

The appliance of packaging science

Food packaging will be essential to cut food waste to enable the world to feed its growing population, while cutting carbon emissions, says Dick Searle

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Sometimes if you listen to the views of the media, consumers and politicians, you would think that packaging and plastic bags are the major contributors to global environmental damage. Indeed, retailers' surveys of their customers still consistently show that many more are worried about excessive packaging than are worried about global warming!

In reality, the views on packaging are a long way off the mark and are only hiding from consumers the real challenges that lie ahead if the growing threats to our environment are to be recognised and translated into behavioural change that will really make a difference. The environment doesn't recognise political rhetoric or populist media stories – it recognises things that happen to it and these can be measured in scientific terms. Political focus on products and behaviour that impact the environment should be based on the appliance of science – not popular myths. Take the humble plastic bag, which has received considerable attention as a totemic target for consumer environmental behaviour. Certainly there's been a significant reduction in their use as consumers learn the habit of re-using them, but I wonder how many feel that they have then 'done their bit for the environment' and that other behaviours are then acceptable. It's a salutary thought that a return flight for one person to Venice is the carbon equivalent of 45 years worth of that person's average plastic bag usage.

The development of food preservation has been key to the growth of human society. Preservation and packaging permits society to survive outside the harvest seasons and dwell in large conurbations, drawing on food sources many miles away. It permits people to perform daily tasks that have nothing to do with food production. We cannot go back to a hunter-gatherer approach. It is easy to forget that there are a very limited number of ways of preserving food palatably: we dry or freeze it or incorporate substances, such as salt or brine, vinegar, sugar or alcohol, which slow degradation, or we sterilise it and seal it from the outside world to prevent microorganisms getting at it.

Packaging exists because consumers and modern lifestyles exist. There is no demand for



Cutting waste: packaging is vital in the fight against spoilage

packaging on its own; it only exists where products exist and is a delivery and preservation system for those products. In an era when consumers expect to buy the widest range of goods 24/7 from all over the world, this can only be achieved through packaging, which contains, protects and preserves the product. Goods don't get into the stores by magic – there are no banks of *Star Trek*-esque replicators at the back producing products from thin air. Even the fresh, unpackaged produce, so often held up as an example of how goods should be displayed and bought, requires considerable quantities of 'unseen packaging' to get it from grower to store.

Modern packaging and distribution systems enable very low levels of food waste in the supply chain, some 3% in the UK, compared with 40–50% in Russia and India. Think of all the methane that would come from 40% food wastage. And once in the home, the packaging carries on extending shelf life way beyond that of unwrapped products – thus enabling people to shop far less frequently and saving on car journeys and associated pollution. And, contrary to popular belief, on average, the impact of packaging is just 10% of that of the product itself whilst, at the same time, avoidable household food waste has 15 times the environmental impact of packaging waste.

Make no mistake, the environmental impact of packaging is substantially less than the collateral environmental damage that would arise from waste food if packaging were not there. It's no

coincidence that many developing nations see the adoption of modern packaging methods as a way of substantially enhancing the food supply chain and reducing environmental impact.

You would think then that the irreplaceable role of packaging and modern distribution methods would be at the heart of any strategy for the security of food supply. But no! When the UK Department for Environment, Farming

and Rural Affairs published its first consultation, *Food 2030*, which examines the security of food supply in the UK for the next 20 years, the word 'packaging' appeared nowhere in the 100+ page document. After a strong response from many of us within the food supply chain, we succeeded in having references to packaging included in the final document – but only in the context of 'reducing unnecessary packaging'. Such is the misguided political opinion of packaging in the UK, despite a myriad of undeniable facts, that one of the principle methodologies for distributing food with minimal wastage is totally ignored.

As I understand it, one of the generally accepted impacts of global warming is that, by 2050, one quarter of the world's food growing land will no longer be useable. So to feed the world's growing population at the current levels will require a yield improvement of one third – and that will only be achieved by extending first world packaging methodology to the rest of the world. Ignoring the contribution of packaging is no longer an option – even for the politicians. All they need to do is to look at the science.

So what should our political leaders be doing? They should be pursuing action on the environment according to the real major impacts measured scientifically. There's no time left for political rhetoric when so many aspects of life are dependent on issues of carbon reduction and resource efficiency. However you look at it, there can be no substitute for the correct appliance of science.