

GM CROPS INDUSTRY OVERVIEW

The Big Three Prepare To Commercialise

CORPORATE WATCH BIOTECH BRIEFINGS 2003

This briefing aims to give campaigners (primarily in the UK) an overview of the GM crops industry, who they are, what they do and how they operate.

1. Introduction

This briefing examines the strategies of the biotechnology companies which are most heavily involved in trying to commercialise GM crops in Britain and the rest of the European Union - Bayer CropScience, Syngenta and Monsanto. It asks where, as an industry, they are strongest, and where they are most vulnerable.

In the UK, Bayer CropScience, which purchased Aventis CropScience in 2002, is the most important company, having one variety of T25 herbicide tolerant maize, Chardon LL, very near to commercialisation. Monsanto and Syngenta stand a lot further back. Monsanto has made a spate of applications (ten, compared to Bayer's five) to the EU since January for Part C marketing consents (See 'What do the GM crops companies have to achieve?' for an explanation), but only five of these are for cultivation, the others are for import and processing only.

Together with five other applications, these represent a real push by the industry to break European opposition to GM crops. Syngenta is collaborating with Monsanto in an application for herbicide-tolerant sugar beet, and already has a small quantity of Bt 176 'Comba CB' maize being grown in Spain. For more information on these companies individually, see the accompanying company briefings.

There are several other companies involved in promoting GM crops in the EU, but those listed above are the most important, being nearest to having crops commercialised and having a wider range of crops. DuPont, BASF and Dow are other major companies promoting GM crops in the EU, and a brief introduction to these companies can be found in Appendix A.

GM Crops Industry Overview:

The Big Three Prepare To Commercialise

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2. History

The first GM food to be introduced in Britain was a tomato paste made from Zeneca tomatoes in 1995. It was followed by products containing herbicide-tolerant soya and insect-resistant maize, and it was particularly soya, which is present in approximately 60 per cent of processed foods, which began to cause widespread public alarm. Since then, the campaign to remove GM ingredients from the food chain has made immense progress:

- Rejection by the public has caused supermarkets and large food processors to remove GM ingredients from their own brand products in the UK.
- GM foods have to be labelled in Europe, unlike in the US. (For details of current labelling legislation see http://europa.eu.int/comm/food/fs/gmo/gmo_legi_label_en.html)
- Only limited commercial growing of GM crops has taken place in the EU, and none in the UK.
- Since 1998 there has been a de facto EU moratorium on both the import and growing of new GM crops until more effective legislation comes into force.
- EU rejection of GM food has slowed commercialisation in other parts of the world. For example, Europe's non-approval of RoundUp Ready maize led Argentina to also refuse approval for fear of losing its export market to Spain and Portugal.
- Most large UK supermarkets have stopped using GM animal feed for most meats and dairy products.
- A raft of legislation covering GM crops is being agreed on at an EU level (for more details see below).

- The Cartagena Biosafety Protocol was adopted on 29th January 2000. It has been signed by 103 countries and ratified by 51 at time of writing (not including the US). The Protocol seeks to protect biological diversity from the potential risks posed by GMOs. It establishes an advanced informed agreement (AIA) procedure for ensuring that countries are provided with the information necessary to make informed decisions before agreeing to the import of such organisms into their territory. The Protocol also contains reference to a precautionary approach (www.biodiv.org/biosafety/background.asp).

- There has been a significant reduction in research and development of GM crops in Europe. Between 1998 and 2001 there was a 76% decrease in notifications for field trials,¹ and a recent study found that 39% of respondents had cancelled at least one GM research and development programme during the last four years. The main reasons cited were the unclear legal situation in the EU and low public acceptance.²

- There have been great difficulties for some of the key companies involved: the poster which accompanies this series of briefings shows how the industry has had to restructure itself within the last few years.³ During the 1990s the dominant players were large 'Life Sciences' companies which sought to exploit 'synergies' thought to arise from research into different areas such as pharmaceuticals and agricultural biotechnology. These synergies never really occurred to the expected extent, and most agricultural biotechnology companies have been spun off from the larger 'Life Sciences' companies and are now relying on a smaller number of products, often including agro-chemicals, for income. This creates vulnerability, but on the other it also makes each GM product extremely important and heavily defended.

In spite of all this, however, GM crops are far from dead, and the coming months will be a crucial time for halting, slowing or minimising the commercialisation of GM crops in Europe. Year by year, global cultivation of GM crops is increasing, and the GM seed sector is growing, although not as rapidly as the industry would like. The industry-funded International Service for the Acquisition of Agri-biotech Applications (ISAAA) enthuses that: 'For the sixth consecutive year, farmers worldwide adopted biotech crops at a double-digit pace, with 2002 global biotech acreage reaching 145 million acres.'⁴ Over 90 per cent of these are crops carrying Monsanto traits.

According to ISAAA figures for 2002, which are difficult to verify, the US is the largest grower of GM crops globally, with 66% of the global total, followed by Argentina with 23%. Canada grew 6%, and China 4%. Together these make up 99% of the global acreage,⁵ which at least means that the spread of GM crops is more limited than it sometimes seems.

Figures from an ISAAA press release show 12 other countries as having grown under one million hectares of GM crops in 2002, which seems quite a large number, but in several cases these countries grew only very small areas of GM crops,⁶ as a Greenpeace Report from the previous year showed.

1 'Review of GMOs under research and development and in the pipeline in Europe' by Karine Lheureux, Monique Libeau-Dulos, Hans Nilsagård, Emilio Rodriguez Cerezo, Klaus Menrad, Martina Menrad, Daniel Vorgrimler, Institute for Prospective Technological Studies, European Commission Joint Research Centre, European Science and Technology Observatory, March 2003, p.7, section 2.1.6 available online at <ftp://ftp.jrc.es/pub/EURdoc/eur20680en.pdf> (viewed 03/07/03)

2 'Review of GMOs under research and development and in the pipeline in Europe' by Karine Lheureux, Monique Libeau-Dulos, Hans Nilsagård, Emilio Rodriguez Cerezo, Klaus Menrad, Martina Menrad, Daniel Vorgrimler, Institute for Prospective Technological Studies, European Commission Joint Research Centre, European Science and Technology Observatory, March 2003, p. 21, section 2.3 available online at <ftp://ftp.jrc.es/pub/EURdoc/eur20680en.pdf> (viewed 03/07/03)

3 poster available online at www.corporatewatch.org.uk

4 ISAAA press release, 17 January 2003: "Biotech Crops Continue Rapid Global Growth: New report documents nearly 6 million farmers chose biotech last year" available online at www.isaaa.org (viewed 03/07/03)

5 '2002 Global GM Crop Area Continues to Grow for the Sixth Consecutive Year at a Sustained Rate of More than 10%', available online at www.isaaa.org (viewed 03/07/03)

6 ISAAA press release, 17 January 2003: "Biotech Crops Continue Rapid Global Growth: New report documents nearly 6 million farmers chose biotech last year" available online at www.isaaa.org (viewed 03/07/03)

GM crops often provide a means for continuing to sell agro-chemicals, but they are increasingly important in their own right. The table below shows sales of agro-chemicals compared to seeds/biotechnology for 2001.

Table 1: Agro-chemical and seed/biotech sales 2001 by company⁸

Company	Agro-chem	Seeds/Biotech	Total
Syngenta	\$5385	\$938	\$6323
Bayer CropScience	\$6086	\$192	\$6278
Monsanto	\$3505	\$1707	\$5212
DuPont	\$1922	\$1920	\$3842
BASF	\$3114	\$0	\$3114
Dow	\$2627	\$4972	\$2842

Sales of conventional crop protection products declined by 7.4% to \$25.8bn in 2001, according to analysts Phillips McDougall.⁹ Likewise, during 2001 sales of conventional seed varieties are estimated to have fallen by 3.2% to \$13,365¹⁰ while revenues from the sales of seed of GM crops rose by 12.9% to \$3,010 million.¹¹

3. What Do GM Crop Companies Have To Achieve?

Companies trying to introduce GM crops in the EU have to deal with a large and changing raft of legislation depending on the uses to which they intend to put a particular organism. They have to gain permission to release GMOs into the environment under the EU Deliberate Release Directive. This used to be under 90/220/EEC and has now become 2001/18/EC. For this process an application must be made for Part B (experimental release) for tests, and for Part C (marketing) in order to use the crop for commercial purposes. This covers crops which will only be imported into and processed in the EU, as well as crops which would be cultivated in the EU.

Herbicide-tolerant crops must comply with EU Plant Protection Products Directive 91/414, which is required when a chemical is intended be used with a new crop.¹²

All new plant varieties for cultivation must be put on either the National Seed List of individual member states, or the EU Common Catalogue. In order to be put on a National Seed list each new crop variety has to undergo trials for Distinctiveness, Uniformity and Stability (DUS) and Value for Cultivation and Use (VCU). The final decision to add a variety to the seed list is taken by government ministers.

Any GM crops which are intended for human consumption must adhere to EU Novel Foods Regulation (258/97).¹³

New EU legislation is under discussion regarding Traceability and Labelling, and Food and Feed. This legislation is unlikely to be in place before the end of 2003.¹⁴

4. Current Situation

4.1 EU

The European Union is in a state of flux concerning GM crops and the information given here will inevitably become quickly outdated. Fourteen GM lines were approved for release in the EU under the old Directive 90/220/EEC - some for cultivation, some for import and processing and some for breeding activities.¹⁵ Only five lines have so far been approved for cultivation:

- Syngenta's Bt 176 insect-resistant
- Bayer CropScience's T25 glufosinate-tolerant maize
- Monsanto's MON 810 insect-resistant maize
- Bayer CropScience's (Plant Genetic Systems/Aventis) MS1xRF1 and MS1xRF2 oilseed rape^{16,17} (but for seed production only).

All of these lines which have European consent still have to be added to National Seed Lists or the European Common Catalogue in order to be grown commercially. So far T25, MON810 and Bt 176 have been grown commercially on a small scale in France, Spain, Portugal and Germany.¹⁸

7 'GE Crops - Increasingly Isolated As Awareness and Rejection Grow, March 2002 available online at www.tccouncil.org/reports/greenpeace0302.pdf (viewed 03/07/03)

8 Agrifutura, Newsletter of Phillips McDougall Agriservice, No.29, March 2002, available online at www.avcare.org.au/documents/AgrifuturaJanuary2002.pdf (viewed 03/07/03)

9 Agrifutura, Newsletter of Phillips McDougall Agriservice, No.29, March 2002, available online at www.avcare.org.au/documents/AgrifuturaJanuary2002.pdf (viewed 03/07/03)

10 Agrifutura, Newsletter of Phillips McDougall Agriservice, No.29, March 2002, available online at www.avcare.org.au/documents/AgrifuturaJanuary2002.pdf (viewed 03/07/03)

11 Agrifutura, Newsletter of Phillips McDougall Agriservice, No.29, March 2002, available online at www.avcare.org.au/documents/AgrifuturaJanuary2002.pdf (viewed 03/07/03)

12 www.pesticides.gov.uk/ec_process/EC_overview_general/91414background.htm (viewed 10/07/03)

13 http://biosafety.ihe.be/NF/GMfoods/GMfood_market.html (10/07/03)

14 For a discussion of the pros and cons of labelling and traceability legislation see www.foeeurope.org/GMOs/Traceability.htm (viewed 03/07/03) or www.genewatch.org/Labelling/LabellingBrief_1.pdf (viewed 03/07/03)

15 'Review of GMOs under research and development and in the pipeline in Europe' by Karine Lheureux, Monique Libeau-Dulos, Hans Nilsagård, Emilio Rodriguez Cerezo, Klaus Menrad, Martina Menrad, Daniel Vorgrimler, Institute for Prospective Technological Studies, European Commission Joint Research Centre, European Science and Technology Observatory, March 2003, p.4, Section 2.1.1 available online at <ftp://ftp.jrc.es/pub/EURdoc/eur20680en.pdf> (viewed 03/07/03)

16 'Review of GMOs under research and development and in the pipeline in Europe' by Karine Lheureux, Monique Libeau-Dulos, Hans Nilsagård, Emilio Rodriguez Cerezo, Klaus Menrad, Martina Menrad, Daniel Vorgrimler, Institute for Prospective Technological Studies, European Commission Joint Research Centre, European Science and Technology Observatory, March 2003, Annex c, p.47 available online at <ftp://ftp.jrc.es/pub/EURdoc/eur20680en.pdf> (viewed 03/07/03)

17 Both MS1xRF1 and MS1xRF2 oil seed rape have only gained consent for seed production purposes, 'Notifications for placing transgenic plants on the EU Market under Directive 90/220/EEC' Suzy Renckens and Yann Devos, available online at <http://biosafety.ihe.be/TP/TPmarket.html> (viewed 03/07/03)

Table 2: Applications for EU part C marketing consent under 2001/18

Company	Crop	Trait	Line Name	Use
Monsanto	Oilseed Rape	RoundUp Ready	(GT73)	Import only
Monsanto	Maize	RoundUp Ready	(NK603)	Import only
Monsanto	Maize	RoundUp Ready/Insect Resistant	(NK603xMON810)	Import only
Amylogene*	Potato	Modified starch content	(EH92-527-1)	Cultivation*
Bayer CropScience	Oilseed Rape	LibertyLink/SeedLink	(MS8xRF3)	Cultivation
Bayer CropScience	Soya Beans	LibertyLink	(A2704&A5547-127)	Import only
Monsanto/Syngenta Seeds	Sugar Beet	RoundUp Ready	(Event T9100152 or #77)	Cultivation
Bayer CropScience	Oilseed Rape	LibertyLink	(Line T45)	Import only
Monsanto	Cotton	RoundUp Ready	(Event 1445)	Cultivation
Monsanto	Cotton	Insect Resistant	(Bt cryIAc or Line 531)	Cultivation
Bayer CropScience	Oilseed Rape	LibertyLink	(Falcon/GS40/90pHoe6/Ac)	Cultivation
Monsanto	Sugar Beet	RoundUp ready	(Event H7-1)	Cultivation
Pioneer Hi-Bred/Mycogen Seeds*	Maize	LibertyLink/Insect Resistant	(BtCry1F line 1507)	Import only
Monsanto	Maize	RoundUp Ready/Insect Resistant	(GA21xMon810)	Import only
Pioneer Hi-Bred/Mycogen Seeds*	Maize	LibertyLink/Insect Resistant	(BtCry1F line 1507)	Cultivation
Bayer CropScience	Oilseed Rape	LibertyLink	(Liberator/pHoe6/Ac)	Cultivation
Monsanto	Maize	RoundUp Ready	(line GA21)	Import only
Monsanto	Maize	Insect Resistant	(Mon836xMon810)	Import only
DLF Trifolium/Monsanto	Fodder Beet	RoundUp Ready	(Line A5/15)	Cultivation
/Danisco Seeds				
Syngenta Seeds	Maize	LibertyLink/Insect Resistant	(Bt11)	Cultivation

*Amylogene = BASF. EH92-527-1 potato is for cultivation but for industrial use only

*Pioneer Hi-Bred = DuPont

*Mycogen Seeds = Dow

18 'Prime Minister's Strategy Unit: The Costs and Benefits of Genetically Modified (GM) Crops Scoping Note', 25/09/02, p. 7, section 2.8. available online at www.strategy.gov.uk/2002/gm/downloads/scoping.pdf (viewed 03/07/03)

19 http://gmoinfo.jrc.it/gmc_browse.asp (viewed 03/07/03)

There has been a de facto moratorium on approving new varieties since 1998, which was introduced until suitable regulations concerning GMOs could be put in place. When the new 2001/18/EC legislation came into force there were still several varieties waiting for approval under the old legislation and some of these have been resubmitted under the new legislation. There are now 20 applications awaiting Part C consent (see table 2)

4.2 UK

Table 3: UK potential commercial GM plant varieties²⁰

Company	Crop	Trait	Variety/Code	UK NSL Status*	EU Status	Growing*
Bayer CropScience	Fodder Maize	LibertyLink	Chardon LL (T25)	Trials Completed	Part C	2004
Bayer CropScience	Fodder Maize	LibertyLink	Sheridan (T25)	Trials Completed	Part C	2004
Bayer CropScience	SOSR	LibertyLink/SeedLink	PH96S452 (MS8xRF3)	Trials Completed	Awaiting Part C	2006
Bayer CropScience	SOSR	LibertyLink/SeedLink	PH96S443 (MS8xRF3)	Trials Completed	Awaiting Part C	2006
Bayer CropScience	SOSR	LibertyLink/SeedLink	Archimedes/PHY31 (MS1xRF1)	Trials Completed	Part C*	Unlikely
Bayer CropScience	WOSR	LibertyLink/SeedLink	PHW98-407 (MS8xRF3)	Trials Completed	Awaiting Part C	2006
Bayer CropScience	WOSR	LibertyLink/SeedLink	PHW01-429 (MS8xRF3)	Trials Completed	Awaiting Part C	2006
Bayer CropScience	WOSR	LibertyLink/SeedLink	PHW01-441 (MS8xRF3)	Trials Ongoing	Awaiting Part C	2006
Bayer CropScience	WOSR	LibertyLink/SeedLink	PHW01-450 (MS8xRF3)	Trials Ongoing	Awaiting Part C	2006
Syngenta/Monsanto	Sugar Beet	RoundUp Ready	Sturgeon (#77)	Trials Completed	Awaiting Part C	2008
Syngenta/Monsanto	Sugar Beet	RoundUp Ready	Pacific (#77)	Trials Completed	Awaiting Part C	2008

*Information on NSL status from unpublished list from DEFRA ²¹

*Archimedes (MS1xRF1) oilseed rape has part C consent for seed production only

*Approximate dates for commercial growing²²

Bayer CropScience's T25 maize (of which Chardon LL is one variety), could be commercialised in Britain as early as spring 2004. T25 already has EU marketing consent, and Chardon LL has completed UK National Seed Listing Trials, but has not yet been added to the UK National Seed List. This process has been significantly held-up by public opposition, which led to a protracted public enquiry. The report from the enquiry has been given to ministers who will have to make the final decision on the commercialisation of Chardon LL which is not expected until at least the end of 2003. Ministers from England, Wales, Northern Ireland and Scotland all have to agree on the decision, which could be interesting as Wales is generally quite reluctant to introduce GM crops. However it remains to be seen whether it can stand up to pressure from Westminster.

Next in line is Sheridan, another variety of T25 maize based on the same modification as Chardon LL. It has completed its National Seed Listing trials, and for over a year it has widely

20 DEFRA National Lists of Varieties Public Register for: GM plant varieties available online at www.defra.gov.uk/plant/pvs/pubreg/peg01.htm (viewed 03/07/03)

21 unpublished list from DEFRA Plant Varieties Section (2001), extra GM-Act email list (Autumn 2002)

22 'GM crops in performance worry' by Tom Allen-Stevens Farmers Weekly, UK, 21/03/03 available online at www.gene.ch/genet/2003/Mar/msg00076.html (viewed 24/06/03)

been expected that there would be a public hearing along the lines of the Chardon LL hearing, but it has not been announced yet. The government meanwhile has changed the law regarding hearings so that information relating to the fact that plants are genetically modified will not be taken into account, and the only objections which will be permitted will be those relating to the Value for Cultivation and Use and the Distinctiveness, Uniformity and Stability of the variety.

Syngenta/Monsanto RoundUp Ready sugar beet (line #77 a.k.a. T9100152) could also be commercialised relatively soon in theory, but Syngenta's public affairs manager Ian Weatherhead estimates that it will not be grown commercially in Britain until 2008.²³ Two varieties of this line have completed their National Seed Listing trials in the UK (these are Sturgeon and Pacific) but have not yet been added to the seed list. The line now needs a Part C Marketing Consent for cultivation under the EU Deliberate Release Directive in order to be commercialised in the UK, an application for which has been made jointly by Monsanto and Syngenta.

Bayer CropScience has two varieties of MS8xRF3 herbicide-tolerant spring oilseed rape (PH96 S452, and PH96 S443) and four varieties of MS8xRF3 herbicide-tolerant winter oilseed rape (PHW98-407, PHW99-429, PHW02-450, and PHW01-441) the majority of which have completed their National Seed Listing trials. The MS8xRF3 line is awaiting Part C marketing consent. Bayer's public affairs manager Julian Little estimates that these varieties will not be grown in the UK until at least 2006.²⁴

In addition, Bayer's MS1xRF1 variety, Archimedes, has completed its National Seed Listing trials and gained European marketing consent for seed production only. There has been no application for a full Part C consent for this variety and it is considered unlikely that it will be grown commercially in the UK.

23 'GM crops in performance worry', Tom Allen-Stevens, Farmers Weekly, 21/03/03, available online at www.gene.ch/genet/2003/Mar/msg00076.html (viewed 03/07/03)
24 'GM crops in performance worry', Tom Allen-Stevens, Farmers Weekly, 21/03/03, available online at www.gene.ch/genet/2003/Mar/msg00076.html (viewed 03/07/03)
25 'Review of GMOs under research and development and in the pipeline in Europe' by Karine Lheureux, Monique Libeau-Dulos, Hans Nilsagård, Emilio Rodriguez Cerezo, Klaus Menrad, Martina Menrad, Daniel Vorgrimler, Institute for Prospective Technological Studies, European Commission Joint Research Centre, European Science and Technology Observatory, March 2003, p.64 available online at <ftp://ftp.jrc.es/pub/EURdoc/eur20680en.pdf> (viewed 03/07/03)
26 'GMOs help Argentina fight subsidies, Monsanto', Damian Wroclavsky, 12/11/02 available online at www.planetark.org/dailynewsstory.cfm/newsid/19033/newsDate/13-Dec-2002/story.htm (viewed 01/07/03)
27 US Department of Agriculture: MY 2000/2001: 86 Per Cent Of Total World Seed Trade Involved Either US or EU, July 2002, available online at www.fas.usda.gov/cots/seedletters/July02_2.htm (viewed 03/07/03)
28 World Trade Organisation, Exports of Agricultural Products of Selected Economies 1990-2001, Table IV.9, available online at www.wto.org/english/res_e/statis_e/its2002_e/section4_e/iv09.xls (viewed 01/07/03)
29 Examples of proportions of farm-saved seed are United Kingdom 30 %, Germany 46 %, France 35 %, Portugal 75 %, Spain 88 %, from Lamo de Espinosa et al, 2001, La Semilla de Cereal en España, Informe Aprove 2001. available online at www.grain.org/seedling/seed-02-04-2-en.cfm (viewed 03/07/03)
The proportion of farm-saved seed varies by crop. For example intra-EU trade in (sugar and fodder) beet seed accounts for 67% of the international trade. It is therefore likely that if the EU doesn't approve GM beet varieties, the products will be in trouble. Also, 37% of the international trade in corn (maize) is intra-EU, which represents a massive opportunity for biotechnology companies. US Department of Agriculture: MY 2000/2001: 86 Per Cent Of Total World Seed Trade Involved Either US or EU, July 2002 available online at www.fas.usda.gov/cots/seedletters/July02_2.htm (viewed 03/07/03)

5. How important is the EU?

The EU is very important for the GM crops industry for three main reasons:

1. As an import market for GM crops. The EU imports large amounts of commodity crops grown elsewhere in the world primarily for animal feed. For example, approximately 50% of the soya grown in Argentina and Brazil, and 33% of that grown in the US is for export to the EU.²⁵ Both the EU de facto moratorium on new GM crops and European consumer rejection of GM has prevented the adoption of new GM varieties in other areas of the world. Argentina has failed to commercialise a number of varieties of GM maize for fear of jeopardising important exports to Spain and Portugal.²⁶

2. As a market for growing GM crops. The EU is a massive user of certified seeds for cultivation. In 2000/01, intra-EU trade accounted for about one third of total world seed trade (approximately \$13bn). In addition, five per cent of world seed trade was made up by US exports to the EU (approx.\$1.95bn.²⁷). A surprisingly high percentage of crops in Europe are still grown from farm-saved seed which constitutes another potential market for biotechnology companies to break into. In 2001 the EU, as a whole, exported \$57,805m of agricultural produce to countries outside of its borders, second only to the US which exported \$70,017m.²⁸ If biotechnology companies could capture some of these markets they could have profitable times ahead.²⁹

3. Eliminating the European problem. European opposition to GM crops has been a huge stumbling block for the biotech industry which it is anxious to overcome. The rejection of GM crops by the European public and the resultant moratorium on new GM crop varieties has cost the GM crops industry billions of dollars - both in lost sales and the stagnation of the global market for GM crops and commodities. Levering European countries open to both the commercial growing and unhindered import of GM crops would be a huge symbolic and political victory for the biotech industry.

6. EU Political Position

The three main issues affecting GM crops in the EU political arena are the internal disagreements of member states, the internal workings of the European Union, and relations with countries outside of the EU, particularly the US. Although all the states are currently sticking to the de facto moratorium, some are much keener than others. France,

Germany, Italy, Austria, Belgium, Denmark, Greece and Luxembourg all currently support the moratorium.³⁰

Within the European institutions there are also disagreements, with the European Commission in general more favourably disposed towards GM crops than the European Parliament.

In May 2003 the US and Canada took the first steps to challenge the EU's unofficial moratorium on GM crops at the World Trade Organisation (WTO). If the dispute is not resolved during an initial period of 60 days it will be taken to the WTO dispute settlement panel, and if the EU loses, the US may impose trade sanctions on it. This move has been criticised from many quarters, not only from those resenting the US's interference and questioning the WTO's jurisdiction over the EU's eating habits, but also from those who recognise that it may prove counter-productive in terms of public opinion. George W. Bush pushed the point a little further in late June 2003, accusing Europe of endangering African lives by its reluctance to accept GM crops: 'For the sake of a continent threatened by famine, I urge the European governments to end their opposition to biotechnology.'³¹

7. UK Political Position

The UK government is extremely keen on introducing GM crops and there have been numerous examples of conflicts of interest within the government itself and within the various committees which have been set up to oversee the introduction of GM crops. Lord Sainsbury of Turville, Minister of Science and Technology is a shining example of New Labour's devotion to technological 'progress', being simultaneously the largest backer of biotechnology company Diatech, in charge of promoting biotechnology at the Department of Trade and Industry, and being responsible for national policy on biotechnology as a member of the Cabinet Biotechnology Committee.

Huge public rejection of GM crops forced the government to try to allay people's fears by initiating the controversial farmscale trial programme, which is due to end in July 2003. The programme was portrayed as a means of testing the environmental impact of GM crops. However, there is no causal mechanism by which the results of this programme influence the government's decision on whether to allow GM crops to be grown in Britain, and the methodology employed was widely criticised.

As mentioned above, the National Seed Listing enquiry for Chardon LL brought out significant objections - to the extent that the enquiry even had to be suspended at one point. This caused a significant nuisance to the government and it has now adjusted the National List Hearings so that only issues relating to Distinctiveness Uniformity and Stability (DUS) and Value for Use and Cultivation (VCU) can be taken into account, which would have excluded many of the more important health and environment-related submissions during the Chardon LL hearing.

Having failed to convince the majority of the public that the case in favour of GM crops has been proved, the government is currently embarking on a 'Public Consultation' on GM crops, more information about which can be found at www.gm-nation.org This has been delayed, underfunded and badly publicised and a sceptical onlooker might suspect that the government's heart is not in the project, particularly as it is not obvious how the results of the various debates around the country will be taken into account. Margaret Beckett, Secretary of State for the Environment, has stated that public opposition cannot be a reason for rejecting GM crops under EU law, and that objections must be 'scientific'.³² There are two other strands of the government's review: the Science Review (www.gmsciencedebate.org.uk) and the Strategy Unit's Cost and Benefit Analysis (www.strategy.gov.uk/2002/gm/summ.shtml) both of which will be much more influential than the public debates.

The latest matter of political interest is the sacking of GM sceptic Environment Minister Michael Meacher in June 2003. There has been much speculation as to whether this is the result of industry pressure,³³ but with a government containing Tony Blair and Lord Sainsbury, industry pressure is perhaps redundant.

8. Scenarios for the commercialisation of GM crops :

Here are some possible scenarios on how GM crop commercialisation might play out over the next few years.

30 DEFRA News Release, 15/05/03: 'Margaret Beckett Disappointed At Challenge To EU On Trade In GM Crops And Food' available online at www.defra.gov.uk/news/2003/030515c.htm (viewed 03/07/03)
31 'EU rift with Bush over famine claims on eve of summit' Stephen Castle The Independent 25/06/2003
32 'Public fears would not put a stop to GM crop development, Beckett says' Charles Arthur, The Independent, 06/06/03
33 'Knives out' for Meacher in row over GM crops' By Colin Brown and Francis Elliott, 08/06/2003 available online at <http://www.telegraph.co.uk/news/main.jhtml?xml=/news/2003/06/08/nmeach08.xml> (viewed 11/07/03)

Absolute ban on commercial growing of GM crops:

This is extremely unlikely. The British government would never accept it, and nor would the biotechnology industry. If it were to be lawful under EU and WTO law, a ban would have to be 'scientific', yet many of those independent scientists who have tried to carry out research which may show problems with GMOs have suffered personal consequences in addition to the general difficulties with obtaining funding for critical work.

Commercialisation and failure:

The most likely scenario is that some products will be commercialised when the new EU legislation on Labelling and Traceability and Co-existence comes into force (at the end of 2003 or later). The UK government has a difficult decision regarding Chardon LL, the first crop which could be cultivated commercially, because all eyes are on it. The evidence against commercialising it is strong, (for example, some GM varieties are being superseded by conventional varieties before they reach the market³⁴), but on the other hand, the biotechnology industry and the US government is becoming increasingly annoyed at the lack of progress with GM crops, and the UK government is keen to establish a reputation for being friendly to scientific innovation. It seems likely that Chardon LL and other GM crops will be officially commercialised but it is possible that this will be in name only and GM crops will be a commercial failure. The market for non-GM products needs to be maintained by keeping the issue in the public spotlight, keeping up pressure on supermarkets to use non-GM animal feed, continuing to support organic agriculture, putting pressure on seed companies not to develop or market GM varieties, persuading feed companies to use non-GM feed, creating GM-free zones and opposing the appointment of biotechnology industry representatives to decision-making bodies.

Commercialisation and success:

The worst case scenario is that the biotechnology industry's strategy (see below) succeeds, and that sections of the public lose their caution about GM crops. Although opposition still appears to be quite strong at the moment, with a Mori poll showing 56% of respondents against GM crops in February 2003, and only 14% in favour,³⁵ there is a great threat that, as happened with the war on Iraq, if people feel the issue is a fait accompli and the problems with it are not well-publicised, those who are as yet undecided (25% in this case) may begin to side with the state. There is also still a market for GMOs in animal feed, because products made from animals fed on GM feed do not have to be labelled and will still not have to be labelled under the new European legislation.

9. GM crops industry strategy

Lobbying and PR: Since Monsanto's disastrous PR campaign advertised Food and Health and Hope in 1998, biotechnology companies have generally sought to work behind the scenes rather than by applying pressure publicly. This has worked quite well for Bayer and Syngenta, which do not have household names and are managing to keep quite a low profile, though Bayer in particular is becoming more notorious through being targeted by activists on a fairly regular basis.³⁶ The individual company profiles show how companies have been allowed to have representatives on government committees crucial to the introduction of GM crops. In addition they have formed a whole cluster of lobby groups (see Appendix B) to apply pressure to governments and multilateral institutions.

Contamination: It seems that the industry is hoping that through gradual contamination of the food chain, the public will perceive that all is lost and give up in its opposition to GM foods. In January 2001, Don Westfall, Vice-president of consulting firm Promar International caused a stir by stating that: 'The hope of the industry is that over time the market is so flooded that there's nothing you can do about it. You just sort of surrender.'³⁷ On a European level, the European Commission has done its best, perhaps with a little help from leading lobby group EuropaBio, to help this scenario come to life by proposing a 1% contamination threshold for GM food. This has been reduced to 0.5% by a European Parliament vote³⁸ but could be raised again before the new legislation is finally approved.

Divide and Rule: Companies have chosen particular interest groups to try to wield influence. For example, Bayer has been working with beekeepers' groups (see individual company briefings).

Taking the Long View: Much of the industry's strategy involves waiting and hoping the storm over GM crops will die down before introducing them in great quantities. There is a

34 'GM crops in performance worry', Tom Allen-Stevens, Farmers Weekly, 21/03/03, available online at www.gene.ch/genet/2003/Mar/msg00076.html (viewed 03/07/03)

35 'Blair faces huge resistance to his support for GM crops' Michael McCarthy The Independent, 28/04/03, available online at www.connectotel.com/gmfood/in280403.txt (viewed 03/07/03)

36 see www.bayerhazard.com and http://www.cbgnetwork.org/home/Newsletter_KCB/KCB__81/kcb__81.html (both viewed 11/07/03)

37 Starlink Fallout Could Cost Billions, Stuart Laidlaw, The Toronto Star, 09/01/01, Edition 1, available online at www.connectotel.com/gmfood/ts090101.txt (viewed 04/07/03)

38 EuropaBio Press Release: "European Parliament Vote is a Disappointment for Green Biotechnology", 03/07/02

danger of this strategy succeeding if the public attention span proves short, but there is a need for companies to strike a balance between waiting it out and losing money. Syngenta and Bayer can perhaps afford to wait it out for quite a few years, whilst Monsanto (with its entire future resting on the commercial success of first generation GM crops) may have more trouble, but it depends what happens in other parts of the world out side of the EU.

10. Strategies for opposing the commercial growing of GM crops

Chardon LL Approval

Chardon LL's approval can still be delayed or stopped by pressuring ministers, particularly the Welsh Assembly Minister for Rural Development, Mike German, who personally objected to Chardon LL during the enquiry but who will be subject to massive pressure from Margaret Beckett to give approval.

Chardon LL Market

If Chardon LL is approved, it is still possible to keep demand for it to a minimum. One way of doing this is by pressuring dairy producers and stockists whose herds may be fed on Chardon LL. More details can be found at <http://swiops.tincan.co.uk/mirrors/chardon>.

Seed Companies

If Chardon LL is approved it is likely that Bayer CropScience will need to seek a partnership with a UK seed company in order to market its seed to farmers. It is worth putting pressure on UK seed companies, and the seed supply chain as a whole, to remain GM free.

Continue to oppose imports of GM animal feed.

Whether commercialisation happens or not, the market for GM crops needs to be minimised. A previous Corporate Watch briefing (Control Freaks - The GMO importers, December 2000³⁹) showed that most GM crops are used for animal feed and not for direct consumption by humans, so it is most important to get GM out of animal feed. Most supermarkets have already stopped using GM feed for most products but it is important to expand this policy and maintain it in supermarkets which may try to withdraw from it.

Oppose other new GM varieties

Varieties which are being considered for National Seed Listing, such as Sheridan, still need to be opposed in spite of the government's change to the rules. There is also a chance for the public to offer comments relating to those lines being considered for Part C consent. It is hard to say how much effect public objections have on the process itself but they have brought to light some of the strongest evidence against GM crops.

GM free zones.

Friends of the Earth⁴⁰ is running a GM-free Britain campaign to reduce the market for GM crops. This means that councils advise farm tenants of the Council's anti-GM position, ban GM food from local food services such as school meals and residential homes and apply to be excluded from growing certain GM crops. Cornwall, South Gloucestershire, Warwickshire and South Hams District Council voted to go GM-free earlier this year, with Devon also expressing a strong anti-GM position.⁴¹

Article 19.3(c) of the EU 2001/18 Deliberate Release Directive requires the authorities to specify conditions of consent including 'conditions for the protection of particular ecosystems/environments and/or geographical areas'. Many groups interpret this as meaning that specific areas can apply to be exempted from particular approvals, but DEFRA calls this a misinterpretation and says it would only be possible based on scientific evidence which would probably mean that the Part C consent was not granted anyway.⁴²

Maximise coverage of WTO dispute

On a broader theme, the forthcoming WTO dispute between the US and EU about the EU's de facto moratorium is likely to provide some ground for airing issues about who controls our food and their legitimacy, or lack of it. The process should start rolling in September and could take up to 18 months. Some NGOs are planning to make formal representations to the WTO but these are unlikely to make much of a dent. Since WTO rules concentrate almost exclusively on a trade perspective, the EU is unlikely to win and there is a need to question the legitimacy of the whole process.

39 www.corporatewatch.org.uk/publications/GEBriefings/controlfreaks/controlfreaks.html (viewed 10/07/03)

40 www.foe.co.uk/campaigns/real_food/press_for_change/gm_free_britain/ (viewed 10/07/03)

41 Friends of the Earth uk website available online at www.foe.co.uk/campaigns/real_food/press_for_change/email_la/index.shtml (viewed 04/07/03)

42 DEFRA web site available online at www.defra.gov.uk/environment/gm/eu/art19.htm (viewed 04/07/03)

Appendix 1: DuPont, BASF and Dow

DuPont

DuPont made its way into agricultural biotechnology primarily through its purchase of Pioneer Hi-Bred in 1999. In the EU Pioneer, which licenses GM traits from others such as Monsanto as well as developing them itself, has conducted field trials of fungal/viral and viral-resistant potatoes, altered oil composition oilseed rape, virus-resistant alfalfa, Bt insect-resistant cotton, glyphosate-tolerant cotton, Bt insect-resistant/glyphosate-tolerant cotton, Bt insect-resistant maize, glufosinate-tolerant maize, Bt insect-resistant/glufosinate-tolerant maize, Bt insect-resistant/glufosinate-tolerant/glyphosate-tolerant maize, Bt insect-resistant and glyphosate-tolerant maize, glyphosate-resistant oilseed rape, oxalate oxidase synthesis sunflowers, oxalate decarboxylase synthesis sunflowers, broomrape control/oxalate oxidase synthesis sunflowers and oxalate oxidase synthesis/fungal-resistant sunflowers.⁴³ DuPont, along with Dow AgroSciences and Mycogen Seeds, has recently made an application for Part C consent to cultivate and market lepidopteran-resistant and glufosinate-tolerant 1507 maize,⁴⁴ and a separate one to import grain and products derived from the same line.⁴⁵

Among DuPont's many UK addresses are:

DuPont (U.K.) Limited

Wedgwood Way, Stevenage, Herts SG1 4QN
Phone: 01438 73-4000
Fax: 01438 73-4836

Pioneer Hi-Bred Northern Europe

Service Division GmbH, United Kingdom Branch, Central Boulevard, Blythe Valley Business Park, Solihull, B90 8AG
Phone: 01604 858008
Fax: 01604 819027

For more UK sites, see www1.dupont.com/NASApp/dupontglobal/corp/index.jsp?page=/content/US/en_US/overview/worldwide/country_unitedkingdom.html

BASF

BASF, along with Bayer and Hoechst, used to be part of the notorious IG Farben, which was convicted of war crimes at the end of World War II. It is a relative newcomer to plant biotechnology: BASF Plant Science GmbH was established in 1998 through a joint venture with the Swedish seed-breeding company Svalof Weibull AB⁴⁶ (which is 40% owned by BASF). BASF subsidiaries Svalof Weibull and Amylogene have conducted field trials of several kinds of altered starch potatoes,

glufosinate-tolerant oilseed rape, glyphosate-tolerant oilseed rape, glyphosate-tolerant spring turnip rape and glufosinate-tolerant spring turnip rape in the EU.⁴⁷ BASF has announced that it intends to invest €700 million over the next ten years in plant biotechnology.⁴⁸ Amylogene has made an application to the European Union for Part C consent (see 'What Do They Have To Achieve?' for more information about this process) to cultivate and market potato variety EH92-527-1 with modified starch content.⁴⁹

BASF has developed a new technology, called Clearfield™, which does not involve genetic modification but uses marker assisted breeding to achieve herbicide-tolerance. So far BASF produces Clearfield maize, wheat and oilseed rape.⁵⁰

BASF plc.

Earl Road, Cheadle Hulme, Cheadle, Cheshire SK8 6QG
Phone: 0161 4856222
Fax: 0161 4860891

BASF plc

Agricultural Division Development Centre, Unit 11 Windmill Avenue, Woolpit Business Park, Woolpit - Bury St. Edmunds, Suffolk IP30 9TT
Phone: 01359 241241
Fax: 01359 242842

For more UK addresses: www.basf.de/en/corporate/overview/standorte/GB.HTM?id=-I2Xna9**bsf900

Dow

The agricultural segment of the company, Dow Agrosciences, has been buying up seed companies during the last few years, including Mycogen and Cargill Hybrid Seeds. Dow has carried out field trials of insecticidal cotton using the Cry1F/Cry1Ac traits in Spain, and Mycogen has carried out trials on Bt insect-resistant and glufosinate-tolerant maize and Bt maize in Spain, France and Italy.⁵¹ Dow AgroSciences and Mycogen Seeds have recently made a joint application with DuPont for Part C consent to cultivate and market lepidopteran-resistant and glufosinate-tolerant 1507 Maize,⁵² and a separate one to import grain and products derived from the same line.⁵³ Mycogen has recently introduced a sunflower hybrid with BASF's Clearfield trait.⁵⁴

Dow AgroSciences Europe

European Development Centre, Milton Park, Abingdon, Oxon OX14 4RN

Dow Limited

2 Heathrow Boulevard, 284 Bath Road, West Drayton, Middlesex UB7 0DQ

Dow Agrosciences Limited

Latchmore Court, Brand Street, Hitchin, Hertfordshire SG5 1NH

Appendix 2: Lobby Groups, Trade Associations, and Opinion Forming

Agricultural Biotechnology Council

The Agricultural Biotechnology Council (ABC) is a front group set up by the biotech industry to help gain public acceptance for GM crops. Not to be confused with the UK government's advisory body on biotechnology issues affecting agriculture and the environment, the Agriculture and Environment Biotechnology Council (AEBC)⁵⁵, the ABC was formed by six companies with major interests in the acceptance of GM crops in the UK - Bayer CropScience, BASF, Dow AgroSciences, Dupont, Monsanto and Syngenta.⁵⁶

Set up in February 2002 as the UK arm of European group, Agricultural Biotechnology in Europe (ABE), by mid-2002 the ABC had apparently achieved little more than publishing a web site, a handful of press releases, and a few quotes in the press. This may be why the ABC decided to ditch Weber Shandwick as its PR company and hire Lexington Communications to conduct 'issues management and public affairs [lobbying]'⁵⁷ instead. Lexington Communications have good links with all the major political parties. Director, Mike Craven, was head of New Labour's press office and worked with deputy prime minister John Prescott. Lexington Communications have now hired Bernard Marantelli, formerly of Monsanto, to organise a £250,000 PR campaign aimed at 'regulators, legislators, retailers and consumer groups' to approve GM crops.⁵⁸ The ABC aims to 'address misconceptions, meet the public and answer questions' about GM crops. The ABC has become more prominent during the GM public debate. The biotech companies are increasingly using the ABC as a convenient third party platform through which to make comments on GM crops issues without having their corporate name attached to them.

ABC

PO Box 38 589, London SW1A 1WE
United Kingdom
Phone: +44 (0) 207 898 9103
Fax: +44 (0) 207 898 9252
Email: Enquiries@abcinformation.org
Web: www.abcinformation.org

Lexington Communications

4 Park Place, London SW1A 1LP
Phone: +44(0) 207 898 9002
Fax: +44(0) 207 898 9252
Email: contact@lexcomm.co.uk
Web: www.lexcomm.co.uk

CropGen

Bayer CropScience, Dow AgroSciences, Monsanto and Syngenta sponsor CropGen, an industry initiative which aims to 'make

the case for crop biotechnology and help achieve a more balanced debate about genetically modified (GM) crops in the UK'.⁵⁹ CropGen consists of a panel of independent, but very pro-GM, scientists and specialists including chair, Dr Vivian Moses. The panel provides commentary on GM issues from a pro-GM, but supposedly non-corporate stance. CropGen claims that its panel of scientists is independent, pointing out that the companies have signed an undertaking that they cannot veto any of the scientific positions taken by the panel. Two of CropGen's 'independent' panel members, Dr Nigel Halford and Dr Peter Lutman, work for the Institute of Arable Crops Research (IACR) at Rothamsted. IACR is part of the research consortium which has contracts worth £3.3 million with the Government to conduct ecological monitoring of the farm-scale trials.⁶⁰ It also has also had research partnerships with AgrEvo, Aventis CropScience, DuPont, Novartis and Syngenta.⁶¹ CropGen is run by PR company Countrywide Porter Novelli.

CropGen

Phone: +44 (0) 2078532393
www.cropgen.org

Countrywide Porter Novelli

Bowater House East 68 Knightsbridge, London. SW1X 7LH
Tel: +44 (0) 207584 0122
www.countrywidepn.co.uk/

Crop Protection Association

BASF, Bayer CropScience, Dow, DuPont, Monsanto and Syngenta are all members of the Crop Protection Association (formerly the British Agrochemicals Association). The CPA represents, and lobbies on behalf of, the agrochemical and agricultural biotechnology industry at a UK level. It is also one of the organisations that make up SCIMAC, the industry body established in June 1998 to support the 'responsible and effective introduction of GM crops in the UK'. This includes running GM farm scale trials in conjunction with the Department of the Environment Transport and Regions (DETR). The CPA is also affiliated to the European Crop Protection Association (ECPA).⁶² Based in Brussels, the ECPA represents, promotes, and lobbies on behalf of the crop protection industry at a European level. The CPA is also a member of CropLife International which represents, promotes, and lobbies on behalf of the crop protection industry at an international level.

Crop Protection Association

4 Lincoln Court, Lincoln Road, Peterborough PE1 2RP
Tel: 01733 349225
Fax: 01733 562523
Email: info@cropprotection.org.uk
Web: www.baa.org.uk

BSPB (British Society of Plant Breeders)

Bayer CropScience, Monsanto, Pioneer Hi-Bred (DuPont) and Syngenta are all members of the BSPB. The BSPB represents the seed industry as a whole on technical, regulatory and intellectual property matters. As well as participating in SCIMAC (see below), recent BSPB activities have included lobbying for reforms to the UK seed certification process (including national seed listing trials) to reduce cost to plant breeders and lobbying both the UK government and EU for the acceptance of traces of GM material in supplies of non-GM seed. The BSPB has also lobbied hard for the introduction of a scheme whereby seed producers are remunerated by farmers for farm saved seed (i.e. seed not purchased from seed companies).⁶³

British Society of Plant Breeders Ltd.

Woolpack Chambers, 16 Market Street, Ely, CAMBS CB7 4ND
Tel: +44(0)1353 653200
Fax: +44(0)1353 661156
Email: enquiries@bspb.co.uk
Web: www.bspb.co.uk/

SCIMAC (Supply Chain Initiative on Modified Agricultural Crops)

SCIMAC was founded in June 1998 'to support the responsible and effective introduction of GM crops in the UK'. SCIMAC is responsible for the selection of sites for the government backed GM Farm Scale Trial programme. It also publishes a set of management guidelines for GM herbicide tolerant crops.⁶⁴ Syngenta is a member of at least two of the five agricultural organisations that make up SCIMAC: British Society of Plant Breeders (BSPB), Crop Protection Association (CPA), National Farmers Union (NFU), United Kingdom Agricultural Supply Trade Association (UKASTA) and British Sugar Beet Seed Producers Association (BSBSPA).
Web: www.scimac.org.uk

Europabio (European Association for Bioindustries)

BASF, Bayer, Dow, DuPont, Monsanto and Syngenta are all members of Europabio a European pro-biotech lobby group which encourages the EU and national governments to develop policies that are supportive of biotechnology.

EuropaBio

Avenue de l'Armée 6, 1040 Brussels Belgium
Tel : (+32.2) 735.03.13
Fax : (+32.2) 735.49.60
E-mail : mail@europabio.org
Web: www.europabio.org

Appendix 3: Further sources of information

'Galloping Gene Giants: How big corporations are re-organizing their push for a biotech future and what can be done to challenge this agenda'
by Tony Clarke with Brenda Inouye. 2002. Polaris Institute.

'Hungry Corporations: Transnational Biotech Companies Colonize the Food Chain'

by Helena Paul and Ricarda Steinbrecher with Devlin Kuyek and Lucy Michaels. 2003. Zed Books, forthcoming.

'Redesigning Life? The worldwide Challenge to Genetic Engineering' B. Tokar (ED) 2001 Zed Books

ASEED- Action for Solidarity, Equality, Environment and Diversity

www.aseed.net

A European network that initiates actions and campaigns on environmental and social justice issues. One of their current campaigns is centred on issues surrounding the production, distribution and consumption of food (small, local organic farms instead of agribusiness, biotechnology and supermarkets selling genetically modified food).

Bayer Hazard www.bayerhazard.com

Activist website focusing on Bayer CropScience

CBG Network

www.cbgnetwork.org
Formerly known as Bayerwatch the CBG network have been monitoring the activities of Bayer for over 20 years. Their web site includes an archive of their newsletter and press releases.

Corporate Watch

www.corporatewatch.org.uk
Information on the environmental and social impacts of corporations. Website includes briefings and news items. Briefings and profiles on GM companies

Econexus www.econexus.info

Econexus is a non-profit scientific research organisation and watch-dog, focusing on the impacts of modern technologies, especially genetic engineering, on environment, health and society.

ETC Group www.etcgroup.org

Formerly known as RAFI, the Action Group on Erosion, Technology and Concentration (ETC group) is dedicated to the conservation and sustainable advancement of cultural and ecological diversity and human rights. Web site includes briefings on issues such as corporate

concentration, patents, GM crops and nanotechnology.

Five year Freeze

www.fiveyearfreeze.org

An alliance of NGOs, unions, religious and consumer groups calling on the UK government for a five year freeze on the growing of genetically modified plants and the production of genetically modified farm animals for any commercial purpose, the imports of genetically modified foods, plants, farm crops and farm animals, and produce from genetically modified plants and animals and the patenting of genetic resources for food and farm crops

Friends of the Earth www.foe.co.uk

Real food pages contain briefings, information and campaigning materials on GM crops.

GM Free Cymru

www.gmfreecymru.org.uk

Campaigning for a GM free Wales.

Greenpeace www.greenpeace.org.uk

Major environmental NGO campaigning on GM issues.

Genewatch www.genewatch.org

GeneWatch UK is a public interest group which aims to ensure that genetic technologies are developed and used in the public interest, and in a way which promotes human health, protects the environment and respects human rights and the interests of animals. Website includes briefings and a searchable GM crops database.

Genetic Engineering Network

www.geneticsaction.org.uk

The GEN web site includes numerous resources for people wanting to oppose genetic engineering, or just to learn more. Includes an up-to-date list of where GM crops are being grown in the UK.

NGIN

<http://members.tripod.com/~ngin/>

The Norfolk Genetic Information Network (NGIN) web site includes an archive of the NGIN email list. This is a daily updated digest of biotech news from around the world.

Pesticide Action Network UK

www.pan-uk.org

UK branch of an international network campaigning to eliminate the hazards of pesticides, to reduce dependence on pesticides and prevent the unnecessary expansion of their use, and to increase the sustainable and ecological alternatives to chemical pest control. Their website provides useful information on the pesticide activities of Syngenta, Bayer and Monsanto.

Polaris Institute

www.polarisinstitute.org

The Polaris Institute aims to enable

citizen movements to re-skill and re-tool themselves to fight for democratic social change in an age of corporate driven globalization. Their website includes a number of briefings on GM crops.

Totnes Genetics Group

www.togg.org.uk

Non-hierarchical collective working on GM issues in Devon and beyond. Currently home to the amazing Genetix Update and the Life Cycles peddle powered cinema.

Women's Environmental Network

www.wen.org.uk

Educating, empowering and informing women and men who care about the environment. Campaigning on environmental and health issues from a female perspective. Web site includes good briefings on the science of GM and GM issues.

43 Genewatch DuPont profile available online at www.genewatch.org/GeneSrch/Companies/DuPont.htm (04/07/03) and EU Joint Research Commission website available online at <http://biotech.jrc.it/deliberate/gmo.asp> (viewed 04/07/03)
44 <http://gmoinfo.jrc.it/csnifs/C-ES-01-01.pdf> (viewed 04/07/03)
45 <http://gmoinfo.jrc.it/csnifs/C-NL-00-10.pdf> (viewed 04/07/03)
46 www.svalofweibull.se (viewed 04/07/03)
47 EU Joint Research Council <http://biotech.jrc.it/deliberate/SE.asp> (viewed 11/07/03)
48 www.basf.de/en/produkte/biotech/pflanzenbiotec/plant.htm?id=-j2Wxmj**bsf200 (viewed 04/07/03)
49 http://gmoinfo.jrc.it/gmc_browse.asp (viewed 03/07/03)
50 www.agsolutions.ca/pub/west/clearfield/main/gen.cgi/main (viewed 03/07/03)
51 biotech.jrc.it/deliberate/gmo.asp (viewed 03/07/03)
52 gmoinfo.jrc.it/csnifs/C-ES-01-01.pdf (viewed 04/07/03)
53 <http://gmoinfo.jrc.it/csnifs/C-NL-00-10.pdf> (viewed 04/07/03)
54 Mycogen press release, 09/04/03 available online at www.mycogen.com/newsDetail.asp?PID=169 (viewed 04/07/03)
55 AEBC website available online at www.aebc.gov.uk/ (viewed 02/07/03)
56 www.abcinformation.org
57 PR Week, 27-9-2002
58 'The alliance of science: Independent' groups share pro-GM common ground' Andy Rowell, Guardian, 26/03/03 available online at <http://Society.guardian.co.uk/societyguardian/story/0,7843,921537,00.html> (viewed 02/07/03)
59 CropGen website available online at www.cropgen.org (viewed 23,10,2002)
60 Genewatch briefing 'Farm Scale Trials of GM Crops' available online at www.genewatch.org/Publications/Briefs/Brief8.pdf (viewed 27,10,2002)
61 the IACR website available online at www.iacr.bbsrc.ac.uk/corporate/partners/tpartners.html (viewed 02/07/03)
62 information on the ECPA available online at www.ecpa.be (viewed 02/07/03)
63 www.bspb.co.uk/visitors/licensing/licensing.html (viewed 27,10,2002)
64 the SCIMAC Guidelines are available online at www.ukasta.org.uk/scimac/gui1.html (viewed 25,10,02), A critique of the SCIMAC Code of Practice and Guidelines for Growing Genetically Modified Crops by Friends of the Earth SCIMAC: www.foe.co.uk/resource/briefings/scimac.html (viewed 25,10,2002)

Researched and produced by Corporate Watch, completed in July 2003 and accurate at the time of going to press.

Also available in this series:

The 'Biotech Family Tree 2003' A2 poster,
Company Briefings on Bayer CropScience, Syngenta and Monsanto.

For further copies contact Corporate Watch at the address below.
Downloadable versions of all of these briefings are available at
www.corporatewatch.org.uk under 'genetics'.

About Corporate Watch

Corporate Watch is an independent UK based research group, which works to expose the mechanisms by which corporations operate and the detrimental effects that they have on society and the environment. We have a website which includes detailed profiles of corporations and lobby groups in a variety of industry areas, as well as regular news updates covering corporate and campaign news, analytical articles and book reviews.

Current areas of research include:

GM crops, the PR industry, the Peat industry and Corporate Structures.

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