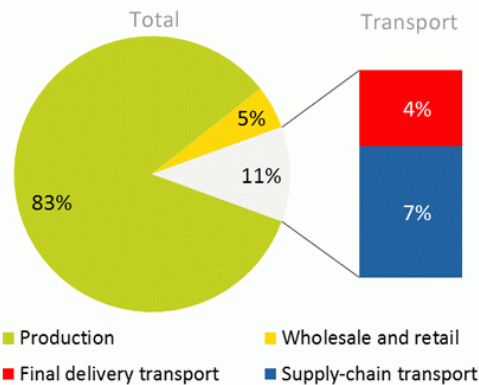
The concept of food miles, the distance food travels before being consumed, dates back to a 1994 report called "[The Food Miles Report: The dangers of long-distance food transport](#)".

At first glance reducing food miles seems an excellent way to reduce carbon emissions, because it limits emissions caused by planes, trucks, boats and trains moving food. But if you're not careful cutting food miles can easily increase your food's carbon footprint.

The most important thing to remember about food miles is that they are only part of the bigger food emissions story. A [person's foodprint](#) is actually dominated by production emissions, and food transport makes up just a tenth of food emissions up to the point of sale.

A few different studies have verified this, perhaps the best of which is the 2008 paper by Weber and Matthews, [Food-Miles and the Relative Climate Impacts of Food Choices in the United States](#). Their analysis of US food emissions found 83% of carbon emissions in the food system result from food production, 5% from wholesaling and retailing food, and 11% from transporting it.

Food Emissions Breakdown (%)



Source: Weber and Matthews 2008



Perhaps most interestingly, just 4% of total emissions were final delivery transport from the producer to the retailer, which is what most people think of when they talk about food miles.

The point is food miles are only a small part of a very large food emissions story, so focusing on them in isolation isn't necessarily helpful if your goal is to cut your foodprint.

In fact **what you eat** is generally more important than where it comes from, as is **how much you waste**.

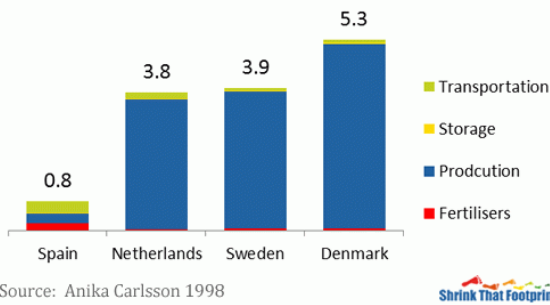
The virtues of eating seasonally

The problem of focusing purely on food miles to reduce emissions is easy enough to understand. The classic example is the much-loved tomato.

In cooler climates like northern Europe, Canada and the north states of the US people eat tomatoes all year round, despite the local weather not being conducive to growing them. Winter tomatoes in these places are either hot housed locally, using significant amounts of energy, or imported from warmer climates like Spain or Mexico.

When you analyse the respective carbon footprints of local and imported tomatoes it becomes clear that production emissions can easily dwarf transport emissions. A good example comes from a **1998 paper** by Annika Carlsson which showed that tomatoes imported from Spain to Sweden have much lower footprints than those locally grown.

Swedish Tomato Footprints (kg CO₂e/kg)



Despite travelling a greater distance Spanish tomatoes imported to Sweden have a far smaller footprint than locally grown ones. This is because the emissions generated to heat and light greenhouses in northern Europe far exceed the transport emissions of bringing tomatoes in from Spain.

Similar results have been found when comparing out of season English tomatoes to Spanish imports, although there are also some noble exceptions to this rule. For example both in Sweden and England it is possible to get winter tomatoes raised using waste heat, renewable energy and highly efficient hydroponic systems.

So does this mean targeting food miles is a complete waste of time? Not completely. But if your motivation for eating more local food is carbon emissions, then it is better to try to eat **seasonal local food**.

By eating food that is both in season and local you can be more certain that both production emissions and transport emissions are limited. You can often avoid them being refrigerated in stores too. Even more importantly, seasonal food just tastes so much better.

Where I live in the UK eating a tomato or strawberry from Spain doesn't taste anything like as sweet as one in season from a local farm. Not only are many imported varieties a bit bland to begin with, but they suffer from time in storage, being refrigerated and forced ripening.

Of course not even locally grown tomatoes can compare to eating one of your own.

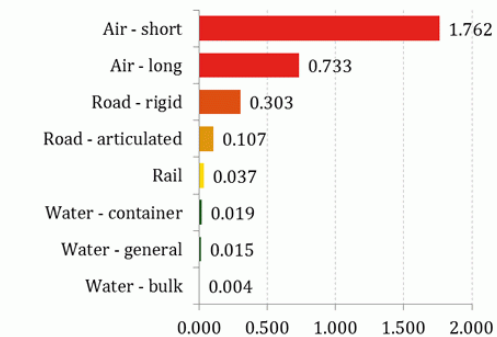
Grounding flying food?

If you are going to try and tackle food miles, the natural place to start is with flying food, but even then its not always simple.

From an emissions perspective food miles are not created equal. In the UK just 1% of food transport is done by plane, but it **accounts for 11% of emissions**.

Using figures from DEFRA we can compare the emissions that result moving a tonne of food by different means.

Freight Transport Emissions: kg CO₂e/t.km



Note: All figures are kilograms carbon dioxide equivalents per tonne kilometre (kg CO₂e/t.km). Figures based on a well-to-wheels analysis of fuel used and average loading per vehicle. For air freight long is greater than 3,700 km while short is less than it, no RFI multiplier is used. Road vehicles are based on UK diesel truck averages. Rail based on UK diesel and electric trains. All water vessels are ships, not ferries.

Sources: DEFRA Emissions Factors



The figures are pretty stark.

Food that flies can generate more than one hundred times the carbon emissions per kilometre of food that travels by ship.

If I eat a banana that has been shipped to the UK from Colombia its transport emissions are relatively small. But if I eat an avocado flown in from Mexico they are huge.

Depending on where you live the food that flies will be very different. European countries get a lot of beans, sweetcorn, asparagus, podded peas, limes, avocados, spring onions, pineapple, grapes and sweet potato from Africa and Central America. There is also a lot of fish flown in from Asia and South America. Food that is flown tends to have relatively high value for its weight, is perishable and can't be produced as cheaply locally.

Limiting the amount of flying food can be a way to help reduce food transport emissions, but you need to think about those decisions in the proper context. Both in terms of total emissions and economic impact. If you know the food you are eating is shipped in from a far, the chances are those food miles create relatively few carbon emissions while providing valuable income to farmers in Africa, South America and Asia.

However even when food has been flown in, it can still sometimes be less carbon intensive than things grown locally. This is because the carbon intensity of production in Africa for example may be many fold lower than that in Europe, more than offsetting the emissions from the food miles.

Viewing food miles in isolation can be terribly misleading. You need to focus on the whole supply chain.

That is the tricky truth of food miles.