

## Observations on Food Irradiation & Responsible Innovation meeting

The Food irradiation meeting went much better than I expected. Better, in that we got a really interesting and diverse group of attendees; the presentations and discussions were energetic and engaging and those who came said they found it thought provoking and well organised. Though deciding what to do next is slightly more problematic.

Instead of writing up meeting notes, I thought it might be easier for those who were not there, to write an observational piece on the event. A summary of each of the presentations, and the slides is available here (link to come) on our website, along with the rationale for the event, its aims, attendees and funding.

I'd never even heard of FI before this, so trying to produce a simple and compelling outline briefing for the event was fascinating and also very hard work. (What did we do before the internet?) Through the process of research and writing I began to see that the health and safety concerns had seemingly been addressed and ruled out as a problem for the technology, but I couldn't really decide in my mind whether, despite that, it was worth all the hassle or not. Were the problems it may help solve really that bad? Was it really that useful against other alternatives solutions? How would we decide if some of the social issues were real or not? If it did seem like FI was really needed, how would we involve the public and other stakeholders in that decision making process? Were people's minds really as fixed as we thought?

So it was interesting to feel my opinion being shaped during the course of the meeting by the presentations and the interventions from attendees; though despite trying hard, we didn't have any violent sceptics in the audience which may have had an influence on my view.

### **Safety issues resolved?**

I was quite persuaded by Steffen's work on the Late Lessons from Early Warnings report from the European Environment Agency. He demonstrated that FI was a 'false alarm', in that the precautionary approach taken with regard to public health has proved to be unnecessary. Scientific committees in the EU, the US and the WHO had analysed substantial programmes of research and all seemed pretty convinced that the concerns about safety were unfounded. (Though in Responsible Innovation terms, what a pity that the process of decision making did not involve others than simply scientists and that the process wasn't more open and didn't communicate its findings better to the rest of us.)

### **Waste issues growing in importance**

I haven't really kept a track on the food waste issue, so found the figures from WRAP in Andrew Parry's presentation quite surprising. We throw £6.7 billion of food away as a result of it 'not being used on time'. But the really interesting thing to me and many others was what a difference a few days made. In their milk study 2-3 extra days reduced waste by up to 80%. A lot of work is going on in packaging and refrigeration, but it seemed that FI could have a significant impact by slowing down the rate at which food is unusable in the home, from farmer to market, in transport and for retailers.

Our changing attitudes to waste were highlighted by David Fell from Brook Lyndhurst - personally I don't really care much for sell by dates, if it smells off, it's off, if not, it's fair game! He explained (with great delicacy) that older people, like me, think we know best and take sell by dates with a pinch of salt; where the younger generation is more likely to take them as the gospel truth and bin anything which has past its recommended date. This is having a real impact on the increase of waste in the home which is likely to continue.

### **The impact of food borne illness**

I was also unaware, until Chris Thomas from the FSA told us, that Campylobacter causes hundreds of thousands of cases of food poisoning in the UK each year, with 17,500 hospitalised in 2009 and 88 deaths, with a financial burden on society estimated at £593m.

Listeria is more deadly killing a third of the people infected and between 100-200 cases a year costing £245 million to the economy.

### **FI benefits becoming more compelling?**

He quoted a 2011 opinion from the European Food Safety Authority, who estimate 9 million cases across Europe, and stated that "Clearly, irradiation is the most effective decontamination treatment, reducing the risk by virtually 100%..." [www.efsa.europa.eu/en/press/news/biohaz110407.htm](http://www.efsa.europa.eu/en/press/news/biohaz110407.htm)

An intervention from a food manufacturer a little later on also reminded us that, certainly in many perishable areas, we have reached the limit of shelf life, not just because of safety but because of taste. What if farmers could pick fruit and vegetables, for example, at optimal ripeness instead of having to pick them early and ripen in other ways; what if we so much good produce wasn't lost through spoilage in transit, didn't lose flavour from heat treatment or entail the use currently of chemical washes or fumigants and would be perfect for a longer time?

In terms of the real necessity of FI over other alternatives or systemic solutions, those knowledgeable in that area, who were present, felt that simple hygiene or packaging solutions were already being used and that the options were now very limited and that FI may offer a potential solution in some areas.

These were potential benefits that had never been quantified, but began to seem a bit more compelling to me, for sustainability and cost reasons, but also, another point made, because it might make help people on a tight budget feed their families more healthily.

### **What about the residual risks?**

When I had been exploring the risks and concerns about FI for the briefing note (here, link to come), it seemed to me that the main human health and environmental safety concerns, as Steffen outlined, had been addressed or mitigated. An industry spokesperson explained that issues associated with the use of Cobalt 60 irradiated rods could also become irrelevant as X-Ray technology for the purposes of irradiation was now becoming cost effective. This would eliminate the need for the radioactive pencils all together, as does the current use of electron beam irradiation.

Whilst there were a large number of animal studies, there appeared to be fewer studies of the technology in use in humans, which may be important. One of the tipping points on HSE for me was when I found that one of the main uses of irradiation in food was the meals of hospital patients with compromised immune systems, though it is unclear to me at the moment if and when it is used in this way in reality. Perhaps, if it has not been done already, a study of the effects, or lack of them, where FI is used in hospitals would be very interesting?

The main residual concern among stakeholders seemed to be that hygiene standards will be compromised among manufacturers, retailers and consumers if they come to rely too much on FI. So for example, does a 'kill step' treatment make food businesses less conscientious on hygiene, or will it give consumers a false sense of safety which drives down standards in the home? Clearly it would be helpful to have further exploration of this area.

Many feel that improving hygiene practice is the most important priority and that FI is unnecessary, though another underlying view is that food irradiation is too difficult to tackle and, in the case of food hygiene, there are other "wins" which may or may not be as effective but are less controversial.

However, a significant barrier to the use of FI is the investment in infrastructure and new processing facilities which would be necessary. If consumer acceptance can't be guaranteed, who would dare invest? Will consumers ever accept FI, even if the benefits were compelling?

### **So what about the 'irrational public'?**

One of the main starting points for our work in this area was our [recent assessment of public dialogues](#), juxtaposed with negatives views from some stakeholders about the public's supposedly irrational view of Food Irradiation. Statements such as 'it may save the environment, but they're

irrational about technologies like this”, or “the public are frightened of radiation and nothing will change their mind”, seemed at odds with the thoughtful, common sense views we saw time and time again in the outputs of dialogues on new technologies. Though a quick look at the comment boards of most websites gives me pause for that idealistic thought!

In the course of research for the paper, it seemed to me that in fact the public had very little input to the decision to use FI or not. As David Fell explained in his presentation of the FSA study on Public Attitudes to Emerging Technologies, it is easy to castigate the public for ignorance, but we are all ignorant in different spheres for a variety of good reasons and there is no domain of our lives in which we have enough information to make informed decisions. Certainly in those early pre-internet days, when FI was introduced, there was no real access to impartial information at all. So given the fact that we all have busy lives, we naturally have to take shortcuts. These shortcuts may mean relying on information from trusted groups, particularly friends and family and those organisations and messengers who are perceived as without a vested interest.

Perceptions about FI were shaped by concerns about its association with nuclear power, when nuclear war was a clear and present memory; a distrust of companies, governments and the science community and a lack of clarity about benefits. These didn't seem that irrational to me and even now there is so little information with which to make an informed judgement, it isn't too surprising that these concerns remain.

## So what next?

The main criticism of the evaluation of the event was that it didn't have a clear follow up action plan. On the one hand, I didn't mind; it was deliberate, because we wanted stakeholders to know that we genuinely had no preconceived agenda; but on the other, it doesn't feel satisfactory to just go with the flow.

Participants were unanimous in agreeing that further work to quantify risks and benefits against alternatives would be useful in gaining a better understanding of the potential value of FI to each stakeholder group. MATTER expressed interest in driving this through a multi-stakeholder process, though no funding was currently available.

Hilary agreed to visit DEFRA (who were invited but unable to attend), the FSA Food Borne illness team, the Technology Strategy Board and the British Retail consortium and WRAP to discuss this further.

## The plan!

So following the meeting and a few email interchanges - here is The Plan!

Hilary will approach DEFRA to host a meeting on FI at which Chris from the FSA, Andrew from WRAP, Simon from Innocent and John Woolston who is on the international irradiation panel will explore whether this next step of research can be funded and who would deliver it.

We will keep you posted on what this achieves!