



*Campaigning for  
organic food and farming  
and sustainable forestry*

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## Seeds of Doubt Executive Summary

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*The Seeds of Doubt report was written by Gundula Meziani and Hugh Warwick. It was launched in 13 different countries on the 17th September 2002.*

The UK government and farming community will soon make a fundamental long-term decision: whether to allow genetically modified (GM) crops to be commercially grown in the UK. The picture the biotechnology industry has painted of GM crops in North America is one of unqualified success, after six years of commercial growing. The objective of this report was to assess whether this image is accurate and if not what problems have occurred. We present interviews with North American farmers about their experiences of GM soya, maize and oilseed rape, and review of some of the independent research.

The evidence we have gathered demonstrates that GM food crops are far from a success story. In complete contrast to the impression given by the biotechnology industry, it is clear that they have not realised most of the claimed benefits and have been a practical and economic disaster. Widespread GM contamination has severely disrupted GM-free production including organic farming, destroyed trade and undermined the competitiveness of North American agriculture overall. GM crops have also increased the reliance of farmers on herbicides and led to many legal problems.

Six years after the first commercial growing of GM crops, the use of genetic engineering in global agriculture is still limited. Only four countries including the US and Canada grow 99 per cent of the GM crops grown worldwide, and just four crops account for 99 per cent of the global area planted to GM crops. In the UK, we have a choice over whether to remain GM-free.

Our findings show that GM crops would obstruct the government from meeting its policy objective that farming should become more competitive and meet consumer requirements. It would also prevent it from honouring its public commitment to ensure that the expansion of organic farming is not undermined by the introduction of GM crops. The Soil Association believes this report will contribute towards a more balanced and realistic debate on the likely impacts of GM crops on farming in the UK and assist an informed decision on the commercialisation of GM crops.

### **Farming impacts**

The direct impacts of GM crops on farmers in North America are examined in chapters 3–6, 8 and 9. Many of the claimed benefits have not been seen in practice and several unforeseen problems have emerged:

- The profitability of growing GM herbicide tolerant soya and insect resistant Bt maize is less than non-GM crops, due to the extra cost of GM seed and because lower market prices are paid for GM crops
- The claims of increased yields have not been realised overall except for a small increase in Bt maize yields. Moreover the main GM variety (Roundup Ready soya) yields 6–11 per cent less than non-GM varieties
- GM herbicide tolerant crops have made farmers more reliant on herbicides and new

weed problems have emerged. Farmers are applying herbicides several times; contrary to the claim that only one application would be needed. Rogue GM oilseed rape plants ('volunteers') have become a widespread problem in Canada

- Farmers have suffered a severe reduction in choice about how they farm as a result of the introduction of GM crops. Some are finding themselves locked into growing GM crops.

### **Contamination**

In chapter 7 we look at GM contamination, which has been the single greatest problem. Widespread GM contamination has occurred rapidly and caused major disruption at all levels of the agricultural industry, for seed resources, crop production, food processing and bulk commodity trading. It has undermined the viability of the whole North American farming industry:

- Contamination has caused the loss of nearly the whole organic oilseed rape sector in the province of Saskatchewan, at a potential cost of millions of dollars. Organic farmers are struggling practically and economically; many have been unable to sell their produce as organic due to contamination
- All non-GM farmers are finding it very hard or impossible to grow GM-free crops. Seeds have become almost completely contaminated with GMOs, good non-GM varieties have become hard to buy, and there is a high risk of crop contamination
- Because of the lack of segregation, the whole food processing and distribution system has become vulnerable to costly and disruptive contamination incidents. In September 2000, just one per cent of unapproved GM maize contaminated almost half the national maize supply and cost the company, Aventis, up to \$1 billion.

### **Economic impacts**

The economic impact of GM crops is the focus of chapter 10. GM crops have been an economic disaster. As well as the lower farm profitability, GM crops have been a market failure internationally. Because of the lack of segregation, they have caused the collapse of entire exports to Europe and a loss of trade with Asia:

- Within a few years of the introduction of GM crops, almost the entire \$300 million annual US maize exports to the EU and the \$300 million annual Canadian rape exports to the EU had disappeared, and the US share of the world soya market had decreased
- US farm subsidies were meant to have fallen over the last few years. Instead they rose dramatically, paralleling the growth in the area of GM crops. The lost export trade as a result of GM crops is thought to have caused a fall in farm prices and hence a need for increased government subsidies, estimated at an extra \$3 – \$5 billion annually
- In total GM crops may have cost the US economy at least \$12 billion net from 1999 to 2001.

### **Legal issues**

GM contamination has led to a proliferation of lawsuits and the emergence of complex legal issues (chapter 11):

- One of the most unpleasant outcomes of the introduction of GM crops has been the accusations of farmers infringing company patent rights. A non-GM farmer whose crop was contaminated by GMOs was sued by Monsanto for \$400,000
- While biotechnology companies are suing farmers, farmers themselves are turning to the courts for compensation from the companies for lost income and markets as a result of contamination. In Canada, a class action has been launched on behalf of the whole organic sector in Saskatchewan for the loss of the organic rape market.

### **Farmers ' response**

The severe market problems have led many North American farmers to seriously question the further development of GM crops (chapters 10 and 11 ):

- Many US farm organisations have been urging farmers to plant non-GM crops this year
- The US and Canadian National Farmers Unions, American Corn Growers Association, Canadian Wheat Board, organic farming groups and more than 200 other groups are lobbying for a ban or moratorium on the introduction of the next major proposed GM food crop, GM wheat
- With the support of several farming organisations, federal legislation was tabled in Congress in May 2002 ,to introduce GM labelling and liability rules in the US.

A full copy of the report can be purchased from the Soil Association website  
[www.soilassociation.org](http://www.soilassociation.org)

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| <b>Soil Association</b>                | T: 0117 929 0661 | E: <a href="mailto:info@soilassociation.org">info@soilassociation.org</a> |
| 40-56 Victoria Street, Bristol BS1 6BY | F: 0117 925 2504 | W: <a href="http://www.soilassociation.org">www.soilassociation.org</a>   |

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