

WHY GM HAS NO PLACE IN A WORLD IN TRANSITION¹

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I was disappointed to read Mark Lynas's piece in New Statesman, "Why We Greens Keep Getting It Wrong". The piece builds on Lynas's previous much publicised conversion to nuclear power, arguing that if we are to apply the scientific rigour that underpins climate science to all other areas of life, in the same way that nuclear power is supported by the science, so is GM. While I strongly disagree with him on both, I want here to challenge Lynas's conversion to GM, and the belief that if we are serious about climate change, we have no option other than to embrace GM.

Lynas clearly has been swayed by Stewart Brand, whose new book 'Whole Earth Discipline: An Ecopragmatist Manifesto' argues that it is time greens got real and embraced both nuclear power and GM. He appears to be arguing that we need now, given the immensity of climate change, to accept things we might otherwise have questioned; however, for me, in the case of GM, this would represent a jettisoning of ethics, values and principles. I believe absolutely that GM has no place whatsoever in a world responding responsibly to climate change and peak oil, and in saying so, I am not rejecting a "science-led assessment of the likely risks and benefits", rather am basing it very much on the science. So, let's take a look at the claims Lynas makes for GM.

It's Safe to Eat

Lynas states that there is "zero evidence that any genetically modified foods in existence today pose a health risk to anyone. Millions of people in the US and Canada have eaten GM corn and soya for years now". This is a highly contentious statement. Has anyone actually done such a study, a longitudinal study that looks at the health impacts of GM foods? GM is in foods in various ways, through animal feeds, through all the various foodstuffs extracted from GM foods, especially corn, which as Michael Pollan's 'The Omnivore's Dilemma' so brilliantly reveals, are now prevalent in processed foods, as well as through our eating them directly.

The central issue here for me is the Precautionary Principle, a fundamental principle in any decision making process. This suggests that we understand and test new technologies before we implement them on any meaningful scale. There are now hundreds of thousands of man-made chemical compounds in the world that weren't there 50 years ago, few of which have been adequately tested, and even fewer tested in the diverse cocktails in which we are exposed to them. I would argue that the current state of the world has arisen, in part, from a failure to apply the Precautionary Principle, climate change being a case in point. Why now, when faced with the climate challenge, would we once again abandon precautionary thinking? It is one thing to state that there is no evidence of any health impacts arising from GM, but this a "no news is good news" approach has failed us spectacularly with other industrial food products, such as trans fats, which have been in our food for years before the harmful impacts they were having were identified.

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Corporate Control

Lynas is dismissive of the argument that GM leads to the increasing corporate control of agriculture. He writes of greens that “their concern was that new, genetically engineered seeds would allow big corporations such as Monsanto to monopolise the world’s food supply, to the detriment of poor countries. However, this should not be an argument to oppose the technology. It would more rationally suggest the need for an open-source approach, where the benefits of GM technology could be developed within, and for the benefit of, poorer countries (drought-tolerant, more nutritious and nitrogen-fixing subsistence crops are some examples under development)”.

Handing food and farming over to vast agribusiness corporations in order to save the planet is a completely self-defeating ‘compromise’. Let’s be clear, Monsanto and other bio-tech corporations did not start genetically modifying seeds in order to feed the world, they did it in order to privatise genetic information, to hold patents for the very stuff of life. They also didn’t invent GM in order to save the world from climate change – that has been a much more recent piece of sales spin. A low carbon food and farming system will need to be based on a re-empowering of small farmers, a re-valuing of farming as a profession, a democratising of agriculture, not a bowing down of food and farming to corporate wishes. As we shall see below, this is potentially highly dangerous.

Lynas’s idea that making GM open source would somehow make it OK also needs questioning. Personally speaking, I feel that GM is simply unnecessary, there is no need to interfere with plants and animals in that way, that we are tinkering in a way that we barely understand, and have no sense of the long term consequences of, and we are abandoning the Precautionary Principle. I don’t have scientific papers to back that up, it is an instinctive revulsion at the very concept. The idea that making GM open source makes it fine was also discussed in Charles Leadbeater’s book ‘WeThink’, which argued that we could develop Wiki approaches to the modification of plants. Some obvious questions arise though, beyond whether the technology itself is ethically dubious or not.

Is Lynas really suggesting that remote agrarian communities, linked only by the web, would have the knowledge of genetics to be able to contribute to an international wiki GM design project, bringing genetically modified organisms to the point of being commercially viable? That they would be able to do this without the research funding, laboratory and testing facilities of large biotech companies, without those companies wanting a financial stake in the outputs? Huge money has already gone in to the GM products already on the market, I find it very hard to imagine that they are going to be philanthropically handed over as Creative Commons to the farmers of the developing world.

His proposal also ignores issues of power and money, failing to ask whether, in a corporate-dominated food economy shaped by power, greed, the maximising of profits and centralising of control and intellectual property, Lynas and Leadbeater’s concept of the intellectual property of seeds being handed back to farmers at the lowest level is fundamentally misconceived. What sort of knowledge and practice do we want to underpin our activities during this ‘make-or-break’ period in human evolution? I would argue that solutions which promote centralisation and dependency, such as geoengineering, GM and nuclear power, lock us into the same technofix thinking that got us here in the first place. As Einstein put it, “the significant problems we have cannot be solved at the same level of thinking with which we created them”.

Who's Supported by the Science Here?

The recent IAASTD report, the product of what was, in effect, an IPCC on agriculture, with over 400 contributing scientists, the findings of which was endorsed by 60 world governments including the UK, was a scientifically rigorous look at the question of how to feed the world while reducing carbon emissions from agriculture. One of its chairmen was Bob Watson of DEFRA, a man whose openness to GM has been explored before here at Transition Culture, yet even so, the report is fairly dismissive of GM, arguing instead that the future of agriculture lies in “agro-ecological methods” and small scale farming. It argues for changing patterns of consumption so that farming doesn't rely on oil and mined water.

At this year's Soil Association conference, Dr. Mike Bushell from Syngenta was asked by Andy Goldring of the Permaculture Association why it was that Syngenta, one of the world's leading biotech companies, had walked out of the IAASTD process. He replied that they had been unhappy with the process, and felt that it hadn't represented their views fully. This was a rigorous process, which applied the scientific analysis Lynas advocates for climate change to agriculture, and concluded that GM has little if no role to play, and that what will produce more significant cuts in carbon will be agro-ecological measures and small farmers. So, is rejecting GM still looking like a rejection of science? Let's continue. After all, Mark's case is principally based on the argument not that GM is good for climate change, not whether or not it is morally repugnant.

Low Carbon Farming

Lynas's bold conversion to GM is, in his article, based solely on those two arguments, that it has never made anyone sick and that there are ways round the corporate control thing and is it really such a problem anyway? There are however many other arguments that he sidesteps, which cannot be ignored in this discussion. One of the key ones is what a low carbon farming system actually looks like. In the 2009 UK Low Carbon Transition Plan, agriculture is set a measly target of 6% reductions in emissions by 2020, but can it do better, given that it needs to? A recent major report from the Soil Association brought together the research on soil carbon, and found that soils under organic management have 28% higher levels of carbon than conventionally farmed soils in Northern Europe, and 20% higher in the rest of the world.

It showed that under organic management, soils can produce carbon sequestration of 2 tons per hectare per year, and that for the UK that would lead to the sequestration of 64 million tons of carbon over the next 20 years, equivalent to taking 1 million cars off the road. This would lead to agriculture producing a 23% cut in emissions, not the 6% currently proposed. Beyond soil management, a low carbon farming system would be more diverse, incorporate more perennial plants, be more localised. If you want to reduce the carbon footprint of food, I would suggest that you start by tackling the fact that 50% of what global agriculture produces is thrown away, and the importing and exporting of produce that could just as easily have been grown close to the consumer.

Creating a Culture of Dependency

Drug dealers often work by creating a dependency that they can then serve, initially appearing generous, their true intentions and motivation becoming clear only over time. Similarly, supermarkets are often accused of opening new stores with cheap offers and loss-leaders, undercutting local competition until it withers away, and then raising prices. Farmers using GM

seeds have found themselves in a similar position. The idea that GM was invented for the benefit of anyone other than Monsanto shareholders withers quickly on further examination.

US farmers buying Monsanto's Roundup Ready 2 Soybean seeds in 2010 will be paying 42% more for those seeds than last year. Between 1975 and 1996, the cost of non-GM cotton seeds doubled, the cost of GM seeds rose from \$73 to \$589. For farmers in both the developed and the developing worlds, GM often leads farmers into a spiral of debt, as the recent film 'Food Inc.' identified. Vandana Shiva also links this spiral of debt with farmers suicides in India, which are still rising. US soya farmers usually spend between 4 and 8% of their income on seed.

In 2009, farms growing GM soya were spending 16.4%, and these costs have been driving cotton farmers into the red since 2008. GM also increases, rather than diminishes, dependency on pesticide use. The idea behind paying more for GM seeds is that you then save money on the need to spray so often. However, a recent study found that overall, GM crops needed 26% more pesticides per acre than non-GM crops. We need agricultural systems that need less chemical fertilisers, herbicides and pesticides, not more. We need farming systems that rely less on artificial nitrogen, given the major contribution to climate change caused by nitrous oxide. GM would appear to fail on both counts.

Transition Food and Farming

So what does a low carbon farming system actually look like? Perhaps the best description I have yet come across is Colin Tudge's, who in 'So Shall We Reap' describes it like this:

"The general answer (by and large) is to give the best, most suitable land to pulses, cereals and tubers (that is, to arable farming); to fit horticulture in every spare pocket – and be prepared to spend a lot of time and effort on it, and to invest capital for example in greenhouses; to allow the livestock to slot in as best it can in short, farms in general should be mixed: even the most committedly arable areas would in general benefit from at least some livestock, as all traditional farmers knew ... the areas that are truly marginal – too high, too steep, too rocky, too dry, too wet – can be ideal for ruminants, notably sheep and cattle ... some cereal and pulse can be grown expressly for livestock – but in general, only enough to keep them going through the winter, so they can make better use of the grazing in the summer."

The model of agriculture that offers food security is not one that places control over how food is produced in the distant boardroom or with the share holder. This is too important. However, Lynas appears to have completely given up on the idea that any change in consumption patterns might be possible, our aim is to service business-as-usual in the most efficient way possible.

One of the problems with Lynas's argument is that he purely sees this from a climate change perspective. When you add in peak oil and a Crash Course analysis of where the world's economy is headed, the idea that we rely on experimental, potentially harmful, untested, distantly owned technologies becomes absurd. Food security is about creating an agriculture which is more diverse, more intimately linked to local economies, and based on a more seasonal diet. GM seeds are designed, at present, not to even grow stuff we eat directly, like potatoes or lettuces, but to produce the base from which processed foods can be created.

Most GM in agriculture is just four crops, soya, maize, cotton and rapeseed, and these are mostly grown to be processed into the bewildering array of additives that make up today's processed food. Maize that humans actually eat as corn on the cob is not GM. The glucose syrup,

fructose, and extensive list of corn-derived additions to processed food, are derived from GM corn. Although there may not be any direct evidence linking GM with ill health in humans (although some does exist from trials with rats), there is plenty to suggest that cheap processed food is killing us, and that a simpler, less processed diet would be to everyone's benefit.

“Admitting Mistakes is Difficult, Especially When One's Claimed Position is the Moral High Ground”

I have long held that GM has no place in a low carbon farming system. This is not based on taking a moral high ground, or on intentionally rejecting science, rather it is based on taking a broader picture than merely whether it is harmful to eat or not. Does GM technology promote better soil health and carbon sequestration? Does it support farmers in creating sustainable livelihoods which they are in control of? Does it nurture healthier eating practices and a move away from processed foods? Does it improve and sustain biodiversity? Does it make us more or less dependent on cheap fossil fuels? Until the answer is yes to those questions, GM, for me, is out.

In a nutshell, the key question for me is does GM make us and the natural world healthier and more food secure? Surely, if climate science teaches us one thing, it is the need for the application of the precautionary principle. If there is a significant chance that a particular course of action will have harmful effects, then it makes sense to avoid it, even if it isn't 100% certain. Likewise, so much is as yet unknown about GM, and so much could go wrong that we are far better off, I would argue, giving it a very wide berth. I don't feel the greens have got it wrong, and it would take a far more compelling case than that set out by Lynas to convince me that they have.

So why has Lynas had this turnaround? Of course, we can't know, but I get a sense that in the desperate search for a solution to the crisis we are in, there is a sense that this is still a soluble problem if only that one big solution can be found to sort it out. I think that if there is a way through, it will be composed of lots of smaller solutions, driven by those that feel ownership of it. There is a huge danger in embracing large scale, untested, remotely-owned solutions, that we end up turning a problem into a predicament, not sensible when so many, time-proven, smaller scale solutions exist.