

Phil Hutchinson & Rupert Read:

## **GM Food: Three Essential Considerations: Framing, Evidence, Precaution**

We've moved on from "Frankenfood" scare stories. Haven't we? Indeed, might we talk of GM food having its "Nuclear Power moment"? Just as prominent environmentalists such as Monbiot and Lynas took a decision to move from principled opposition to nuclear power to, along with Lovelock, promote the technology on pragmatic grounds, leaving their former activist fellow travellers feeling somewhat bewildered, and in some cases betrayed, one might be forgiven for believing that the same is now happening with GM crops. We will not here say anything further on the nuclear issue, though one might ultimately generate a position on this from what we propose below. However, on GM crops, Mark Lynas has certainly been very vocal in championing the GMO cause over the past year, both in the promotion of proposed new trials and in the criticism of those who oppose these. The rationale can appear, on the face of it, to be similarly pragmatic: population growth and climate-change related reductions in harvest yields will lead to increasing food shortages and food price-rises. Higher-yielding crops and crops with enhanced nutritional value are one, obvious, way to respond to such problems, and if GM crops might deliver higher yields and enhanced nutritional value, then it would seem sensible to forego principled, or certainly 'knee-jerk', objection to them and explore their potential. Right?

Would that it were so straightforward!

There are a wealth of considerations which should feed into our judgment on the proposed/alleged pragmatism of adopting GM crops. It is these, here, that we wish to focus on, and in particular those on which philosophy can shed some light. So, we will not here dwell, for instance, on the corporate dominance of most GM-research: on the profit-motive impelling the likes of Monsanto to gamble with our commons inheritance. There are powerful political arguments against GM, in connections such as this; we will largely leave these aside, in the present piece. We will divide the considerations that we shall focus on here into three categories: Framing, Evidence and Precaution.

### **Framing**

Here's the problem:

Global population growth + human-influenced climate-change-related lowering of crop yields = food crisis.

Framed this way it seems obvious: To solve the conundrum, we need to change the equation, so as to elicit a different outcome. We need to restrict population growth or reverse the crop yield decline such that it will compensate for the population growth.

But do we need to accept the equation? We would argue not. Indeed, it is the propensity to simplify the problem in a manner akin to this equation that is a key part of the problem. The equation prejudices one's view of the problem by framing it in a particular way, because, while the global population does continue to grow, that population's eating habits are also changing, becoming more western and meat-based. This is significant driver of food scarcity: feeding a cow maize and eating

the cow is a very inefficient use of land, maize and water. The more meat we eat the more planets we require to provide our food, and extra, suitable planets are hard to find... . Moreover, while human-influenced climate change will affect crop yields, we can take steps to slow down that change rather than simply thinking in terms of adapting to the change as if it were inevitable.

The way 'our' equation frames the issue, *if* invoked to justify a pragmatic argument in favour of GM food, implies a false dichotomy: it implies that there are no other ways to enhance crop yields, rationalise food markets and supply-chains, radically reduce food waste, and rationalise consumption habits. Put another way, the proposed GMO solution to our problem can seem obvious and natural, or the most pragmatic one, because of basic liberal and individualist assumptions about the undesirability of seeking to change people's (individuals) eating habits (desires, such as the desire to eat more meat). *People have a right to eat what they want. Don't they?*

We can, and should, challenge the frames. At the very least, we should be cognisant of the way in which the argument tends to be framed, so that we might then subject that framing to rational scrutiny: is it obvious that when there is increased food stress, we should be handing more and more crop-worthy land (and food crops) over to beef production, all because we respect the 'rights' of consumers to buy more steak (or we respect the 'market')? Should we hand over more land for the growing of biofuels, because we (incorrectly) believe that will help us meet carbon targets and achieve energy security without infringing on the 'rights' of drivers as we allegedly would if we were to cap fuel/carbon emissions or to allow fuel prices to continue to escalate?

One of Lynas's refrains, when pushed in a certain direction on these issues, is to respond to his disputant that they are advocating veganism; this response, delivered with a tacit sneer or an explicit chuckle, is sometimes accompanied by him 'wishing them luck' with that project. Changing eating habits, or simply trying to reverse recent global trends in eating habits, is just not seen as worth considering. We want our cake and we want to eat it, even if that means it is made with GM wheat.

*Our* response is to move beyond the hegemony of liberalism as a political philosophy. We urge that, at this point in history, it is particularly vital to challenge the cultural dominance of the idea of the 'individual-as-consumer' (*homo economicus*), and of the alleged sacrosanctness of their choices and of choice itself.

In short: We need new frames. Only their illicitly-presumed absence can make GM look like a no-brainer.

## **Evidence**

Our second category is evidence. We are all now becoming familiar with the mantra, in policy circles at least, that one's proposals be evidence-based.

Quite right. But "what counts as evidence?" is an important question to be asked. And "what, in addition to the evidence, are also important factors in our deliberations?" is equally crucial.

So, you might see our section on **Precaution**, below, where we argue that precaution should always accompany evidence in the policy decision-making process. And we would also suggest that one beware of "evidence" being used as a buzzword or as Unspeak. Like "Freedom" and

“Democracy”, “Evidence” is a “Hooray word”. Surely no one would/can be against evidence! But here’s the rub; if a word is so unremittingly good then people will use it to cover-up the bad, or to pass-off the not so good as good. German Democratic Republic anyone? (i.e. democracy that involves very few recognisably democratic institutions; where the *demos*, the people, have no role in policy). Cato Institute style Freedom anyone? (i.e. freedom that transpires to be the freedom of corporations to deny freedom to all kinds of non-corporate groups.).

But let us here consider the evidence in a recent widely-reported and high-profile case. A GM company in Hertfordshire, Rothamsted Research, made a press release in late January 2014. They were all over the British media, from an early morning slot on BBC Radio 4’s *Today* programme on January 24th, where they talked-up the health benefits to humans of Omega 3 enhanced crops, to reports in all the newspapers and on TV news bulletins. Mark Lynas joined the party, and promoted their press release via Twitter, while also working as a kind of tweet-tag-team with the Rothamsted publicity department.

There were two stories wrapped up in one: one was a story about Omega 3 camelina; the other was a kind of meta-story about this being an obviously good-news and game-changing story about GM; one that even the most dyed-in-the-(non-GM)-wool Monsanto-haters would see was good news. The *Today* programme pushed both angles. Rothamsted must have been pleased.

See how the second story kinda shows how the Rothamsted press release was just swallowed by the same media, as if it were an easy to swallow Omega 3 fish oil capsule? Should journalists not rather have subjected the press release to some scrutiny?

Well, what’s not to like? Everyone knows that Omega 3 is a wonder-oil, which prevents all kinds of health problems. Health gurus, magazine covers, newspaper articles, food packaging, even some medically trained celebrity doctors, have all been telling us for over a decade now that Omega 3 oil is important: it prevents cancer, heart disease, and both increases and decreases the aggression of prostate cancer (no, really). It increases intelligence, both in a person eating it and in a foetus through a mother ingesting it while pregnant, though we assume the claim is that it increases intelligence later in life, since foetus-intelligence is a young science. Moreover, Omega 3 has been claimed to prevent all kinds of behavioural conditions in children and adolescents, and make school boys and prison inmates less aggressive. You can even polish the screen of your widescreen LED TV with it and thereby increase your popularity with all the neighbourhood cats. Yet not everyone has a taste for, or can afford, to eat the oily fish in which it is most readily found. If we cannot grow fish on trees, then how about the next best thing: grow fish genes inside a plant. Eureka. Meow.

Well, what’s the evidence? We mean: surely we’re not here basing our enthusiasm on over a decade of food industry and supplement purveyors’ propaganda about Omega 3 rather than well founded data, are we..? Well yes, it does seem that we might be. One might, for example, read the chapter of Ben Goldacre’s book *Bad Science*, where he discusses claims made for Omega 3. One might even conduct one’s own survey of RCTs, and even some meta-analyses of RCTs, on the claimed and widely assumed health benefits of Omega 3 oil supplements. Use Pub Med, etc. What one will find is the following:

- a. There is NO conclusive evidence for health-related benefits of Omega 3 fish oil, which demonstrate it as beneficial when consumed separately from the fish, i.e. as a supplement.

- b. Indeed, the evidence for it being beneficial when consumed as part of the fish is barely conclusive. Study after study notes something akin to the following: it is difficult to discern whether the good health of those studied emerges from the consumption of oily fish or from the overall diet and lifestyles enjoyed by those people who tend to eat a diet containing large amounts of oily fish.
- c. There is NO evidence that we need fish oil omega 3 (EPA & DHA) over and above that which our bodies already convert from vegetable-based ALA Omega 3, which can be gained from things like flax, hemp, chia and green leafy vegetables, if we have a healthy diet.

In short: The past decade of Omega 3 hype has been market-driven, not evidence-driven.

Repeatedly, one finds there are good evidence-based reasons which count against GM-hype. Such reasons need to be developed specifically, in each case.

GM's defenders will respond that there is at least scant evidence of *harm* from GM (unlike nuclear). This takes us to our next and final category of consideration. Absence of evidence of harm, even when genuine, is not evidence of absence of harm:

### Precaution

Taking a gene from a fish and sticking it in a vegetable is reckless. It is to act in a way radically without natural precedent. Now, defenders of GM sometimes say that nevertheless there is an absence of evidence of harm from GM. But: Even if this is true, it is not good enough. The burden of proof is on *them*, the GM engineers, to provide evidence of absence of harm from GM. And that is what we don't have, and what will be very difficult ever to get without taking an unconscionable risk. Because field trials expose the entire environment to the risk of contamination. They are not like controlled indoor laboratory trials.

There are powerful forces in our world today seeking to shift the burden of proof. These forces – which include the US and UK Governments -- wish us to have to provide an 'evidence-base' against (e.g.) GM, an evidence-base of *actual* harm, *before* we act cautiously in respect of it. They wish, in effect, to abolish the Precautionary Principle and to replace it with a purely backward-looking methodology of 'evidence-based' interventions. Such an 'evidence-based' approach is valid when the stakes are not that high and when we can learn from tinkering and from study of the results. It is not valid when we may face ruin as a consequence. As is the case with GM (and also with geo-engineering, the next gamble that we will all soon be invited to embrace, on the extraordinary basis that there is as yet no evidence of harm from it!). One is cautious when one has reason to be so; when one has reason to believe there is a danger or a threat. The logic of *precaution*, we suggest, should be understood as follows: when what we do now has unpredictable though potentially catastrophic future consequences then we should exercise *precaution*. We are not exercising caution based on a perceived threat, but exercising precaution because we do not have good reason to believe there is an absence of threat, while also having reason to surmise that where a threat might materialise it would be significant.

Regarding GMO, we have not been provided with good reason to believe that there will not transpire to be a threat, even from field trials, much less a move to widespread farming, and that such a threat would be, should it transpire, be insignificant and reversible. These are then *rational* grounds for invoking precaution. While there is no directly-perceived threat to be cited in advance, we have no grounds for believing no threat will emerge, while having reasonable grounds for believing any such threat would be significant and probably irreversible. This is enough to rationally motivate invoking the precautionary principle.

We have a responsibility not to be blinded by science: to combat scientism. We have a responsibility to show the way *beyond* scientism, and to help science flourish in its true area of application. We have a responsibility to highlight the categorial distinction between science and technology: being pro-science, in its true sense, has no implications for whether one supports the social implementation of one or another particular form of technology or engineering.

We propose a more considered, rational approach, which resists the frenzy around 'evidence-based' approaches, when these are proposed separate from their frames and from rational precautionary considerations.

We have a responsibility to support responsible evidence-based methodology, where such methodology is appropriate: we have given an example of this above, *vis a vis* camelina. Another (not unrelated) genus of examples is the use of EBM to undercut the claim of various pharmaceuticals, as Ben Goldacre has helpfully done.

We have a responsibility to bring thought to bear on issues of framing, in the kind of way practiced by Lakoff, Poole, Crompton, and others. We have a responsibility to challenge conventional wisdom: e.g. the cultural 'common-sense' of liberal individualism in the West today. But not to carry such 'scepticism' into a denialism about what science, in its correct area of application, teaches us: As Wittgenstein remarks in *Culture and Value*, the philosopher must avoid getting into the predicament of an incompetent (would-be) manager, trying to do others' jobs for them.

Perhaps above all, we have a responsibility to speak truth to power concerning the would-be managerialist and profit-motivated replacement of long-term considerations of precaution with a covertly short-termist rhetoric of being 'evidence-based', a rhetoric that is ignorant of the philosophical issues around uncertainty and risk that are present and explored in the recent work of Nassim Taleb, among others. And that underly the attitude of the likes of James Hansen to the climate threat facing our world at present: Philosophers and intellectuals more generally carry a heavy responsibility to not be tricked by rhetorics or ideologies of 'evidence' and 'research' into waiting to set out crucial warnings until it is too late.

On both evidential grounds, and precautionary grounds, the case for Omega-3 GM camelina is disastrously weak. To generalise: evidence-based thinking can undercut the case for GM, as well as sometimes supporting it. Precautionary thinking, a vital complement to (and more fundamental than) evidence-based thinking, will generally count as a heavy consideration against GM. When one adds in the power of reframing and of reflection on frames, as found initially in the work of Wittgenstein, Kuhn, Lakoff and Johnson, etc, then one has a powerful cocktail indeed in one's hands. Our recommendation is: to drink it. Or perhaps better: to throw it.