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Articles

## GM: why I think it matters

Six years ago when I was appointed Minister for the Environment, I had never heard of genetically modified organisms (GMOs). Today it has come close to taking over my life and some argue has already cost me my job as Minister.

I first became interested in this as the sheer magnitude of what the GM project meant for the nation's food supply gradually dawned on me. At first we were assured by officials in MAFF (before it became DEFRA as it now is) that this was an interesting and important new technology which would solve some of agriculture's challenges by reducing the use of herbicides (chemical weedkillers) and helping to feed the world.

However, several problems began to emerge. First, when the issue started hitting the headlines in 1998, the public was clearly deeply sceptical, even hostile, and for very good reason. They remembered BSE. The Government, the scientists and officialdom all assured them in 1990 that it could never cross the species barrier and infect humans. Then in 1994 it was found that it had done exactly that, and several dozen people have now died very unpleasantly of new variant CJD. Before that there were other food scares too - salmonella and e-coli. And more recently of course we have been through the trauma of foot and mouth.

The net effect of all this was to leave the Government with a huge credibility problem, and I felt drawn to try to get to the bottom of what appeared to be an unfolding environmental crisis. Were GM foods a genuine breakthrough or a 'frankenstein foods' nightmare?

I found that three claims in particular were made for GM. It was a precise new scientific technology, far superior to traditional cross-breeding. It was better for farmers because it would increase their yields and reduce their use of herbicide. And it would lead the next agricultural revolution to feed the starving masses of the world. I checked each of these claims.

I found it was not at all the precise technology it was cracked up to be. In fact, the GM DNA is projected into the organism arbitrarily, disrupting the sequence of genes that nature has evolved over hundreds of millions of years as the optimal pattern. Equally, because genes are multi-functional and operate in networks we don't (yet) understand, it is not known how to control artificially a single function of a gene without triggering other unpredicted and undesired effects. It may well destabilise the biochemical structure of the plant in damaging ways which are not exposed till much later.

The claimed benefits for the farmer - even Monsanto doesn't claim there are any benefits for the consumer - also turned out to be uncertain and much disputed. Canadian farmers have been using GM since 1996, and I went there two months ago to discover their experience. I found that the Canadian National Farmers Union had been very enthusiastic about GM initially, but were now opposed precisely because their yields had actually declined while their use of herbicides increased to cope with 'volunteers' (weeds from the last harvest).

Feeding the hungry of the Third World was a canard. The real reasons for world poverty and starvation are the inferior trading position of the developing countries in the world economy, bad and corrupt governments, maldistribution of land, and the failures of population management. If these problems could be dealt with, the role of GM crops would be miniscule by comparison.

So should we then dismiss GM as a busted flush? Some would say yes, on the grounds that there are no apparent benefits to the consumer, but a huge downside risk that, if we accepted GM, alarming and unpredicted consequences might emerge in the nation's (or the world's) food supply when it is too late to remedy them.

The best option seemed to me much greater caution. I came to believe that four requirements needed to be met before we could responsibly proceed with GM. The most important was that we should check the effects on human health of eating GM foods.

Astonishingly this has not been done. What I discovered the biotechnology companies do, when they produce a new GM product, is compare it with its non-GM counterpart in terms of its toxins, nutrients and allergens (the substances that cause allergies), and if they are 'substantially equivalent', then they simply assume it to be safe. What very rare health testing has been carried out has produced some surprising, and worrying, results. For example, after a sample of people were given a meal of GM soya in Newcastle last year, it was found - which the scientists had previously denied could happen - that in half the sample the GM DNA had transferred to the gut bacteria, which could compromise antibiotic resistance.

A second requirement is that there should be proper environmental testing of the long-term impacts of GM crops on wildlife in the fields. The results of the limited trials published last week, including one at Lymm in Cheshire, showed that the chemical weedkillers in the cultivation of GM oilseed rape and sugar beet do cause significant harm to the environment by reducing wildlife numbers considerably, and the scientists therefore recommend we do not grow them in this country. GM maize seemed better only because producers of conventional maize use a particularly nasty chemical weedkiller - atrazine - which is so toxic that it is now being banned throughout the EU; so GM maize compared with conventional maize which uses an alternative less toxic weedkiller in future may well produce the same adverse environmental effects as the other two GM crops.

Two other hurdles need to be crossed before GM could ever be accepted in this country. One is that GM must not be allowed to cross-contaminate other agriculture, particularly organic. No framework has yet been devised which would achieve this, let alone compensate organic farmers for any damage caused to their business. Nor is there any labelling in place which would identify GM-free food for those who never want to eat GM.

Until those four requirements are met, I say we should not accept GM in this country, and the science supports this position.