



Michael Meacher

Articles

Michael Meacher: Are GM crops safe? Who can say? Not Blair

At Prime Minister's Questions in the Commons last Wednesday Tony Blair stated that "it is important for the whole debate [on genetic modification] to be conducted on the basis of scientific evidence, not on the basis of prejudice".

Oldham West and
Royton

Exactly so. But what does the science actually indicate? Not, I think, what he appears to believe.



A public debate is now taking place before the Government decides later this year whether to allow food from GM crops to go on sale commercially. Tony Blair's contribution has been to emphasise the importance of the biotech industry to the UK.

Contrary to the assurances of the biotech companies that genetic engineering is precise and simply extends traditional breeding techniques, it is actually quite different. When genetic crops are engineered, the gene is inserted randomly, out of a sequence that has evolved over hundreds of millions of years.

But genes don't operate in isolation; they interact with each other. Genetic engineers have assumed that each gene has one function, but the recent discovery that human beings have only some 30,000 genes to produce the quarter of a million proteins in the human body shows that this premise was wrong. Most genes are multi-functional. It is not known how to determine artificially a single function of a gene without triggering other unpredicted and undesired effects.

The random position and lack of control of the gene's functions could change any character of the plant and might not be evident immediately. One example is the increased lignin in GM soya which only became apparent in hot weather when the stems began to split. In the United States there are already many examples of undesired effects only being identified after approval had been given - again one example is GM cotton where the cotton bolls became deformed.

Another problem is that genetic engineers usually introduce other material - viruses or bacteria - into the plant which have the role of inserting the gene, activating it, and identifying where transfers have been successful. Viruses in particular are good at inserting their genetic material into other organisms. But that opens up the risk of "horizontal gene transfer" whereby genes transfer out of the genetically modified organism (GMO) and into other organisms. But we don't know how frequently or intensively this might occur, or what the safety implications might be.

GM technology also often involves producing novel substances which may cause allergic reactions. If such substances are used in food, consumers may quite often be exposed to this risk. It was recently found, for example, that a GM soya with a brazil nut gene could cause allergic reactions.

A further health risk is that creating herbicide (weedkiller) resistant plants allows the application of much more toxic herbicides to the growing plants. People therefore become exposed to more toxic residues than previously. In the recent case of the GM forage maize, Chardon LL, the herbicide used was glufosinate, a neurotoxin and a teratogen (ie it damages embryos). What is particularly worrying is that there seems to be a 10 per cent reversion rate of the degraded herbicide back to the original toxic form in the gut.

Given that there is so much uncertainty, it might be expected that there would be routine testing of GMOs for healthy effects as a legal requirement. This applies to new pharmaceutical drugs which are subjected to lengthy trials so that all side-effects can be uncovered. However, whilst it is often claimed that all GMOs have been "rigorously tested", all that this testing amounts to is deciding whether a GM crop is similar in terms of its composition to the non-GM plant. This is justified under the rubric of "substantial equivalence", which was originally a marketing term, and is scientifically vacuous. It wholly misses the point that health concerns are focused, not on known compounds, but on the effects of the GM technology which are unpredictable.

It is really extraordinary that there have so far been virtually no independent studies of the health effects of GM. What there is has mostly been done by the companies themselves. We are constantly told that there is no evidence of any greater health risk from a GM crop than from its non-GM counterpart. What is not added is that there have been no health checks to find out. Indeed, the only Government-sponsored work ever carried on the health impacts of GMOs was Dr Pusztai's work on rats and GM potatoes, and then, when it found negative effects, it was widely rubbished in government circles, even though his paper had been peer-reviewed six times before publication.

These uncertainties have been acknowledged by some of the leading UK institutions. The Royal Society, in its reports last year, said that the potential health effects of GM foods should be rigorously investigated before allowing them into baby food or to be marketed to pregnant or breast-feeding women, elderly people, and those with chronic disease. This was because GM "could lead to unpredicted harmful changes in the nutritional state of foods".

Any baby food containing GM products could lead to a dramatic rise in allergies, and unexpected shifts in oestrogen levels in GM soya-based infant feed might affect sexual development in children. Infants, the report said, are very vulnerable because they have such a narrow diet. If there were any nutritional deficiencies in their food, such as fewer fatty acids, their health would suffer, especially the infant bowel function since even small nutritional changes could cause bowel obstruction.

Similarly, the only human GM trial, commissioned ironically by the Food Standards Agency, found that GM DNA did in fact transfer to bacteria in the human gut. Previously many scientists had denied that this was possible. But instead of this finding being regarded as a serious discovery which should be checked and re-checked, the spin was that this was nothing new and did not involve any health risk - a Nelsonian putting the telescope to the blind eye if ever there was one.

A recent BMA report noted that "any conclusion upon the safety of introducing GM materials into the UK is premature as there is insufficient evidence to inform the decision-making process at the moment". In their report to the Scottish Parliament six months ago, the BMA stated that "there has not yet been a robust and thorough search into the potentially harmful effects of GM foodstuffs on human health... In the UK not enough is known to enable us to give an accurate risk of assessment of the health impact of GM crops on the health of local communities".

Equally, a recent report from the General Medical Council stated that GM could switch on "silent" genes whose effects we know little about or know to be toxic. They also noted that GM elements in food might be taken up by bacteria in the gut, and this could alter the balance of bacteria in the gut, leading to possible instability or further modification of GM food in later generations. Their conclusion was that more knowledge was needed of the effects of GM on metabolism, organ development, immune and endocrine systems, and gut flora.

Finally, it is often claimed by the biotech companies that there have been millions of people consuming GM foods over several years in the US, but without any ill-effects. However, there have actually been no epidemiological studies to support this claim. What is known is that coinciding with the introduction of GMOs in food in the US, food-derived illnesses are believed by the official US Centres for Disease Control to have doubled over the past seven years. And there are many reports of a rise in allergies - indeed a 50 per cent increase in soya allergies has been reported in the UK since imports of GM soya began. None of this of course proves the connection with GM, but it certainly suggests an urgent need for further investigation of this possible link. Typically, however, this has not been forthcoming.

As the Prime Minister said, we should act on the basis of science, not prejudice. Quite so. But since the science is still clouded with such deep uncertainty, that means deferring decisions till the science is clear and reliable, not rushing to desired conclusions which cannot be scientifically supported.