

Reducing Food Miles – ‘Green Propaganda or Sound Business Sense?’

Introduction

Over the last 10 years there has been much talk and research into food miles (an estimate of how far food travels from the field to our plates) and almost all of it has been from green groups, environmentalists and government. The debate was greatly enhanced by work carried out by the SAFE Alliance. In 1995 they published a report entitled ‘The Food Miles Report: The dangers of long distance food transport’.

Since then many more reports and articles have been published. They point out that due to global sourcing, centralised distribution and other factors food is now travelling further than ever to get to our plates and that in the long run this is unsustainable. They report, for example, that from 1978 to 1999 Food Miles have increased by 50% and that now some 40% of all road freight is food – by far the biggest single sector.ⁱ The top grocery retailers (seen by campaigners as major culprits in the increase in food miles) have responded with initiatives to provide more locally sourced produce.

In their defence the major retailers claim that they have grown their market share simply by giving customers what they want and that, primarily, is cheap food and convenience. And they have a point. For anyone with a car supermarket shopping is convenient. More remarkable is the fact that between 1975 and 2000 the price of food fell in real terms by 31% when compared with the All Items Retail Price Index (RPI).ⁱⁱ Others argue that we are simply paying for the food in a different way - through subsidies, etc.

Some of the statistics do indicate the size of the problem and how ridiculous the situation has become, for example :-

- ↳ Since 1970 some 60% of the UK’s apple orchards have been lost and we now import half a million tonnes a year, half from outside the EU and this a crop ideally suited to our climate.ⁱⁱⁱ

- ↳ In 1997 the UK imported 126 million litres of liquid milk and exported 270 million. We imported 23,000 tonnes of milk powder and exported 153,000 tonnes, most outside the EU.^{iv}

- ↳ Even home reared beef has probably been fed on Soya protein imported from the Americas or the Far East where millions of acres of land are producing cattle fodder for the European market. These are known as 'Ghost Acres'.

The Food Miles debate raises many issues from exploitation of farmers in Kenya to its role in helping the spread of the foot and mouth outbreak in the UK. One of the causes is the way the food supply chain is managed - so why have we not heard more from Logisticians? It is almost as if we have something to hide. And yet if ever there was a product where sources of supply can be co-located with sources of demand, it is food. The car industry has invested enormously in bringing component suppliers close to the car assembly plants for supply chain reasons but the food industry appears to have moved in the opposite direction.

It is our belief that food miles will reduce in the future either as a result of legislation of one type or another or by the industry improving the supply chain and deriving advantage out of such a change. This paper considers some of the supply chain aspects of food miles and puts forward ideas for reducing them in the future.

Why are food miles increasing ?

There are a number of factors driving the increase in food miles : -

- ↳ Increased sourcing of food from around the world
- ↳ Specialisation and centralisation of food processing along with an increase in the amount of processing
- ↳ Increase in market share of the major supermarket retailers with out of town locations and the move towards greater centralisation of distribution. Also their systems and processes greatly favour centralised sourcing.
- ↳ Transport is still relatively cheap compared to some of the other supply chain costs.

Increased Sourcing of Food From around the world

This is a complex issue that is being driven by a number of factors :-

- ↳ Increasing consumption of foods that cannot be grown in this country, e.g. oranges for juicing

- ↳ Ironically the growth in demand for organic food has fuelled this as much organic food is imported causing damage to the environment.

- ↳ Increase in the range of exotic products.

- ↳ The importation of out of season produce – the volumes here are growing fast and according to the retailers are driven by customer demand. Some, however, dispute this by saying that just putting a product on a shelf and having a customer buy it is not a true reflection of demand. Were customers really demanding parsnips in July ? Others argue that the removal of the seasons can cause health problems but this is unproven. What is undeniable is that shipping parsnips from Australia and carrots from South Africa is increasing food miles. The inefficiency of this is highlighted by the research that suggests that every calorie of carrot imported requires 66 calories of energy to get it here.

- ↳ Lower prices of imported product. This is the biggest driver behind the increase in imported product. Although the food market is distorted by compensation, grants and other types of governmental involvement, similar increases have also been seen in the non-food retail sector with direct imports rising dramatically. There is no doubt that imported product can generate much higher gross margins but there is increasing evidence that the nett margin is not always as good as might be thought yet not all companies measure it.

Specialisation and centralisation of food processing along with increase in the amount of processing undertaken

- ↳ Consumption of processed foods is rising and processed food travels far further than un-processed. Total energy consumption, including processing, is some 15 times greater than non processed food. Worse still is that processed food tends to require more packaging. A third of all waste produced in 1997 was food packaging.^{vi}

- ↳ Sometimes the processing can be quite simple but we still send the produce miles. Examples quoted include :-

- Lincolnshire potatoes sent to Bristol to be washed ^{vii}
- Fish from Aberdeen sent to Cornwall to be smoked ^{vii}
- Sprouts sent from Kent to Scotland to be processed ^{vii}

↳ Meat is a good illustrator of the point. Firstly the pressure on Farmers to reduce costs means that they are increasingly specialising in a single aspect of meat production. One Farmer will specialise in rearing the animal whilst another will specialise in fattening. Animals have to travel between the two, often via livestock markets. Thousands of small, local abattoirs have been closed and animals then have to travel further to central, factory scale abattoirs. Few of these also undertake cutting and so the meat travels once again to cutters and packers. From here it may go to processors and move another two or three times before moving onto wholesalers or grocery distribution centres.

↳ One of the biggest growth areas in food retailing is in chilled products, particularly ready prepared meals. These products, by their nature, are time critical and high margin so transport efficiency through the supply chain is given a lower priority.

Increase in market share of the major Grocery retailers

↳ The major retailers are generally sited out of town and require, on average, a longer journey for customers to reach them.

↳ The major retailers have, over the last 20 years or so, increasingly centralised their distribution so that almost all of a store's deliveries come via a few centralised locations. For suppliers who are centralised, this can have a positive effect on food miles. Local suppliers of regional products may be negatively impacted.

↳ To simplify procurement and drive down prices large grocery retailers have worked hard to reduce their supplier base, seeking where possible, single sourcing agreements with major suppliers. This has developed to a point where their systems and processes are unsuited to sourcing locally – dealing with a large number of small scale organisations has become too expensive.

- ↳ Increase in speciality ranges. Major retailers, when challenged about the way they treat their suppliers, will respond with examples of where they have worked with small speciality suppliers and built up close working relationships over a number of years. This is good for those suppliers but, for example, distributing the output of a single, small supplier of say speciality meat pies based in Cornwall to stores all over the country adds to food miles when those pies could easily be produced in a number of regional locations around the country.
- ↳ Some argue that the major grocer's centralised distribution in itself increases food miles. This is more debateable. A lot of effort has been put into improving vehicle utilisation and creating volumes that require the use of articulated lorries which are more efficient (if full) than smaller vehicles. However a report published in 1999 revealed that, despite back hauling, vehicles involved in food distribution are on average only utilising 50% of their volumetric capacity.^{viii}

Low cost of Transport

- ↳ Transport is certainly not an insignificant cost but it is less significant than many other supply chain costs. Supply chains therefore tend not to be optimised around transport costs. The current trend towards fewer, larger scale distribution centres illustrates the point.
- ↳ There is a view that we should be switching freight to rail and sea but this is missing the point on two counts. Firstly, even if rail freight doubled, it would still only just be getting into double digit percentage points of the total national freight volumes and neither rail nor sea can get close enough to the customer to make serious inroads to traffic congestion. In any case recent growth in rail usage is already creating rail congestion. Secondly, and much more importantly, the real objective must be to reduce the need for transport in total rather than just switch it from one mode to another.
- ↳ It is almost certain that the Government will look for ways to price transport off the road. It has tried once and received a bloody nose in the form of the fuel protests. It will keep trying though. Perhaps road pricing will be the answer. Discussions have recently been kicked off by the New Transport Secretary who has proposed using satellite tracking of every vehicle in the country and charging people for the use of heavily congested roads. This may seem far fetched but it illustrates the

extent to which the Government may be prepared to go to persuade us to keep off the roads.

Why do anything now

There is a growing awareness amongst the public of environmental issues and we have seen how quickly sentiments can change. One only has to look at what happened with the reaction to GM food. Road transport is increasing and congestion with it. The government is acutely aware of the problem but has so far done little about it. Threats of road pricing may come to fruition but the extent is not at all clear. As we have suggested they will eventually find a way to price traffic off the roads creating all sorts of economic problems as a result. Wouldn't it be better if we found a way to reduce transport needs within today's cost model and avoid what will be a very blunt economic weapon.

There is an opportunity for Grocery Retailers to gain the moral highground and at the same time challenge some of their assumptions :-

- ↳ Would customers really shop elsewhere if they could not buy parsnips in July ?
- ↳ Are the real costs of importing staple foods really well understood ?
- ↳ Is it really so difficult to increase local sourcing ?

And for food processors the challenge is to find economic ways of locating smaller scale plants closer to sources of supply and demand.

What can Logisticians do ?

We're not about to suggest that we all start digging for Britain or that drinking orange juice is destroying the planet. It is true that litre for litre diesel has a higher calorific content than a carrot but it is hardly practical to start asking people to drink diesel. As logisticians we are interested in the supply chain aspects of Food Miles.

Some possible initiatives are :-

- ↳ There is enough information to know that food miles are a problem but not enough to be able to manage it. Research is needed to investigate food miles and to come up with more detailed information that all parties to the debate accept.
- ↳ The major grocery retailers should try to turn this to their advantage. The growth in Farmers Markets is beginning to show that there is a market for local food. The French have always been much better at maintaining local sources of supply. Waitrose are one of the latest in this country to offer local produce with the promise that it will have come from no more than 30 miles away from the store.
- ↳ Re-engineer the food processing industry to return to a more local, distributed model. Experience in the USA has shown that micro-factories, if managed well and properly equipped, can compete with the large scale processing plants when flexibility and agility are also taken into account. Most agree, for example, that a return to local abattoirs would be good for animal welfare and should not increase total costs.
- ↳ Increase direct deliveries to store from local suppliers. This will require a reversal of thinking on store design as modern stores have minimal stock rooms and only the systems and facilities to receive product on articulated lorries from regional distribution centres.
- ↳ Major grocery retailers need to change their sourcing strategy. New systems and procedures are required to allow a switch to a local sourcing model where possible. This clearly needs to be done in conjunction with the food producers, but if, as they claim, the Supermarkets are all powerful then they will presumably do as they are asked. If this is done well, then the shorter travel distances should reduce reaction times and improve the velocity of the supply chain.
- ↳ The danger for the retailers in this is that their operating costs and organisational complexity will increase. But is this inevitable ? Perhaps it will be possible to extend the principles of Vendor Managed Inventory to these types of Supplier.
- ↳ Analysis is required to investigate the real cost of importing produce that could just as easily be produced in this country. The gross margin on imports may be attractive but the nett margin may be much less so.

- ↳ A recent piece of research put forward the view that home delivery could reduce food miles. Although the research was sponsored by a home delivery service company the findings could make sense if sufficient volume were available and the market not too fragmented.
- ↳ Finally it is likely that Government will need to play a part. Hopefully this will be by sponsoring research, helping to build public awareness of the issues, etc. They could also encourage labelling that will show whether food is locally produced although this could be seen as anti-competitive within the EU. If this does not work we fear their involvement will be through use of legislation to force change. Experience shows, however, that this often produces unexpected, even unwanted, results.

Advantages

Apart from reducing food miles what other benefits could be realised :-

- ↳ Lower transport costs
- ↳ Shorter, faster reacting supply chains
- ↳ Improved customer service
- ↳ Satisfying increasing customer demand for local produce.
- ↳ Increased shelf life
- ↳ Opportunities to sell products that perhaps are less able to withstand the rigours of passing through a modern distribution network
- ↳ Closer connection between producer and end user

Summary

Food miles are a growing problem that needs to be tackled. It will not happen over night, as decades of change will have to be challenged. We believe that only the grocery retailers are in a position of sufficient power to do anything about this and that

they have an opportunity to obtain market advantage and improve their relationship with the consumer by greatly increasing local sourcing and processing. Failure to act now will result in the Government intervening in ways that will have, possibly unfortunate, side effects.

ⁱ Transport of Goods by Road 1998, DETR

ⁱⁱ National Food Survey 2000, DEFRA

ⁱⁱⁱ Hoskins R, 1998, How Green are our Apples?, SAFE Alliance

^{iv} Hoskins R, 1998, The Perfect Pinta, SAFE Alliance

^v Paxton A, 1995, The Food Miles Report: The dangers of long distance food transport, SAFE Alliance

^{vi} Incpen, 1997, A working partnership tipping the scales in favour of the environment, Industry Council for Packaging and the Environment

^{vii} Various, 1999, Foodmiles – Still on the road to ruin?, Sustain

^{viii} McKinnon A, Campbell J, Leuchars D, Benchmarking vehicle utilisation and energy consumption, Government Energy Efficiency Best Practice Programme