GM seeds dig in

The seeds of some genetically modified crops appear to remain in the earth for at least a decade. Researchers at Sweden's Lund University and Denmark's Technical University have found transgenic plants growing in a field planted with GM rapeseed more than ten years ago. Although measures were taken in the years following the trial to remove 'volunteers', 15 out of 38 sample seedlings tested positive for the genetically modified trait of herbicide tolerance ten years after the trial had ended.

"Finding volunteers like this, despite labour intensive control for ten years, supports previous suggestions that volunteer oilseed rape needs to be carefully managed in order for non-GM crops to be planted after GM crops ... I think for oilseed rape we may have to be aware that there will always be some contamination and therefore we may need labelling to tell the consumer," said lead researcher Tina D'Hertefeldt.[1]

1 *Biology Letters*, 23 January 2008.

Peak glyphosate

First peak oil, now peak glyphosate. The price of glyphosate – traded by Monsanto under the name of Roundup – has been rocketing. Even though Monsanto's patent on glyphosate ended in 2000, the company still produces 60 per cent of the world's supply. Roundup has contributed mightily to Monsanto's record profits. In the second fiscal quarter of this year, the company's sales of glyphosate and other herbicides soared by 85 per cent, compared with the same period a year ago.

Demand for glyphosate has been growing but that may not be the main reason for the increase in price. In a bizarre twist of chemical fate, phosphorus, which, along with potassium and nitrate, is one of the three main components of chemical fertilisers, is also a critical ingredient in glyphosate. In other words, the same chemical used to make some plants grow is also employed to kill off others. And now some scientists think that reserves of phosphate rock, a non-renewable resource, will run out within the next 40 to 50 years.[1]

And there's more. Transforming rock phosphate into the elemental phosphorus, which, in turn, is processed into the phosphorus trichloride required for glyphosate production, not only causes a lot of pollution but also consumes a great deal of energy. According to testimony by a Monsanto employee at a US government hearing a few years ago in Soda Springs, Idaho, electricity accounts for 30–45 per cent of the production costs of glyphosate. So difficult times ahead for Monsanto's RR soya.

1 Andrew Leonard, "Peak weed-killer?", *How the World Works*, 8 April 2008. http://tinyurl.com/5q5se6

Crisis management

Over the last few weeks the world's largest agrochemical and seed companies and their allies in industry and academia have been appearing frequently on television and radio to tell us that they – and they alone – have the solution to the interlinked problems of the food crisis and climate chaos. According to them, the way forward, as you might have guessed, is to purchase seeds (and the support package of fertilisers, pesticides and so on) for a whole range of new crops that these companies are helpfully preparing for the world's farmers.

The world's top ten corporations already control 57 per cent of commercial seed sales. Now, they are taking out hundreds of patents all over the world on crop genes that are linked to environmental stress.[1] New deals are being cooked up. For instance, Monsanto, the world's largest seed company, and BASF, the largest chemical firm, have entered into a US$1.5-billion partnership to engineer stress-tolerant plants.

Few dispute that climate change will cause huge problems for farmers. A study by the International Rice Research Institute (IRRI) shows that for every increase of one degree Celsius in night-time temperatures rice yields decline by 10 per cent. What the corporations ignore, of course, is the part played by the industrial farming methods that they promote in creating global warming and the food crisis in the first place. To intensify such methods will make big profits for the corporations, and both of these problems that bit worse.

1 ETC group, "Patenting the 'Climate Genes' ... and Capturing the Climate Agenda", *Communiqué* 99, May/June 2008. http://tinyurl.com/5k5wtp

GM crops not the answer

Given the barrage of pro-GM propaganda over the last few months, it is no bad thing to remind ourselves that GMOs have never been shown to obtain higher yields than conventional crops and have often performed worse.[1]

Studies from 1999 to 2007 consistently show Monsanto's Roundup-Ready (RR) GM soya to have 4–12 per cent lower yields than conventional varieties. Moreover, RR soya performs particularly poorly under drought conditions, when it suffers 25 per cent higher losses than conventional varieties. There has been a significant trend of yield increases in maize during the biotech era, but again GM varieties have not performed better than conventional varieties. A rigorous, independent study conducted in the US under controlled conditions demonstrated that *Bt* maize yielded anything from 12 per cent less to the same as similar conventional varieties.

The crop around which there has been most controversy has been *Bt* cotton. Despite the hype around the "wonder crop", an investigation by GRAIN last year revealed no consistent pattern of increased yields for *Bt* cotton compared with conventional varieties.[2] Moreover, the cultivating *Bt* cotton made farmers much more susceptible to contracting crippling debts.

The biotechnology companies say that it is not fair to judge them on yields, because they didn't develop the first generation of GMOs to increase productivity. But GMOs also failed to deliver the promised reduction in pesticides outlay, which was the main reason for their invention. Although pesticide expenditure often declined in the early years, it bounced back to its former level – or even higher – as farmers sought to deal with new, resistant 'super weeds'. GMOs' main achievement so far, it seems, is to have made life easier for some big farmers, along with providing big profits for the corporations.

1 Emma Hockridge, "GM crops are not the answer to world hunger", *China Dialogue*, 21 May 2008. http://tinyurl.com/57domd

2 GRAIN, "*Bt* cotton: the facts behind the hype", *Seedling*, January 2007. http://www.grain.org/seedling/?id=457