



“Dysfunctional technology” of GM is no answer to world hunger

Across Europe, the great GM food and crop debate has taken off once again. Only through widespread adoption of GM technology will we feed a hungry world (9 billion mouths by 2020 – UN figs.), say the all-powerful (US) life science companies. The danger is that politicians and policy-makers are being pressured by glitzy PR and political pressure rather than by any scientific or field evidence that this statement is true.

Indeed there is now a strong body of published evidence that shows GM crops do not increase agricultural yields. Other work indicates negative health impacts for livestock reared on GM feed and potentially for humans consuming produce from those animals.

The International Assessment of Agricultural Science and Technology for Development (IAASTD) published its 2500 page report this year. Based on peer reviewed publications it concluded that the yield gains in GM crops “were highly variable” and in some places “yields declined”. Asked at a press conference if GM crops were the answer to world hunger, IAASTD Director Professor Bob Watson (he’s now Chief Scientist at Defra) said - “The simple answer is no.” The UK Government approved the IAASTD report on June 9th this year.

An agro-ecological option

The IAASTD also concluded that “business as usual is no longer an option” and called for a shift to ‘agroecological’ food production. Their assessment questioned GM’s claims to be the solution to global poverty, hunger or climate change. In fact, large sections of the IAASTD favoured organic production, much to the irritation of the GM lobby.

Away from the raw science, the growing argument against GM crops is that they reinforce an outdated model of agriculture, wholly unsuitable for adapting to and dealing with the conditions that climate change and expensive, scarce oil bring for global food security. And plant breeders consider that technology which manipulates single genes is unlikely to deliver crops capable of thriving in extreme drought stress or of dealing with high salinity – the reality of plant physiology is far more complex than that.

Questions of GM yield and performance (GM Freeze)

- A report (April 2006) from the United States Department of Agriculture (USDA) states that “currently available GM crops do not increase the yield potential of a hybrid variety. In fact, yield may even decrease if the varieties used to carry the herbicide tolerant or insect-resistant genes are not the highest yielding cultivars”.
- A UN Food and Agriculture Organization report on agricultural biotechnology acknowledges that GM crops can have reduced yields (FAO, 2004).
- In the journal *Science*, a 2003 report stated that “in the United States and Argentina, average yield effects [of GM crops] are negligible and in some cases even slightly negative”.
- A European Commission study showed yields of both GM and conventional varieties varying - sometimes greatly - depending on growing conditions, degree of infestation with insects or weeds, weather, region of production, etc.

“Our efforts need to be focused on developing production systems that are ethically and environmentally sustainable, based as far as possible on local resources. Food security, self-sufficiency and value for money rather than a spurious notion of cheapness will be important for the future. We should concentrate on developing a food system based on those and not seek to cling to a dysfunctional system by relying on the dysfunctional technology of GM crops,” says Lawrence Woodward, director of The Organic Research Centre.

The greatest flaw

In other words the greatest flaw in GM cropping is that it reinforces agriculture’s unsustainable reliance on vast inputs of fossil-fuel derived inputs in the form of fertilisers and pesticides – which are now becoming economically, as well as environmentally, unaffordable. It’s not just the poor farmers in developing countries that can’t afford expensive chemicals, even big arable producers in the UK question their viability as fertiliser costs rocket to over £350 a tonne.

And there is a real worry that GM crops will actually add to climate change, by requiring the added inputs of the same old chemical fertilisers that already consume half of all the energy used in agriculture, adding yet more emissions of damaging greenhouse gases.

So, where are we on any commercial adoption of GM crops in the UK? The campaign group GM Freeze – of which the Organic Research Centre is a member – points out that four crops were extensively tested in the UK during the late 1990s and early 2000s.

The Government's own scientific advisory committee advised Ministers that three of the crops (herbicide tolerant winter and spring oilseed rape and sugar/fodder beet) would cause long-term harm to farmland wildlife because they reduced weed cover and with it food and shelter for insects and birds. The Government listened to the advice and announced these crops would not be approved. The fourth crop studied, GM fodder maize, was given the go-ahead by Ministers, but was withdrawn a month later by its developer, Bayer CropScience, for "commercial reasons". Although yields were not measured as part of the trials, this was widely accepted to mean that the GM variety did not perform as well as contemporary, non-GM bred varieties of maize.

Failure to deliver

So far, GM technology has failed to fulfil almost every promise it made on its introduction twenty years ago. It continues to serve its commercial owners rather than the world's farmers or the world's hungry. It won't solve the problems of starvation in developing countries, but is set to increase, in a neo-imperialist way, the dependency of farmers on multi-national companies that supply GM seeds and chemical pesticides.

As Defra chief scientist Bob Watson so eloquently says – "The absence of GM crops is not the driver of hunger today".

Diverting attention

Perhaps the time has come to ask if undue focus on GM foods and crops is diverting our attention from the development of truly reliable alternatives of sustainable (organic) agriculture which are capable of feeding those soon-to-be 9 billion hungry mouths?

A recent letter in the national press from the chairman of Natural England, Sir Martin Doughty, presents a powerful summary for the situation in this, affluent, country -

"We need to be mindful of the lessons of the past before rushing headlong to embrace genetically modified crops as the solution to rising food prices.

"The evidence of field-based trials on GM crops previously proposed for commercial release in England demonstrates that they can have a detrimental indirect impact on farmland biodiversity. We clearly face a huge challenge in reconciling the surging global demand for food with the need to conserve and enhance our natural environment.

"However, there is little evidence to date that the current generation of biotechnology products will help. The precautionary principle compels us to understand the full impact of each GM crop on a case-by-case basis before commercial release. GM crops can in no way be seen as a quick fix."