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GM FOOD

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DEBATING MATTERS
TOPIC
GUIDES

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MOTION:

**“IT IS TIME TO
EMBRACE THE
COMMERCIAL
PLANTING OF
GM CROPS”**

CONTENTS

Introduction

Key terms

The GM food debate in context

Essential reading

Backgrounders

FLMCLUB recommends

Organisations

In the news

KEY TERMS

Bt cotton

Farm-Scale Evaluations (FSEs)

Genetic modification

Plant breeding

INTRODUCTION

1 of 6

NOTES

1
1
2
4
5
5
5
6

In recent years the issue of whether to pursue the commercial planting of genetically modified (GM) crops has resurfaced. In the context of concerns over a future 'global food crisis' [Ref: [Telegraph](#)], a number of GM advocates and government ministers [Ref: [Independent](#)] have said that GM has the capacity to facilitate a second 'green revolution' [Ref: [Guardian](#)] and help feed the world's poor. Some have gone so far as to criticise 'European GM Myths' [Ref: [European Voice](#)] for hindering Africa's escape from poverty and creating a situation where most African countries shun GM crops and food [Ref: [Truth About Trade](#)]. But anti-GM campaigners argue claims that GM can alleviate poverty are disingenuous and misrepresent the real political problems behind food shortages across the world [Ref: [Global Issues](#)]. They further suggest that there are sufficient unknown risks to justify a freeze on commercialisation. Prince Charles flamed the debate when he called GM a 'gigantic experiment with nature and the whole of humanity' [Ref: [Farmers Guardian](#)]. Whilst some countries such as the United States, Brazil, Argentina and Canada already grow GM crops extensively, many others have been more hesitant especially when it comes to food crops [Ref: [Reuters](#)]. The debate involves an interconnected set of issues, ranging from the environmental impact, economic costs and benefits of GM to wider concerns about food production, human health and the environment.



What's new about GM technology?

For thousands of years farmers and plant breeders have been changing the genetic makeup of crops to improve characteristics like size, resistance to disease, and taste. They started simply by sowing only those seeds that came from plants with desirable traits. Later, knowledge about plant reproduction enabled crossbreeding of plants to create new crops. Throughout the 20th Century scientists also successfully used chemicals and radiation to introduce favourable mutations in crops. Now genetic engineering makes it possible to overcome natural reproductive barriers, as a single gene with a desired function can be transferred into an existing crop variety. At the centre of the debate is the question of whether GM is simply the next stage in the development of agricultural technologies or whether it represents a new departure with risky and irreversible consequences?

Does GM create new risks?

Many plant scientists claim that because genetic modification is more precise than crossbreeding it involves the transfer of less genetic material and is therefore more predictable [Ref: [BBC News](#)]. However, environmentalists have expressed concern about the introduction of genes not previously found in the food supply, like a human liver gene inserted into rice by researchers to allow it to break down herbicides and pollutants [Ref: [Telegraph](#)]. They argue that the transfer of genes is a haphazard process, breaking up the natural sequencing of genes and leading to unforeseen consequences [Ref: [Independent](#)]. In response, it has been argued that these risks must be put into context. Non-GM agriculture is not risk free and we accept some

risks from foods like peanuts which were not tested when first sold in this country but are now known to cause severe allergic reactions. There is also some evidence that GM could damage farmland biodiversity, which environmentalists argue should signal the end of GM in the UK [Ref: [BBC News](#)]. But supporters of GM say that threats to biodiversity are exaggerated. Changing farming practices will create winners and losers, but the impact on wildlife will not be uniformly negative.

What does food biotechnology have to offer?

Critics complain that most GM technologies focus on developing characteristics valuable to rich farmers, such as herbicide and insect resistance [Ref: [Independent](#)]. They claim that GM offers no answer to the problem of global hunger and will further strengthen the hold of multi-national corporations over the world's poorest farmers [Ref: [Hindu](#)]. Others point out how research funded by public bodies and philanthropic organisations is leading to important breakthroughs that will benefit the poor. A key example being the creation of crops such as Golden Rice, which is modified to contain a precursor of Vitamin A and mitigates against blindness [Ref: [Golden Rice](#)]. When touring India on work related to his philanthropic foundation that emphasises the role science and technology have to play in improving the lives of people in need, Bill gates argued strongly in favour of GM technology [Ref: [Indian Express](#)]. Proponents of biotechnology also argue that it can deliver direct benefits to human health with developments in the pipeline including GM tomatoes that contain antioxidants to improve diet [Ref: [The Times](#)]; and GM soya beans containing omega3 acids, which, it is said, could help 'prevent heart attacks' [Ref: [The Times](#)].



What's the current situation in the UK?

Following the lifting, in 2004, of a moratorium banning GM food from countries within the European Union (EU) [Ref: [BBC News](#)] and a series of farm-scale evaluations (FSEs) [Ref: [BBC News](#)], permission to plant one variety of GM maize was granted in the UK [Ref: [BBC News](#)]. However, the maize was never planted as the company involved pulled out [Ref: [BBC News](#)]. More recently, in what is being seen as paving the way for a ban on GM crops, the EU has allowed member states to decide their own GM policy [Ref: [Guardian](#)]. Some argue that the delay in embracing GM has exacted heavy costs; not only has agribusiness been undermined, but research in to biotechnology has been driven out of the UK [Ref: [Prospect](#)]. But critics counter that the commercial planting of GM is unnecessary and dangerous. Some suggest that a system of sustainable agriculture offers better results – higher yield and more jobs – that also protect the environment and benefit producers over corporations [Ref: [Soil Association](#)].

Is it science that's at stake, or the profits of big business?

GM supporters accuse their opponents of an anti-scientific attitude that feeds public fears and jeopardises scientific research. They emphasise the importance of the biotechnology industry in underpinning scientific progress. Environmentalists retort that all this talk about science is simply a way of distracting attention from corporations' hunger for profit.



ESSENTIAL READING

Passing Judgment on Genetically Modified Foods

David Katz *Huffington Post* 29 July 2011

Anti-HIV drug made by GM plants begins trials in humans

Sarah Boseley *Guardian* 9 July 2011

Where genetically modified crops are grown

Economist 23 February 2011

Feed costs spiral as GM ban hits poultry sector hard

William Surman *Farmers Guardian* 28 September 2010

The war over GM is back. Is the truth any clearer?

Jay Rayner *Guardian* 5 October 2008

FOR

The cost of spurning GM crops is too high

Jonathan D G Jones *Guardian* 21 July 2011

GM crops can help achieve Europe's objectives

Martin Banks *Parliament* 2 March 2011

Tomatoes with Viagra: how to get consumers to love GM crops

John Krebs *The Times* 12 November 2008

The Prince is entitled to his views – but not his ignorance

Dominic Lawson *Independent* 15 August 2008

The world needs GM agriculture

Julian Little *Guardian* 14 August 2008

AGAINST

Why a deregulated approach to GM crops is 'deeply flawed'

Paul Johnston *Ecologist* 23 August 2011

GM regulators chose ignorance over science

Jonathan Latham *Guardian* 15 June 2011

Who can we trust on GM food?

Peter Melchett *Guardian* 9 December 2008

Royal but essentially right

Graham Harvey *Guardian* 14 August 2008

Against the grain: 'Economics, not common sense, drives GM

Dr Michael Antoniou Independent 27 September 2007

IN DEPTH

The truth about genetically modified crops

Business Matters 2011

Food Prices: How high will they go by 2020?

Simon Rodgers *Guardian* 17 June 2011

Immoral advances: Is science out of control?

Dan Jones *New Scientist* 9 January 2009

The real GM food scandal

Dick Taverne *Prospect* 1 November 2007

5 Reasons to Keep Britain GM-Free

Ecologist June 2003

4 of 6

NOTES



BACKGROUNDERS

Public sector should develop GM crops for seed companies, says leading researcher

Ecologist 1 August 2011

GM crops ten years on: Hope, hype and reality

Ian Scoones *ESRC* 26 January 2011

Global Status of Commercialized Biotech/GM Crops: 2010

ISAAA 2010

Can genetically modified crops save the world?

Battle of Ideas 1 November 2008

Ask the expert: GM crops

Financial Times 3 July 2008

ESRC: What farmers think about GM crops

Politics.co.uk 25 February 2008

Introduction: GM Organisms

New Scientist 4 September 2006

Genetically Modified Foods: Harmful or Helpful?

Deborah B Whitman *ProQuest* April 2000

Genetically Modified Foods

Santa Fe Institute *Fora.tv*

Who benefits from GM crops?

Friends of the Earth

GM crops: good or bad?

Sue Mayer & Andy Stirling *Nature*

GM Foods: The Health Effects

The Soil Association

Genetically modified crops: the ethical and social issues

Nuffield Council on Bioethics

5 of 6

NOTES



RECOMMENDS:

‘Solyent Green’ (15), 1973

‘Food Inc’ (PG), 2008

Find out more about our partnership with the education charity FILMCLUB, how you can bring the power of films into your school debates, and this autumn’s recommendations from the FILMCLUB team for Debating Matters!

ORGANISATIONS

Cropgen

Friends of the Earth

Gene Watch

GM Freeze

Golden Rice

International Service for the Acquisition of Agri-biotech Applications (ISAAA)

John Innes Centre

Monsanto

Soil Association



IN THE NEWS

U.S. farmers grow world's first ethanol producing GM corn used to fill gas tanks

Daily Mail 16 August 2011

Foreign aid could fund UK-based research into GM crops that can grow in drought-ridden Africa

Farming UK 16 August 2011

GM food needed to avert global crisis says Government adviser

Telegraph 3 August 2011

Report advocates GM crops in food supply measures

Independent 24 January 2011

Food prices could double without GM foods, scientists warn

Telegraph 24 January 2011

It pays not to cultivate GM crops, survey finds

Independent 8 October 2010

GM crops hold key to our future food supply, says Benn

Evening Standard 10 August 2010

EU to let states rule on GM crops

BBC News 13 July 2010

Gates backs GM crops: tech must help farmers, feed rising population

Indian Express 16 May 2010

GM potato cleared for EU farming

BBC News 2 March 2010

GM crops must be grown in Britain, Royal Society says

Telegraph 21 October 2009

GM crops being grown in Britain

Telegraph 27 July 2009

Scientists condemn 'ill-informed, negative' Prince over GM crops warning

The Times 14 August 2008

Europe warms to GM crops as possible solution to food crisis

Independent 21 June 2008

GM crops not the answer campaigners warn

Telegraph 19 June 2008

Government wants GM crops debate

BBC News 19 June 2008

Worldwide increase in GM crops, report shows

Guardian 13 February 2008

GM fears as human liver gene is put into rice

Telegraph 25 April 2005

6 of 6

NOTES



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- I am a sixth form student and would like further details about events in my area
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- I am interested in sponsoring/supporting Debating Matters
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Professional role
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IAN GRANT, CEO, BRITANNICA

