

The EU's Biotechnology Strategy: mid-term review or mid-life crisis?

A scoping study on how European agricultural biotechnology will fail the Lisbon objectives and on the socio-economic benefits of ecologically compatible farming

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Executive Summary

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“By keeping Europe at the cutting edge of biotechnology research, we will also contribute to the more general goals of creating more highly-qualified and well-paid jobs, boost economic growth and improve our terms-of-trade.”

Gunter Verheugen, European Commission Vice President,
Press release, 2005

“Statistics on biotechnology employment cannot be obtained from official sources [...] because standardised data collection is not available for this industry that stretches across several industrial sectors. Some data is available, but mainly categorised in employment per Member State, not per biotechnology sector (white, green and red), which is a less than precise definition.”

Gunter Verheugen, European Commission Vice President,
written response to parliamentary question, 2006

In 2000, the EU announced that it was to become “the most competitive and dynamic knowledge-based region in the world” based on the realization that “economic growth, social cohesion and environmental protection must go hand in hand.”^a These objectives formed the basis of the Lisbon Agenda that all European Heads of State and Governments signed up to.

Biotechnology was identified as an important new technology that could contribute to achieving the Lisbon Agenda goals. At the end of the 90s, the European Commission and other agribiotech proponents believed that the greatest economic and employment impacts of biotechnology were likely to occur in the agro-food production chain, and that investments in the sector would lead to millions of jobs being created in Europe. A Biotech Strategy for the European Union was adopted in 2002, setting objectives for the development of all biotechnology sectors, including ‘green’ or agricultural/food biotechnology. This Strategy is being reviewed in 2007 and new targets will be set for the development of biotechnology in Europe.

Field of wheat.



This report, based on industry and government figures, finds that agricultural biotechnology, including the development of GM crops and foods, has failed to live up to expectations and has failed to deliver on the Lisbon Agenda:

- **It looks at how policies on biotechnology have been created by a European political climate under pressure to ensure job creation and competitiveness and how this is masking the reality of poor agri biotechnology performance.**
- **It exposes the discrepancy between the European Commission’s promises on how agricultural biotechnology will achieve economic growth and the lack of data to back up these claims.**
- **It analyses how political and economic decisions that approach biotechnology as one homogeneous sector rather than clearly segmenting it into its different types, is resulting in confused and economically unjustified policies supporting the development of GM crops and foods.**
- **It assesses EU research funding priorities and shows how the political push for agricultural biotechnology is side-lining agri-environmental farming sectors that are already delivering and that show further economic potential. Twenty five years of EU public research have resulted in just 2 types of GM crops being commercialized (herbicide resistance and insecticide tolerance).**
- **It finds that even in the US, which has a different regulatory framework and public awareness than in the EU, the agribiotech sector’s performance is poor. Consolidation is hindering market competition and only two traits are being grown to any extent despite US Department of Agriculture approval for 70 distinct biotech ‘events’ for commercial use.**
- **It addresses the technical and financial risks involved in GM farming due to GMO contamination. Recently, US long grain rice contaminated with GMOs has been found in 17 EU countries, and has resulted in rice prices at nearly 65% below the level forecast by the trend of prices prior to the contamination incident.^b US rice farmers are now suing the producer, biotech corporation Bayer.**

The report concludes that whilst there may be great expectations of agricultural biotechnology, there have been even greater disappointments. A comparison of the economic performance of food biotechnology with research results from studies into agri-environmental measures indicate that the EU is promoting the application of a technology that is not contributing to competitiveness whilst sectors that show potential are not only not being prioritized, but are put in jeopardy by the risk of genetic contamination by GMOs.

a European Council of Ministers. Presidency Conclusions, Stockholm European Council, 23 And 24 March 2001. http://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressData/en/ec/00100-r1.%20ann-r1.en1.html

b “Rice Industry in Crisis”, Greenpeace, January 2007

Industry competitiveness

Food Biotechnology

- Agribiotech business revenues in the EU are on the decline, public offerings are irrelevant, venture capital investment is minimal, and companies are relocating abroad or shifting to more profitable areas, such as therapeutics.
- Both in the EU and in the US, agribiotech companies received less than 1% of the venture capital with the lion's share going to human healthcare and diagnostics.

Agri-environment measures and organic farming

- Agri-environmental measures show increased profitability for farmers compared to conventional farming
- Demand for organic products is growing at double digit rates in many EU countries and outstripping supply
- Amount of organic farmland in Africa, Asia and Latin America showing triple digit growth since 2000
- Major food companies have launched or acquired organic brands

Market diversity and innovation

- Acquisitions and mergers have led to just six corporations (Monsanto, DuPont, Bayer CropScience, Syngenta BASF and Dow) dominating GM crop and seed production. This is squeezing out competitors, neglecting smaller markets and decreasing knowledge production.

- Rapid increase in organic holdings in the EU is being accompanied by similar growth in organic processors and importers
- Organic farms, especially those where processing and retailing is managed on the farm, are showing quantifiable increased social cohesion of rural communities and stimulation of local economies.

Impact of products

- Only two GM traits have been used on any significant commercial scale. This includes the US where 70 distinct GMO 'events' have been authorized for commercial growing.
- Problems are emerging such as increased tolerance to the GM-crops' herbicides, requiring increased levels of chemical applications.
- There have been considerable costs to both the GM and the non-GM food chain associated with GM contamination. The European Commission considers GMO contamination a serious problem. In the US, GM rice contamination has caused the rice market to plummet and US farmers suing the biotech producer, Bayer, for loss of market.

- Research shows that organic production
 - has comparable yields to conventional farming
 - uses 30% less energy
 - uses less water
 - uses virtually no pesticides

Job creation

- There are only 96 500 jobs in biotechnology in Europe of which 80% are in the health sector.
- Lack of a profitable market has caused the industry to reorganise its workforce. Cuts have been made in order to meet overall profit targets. The result has been a loss of thousands of jobs in Europe over just a few years.

- Figures from the European Commission and university research indicate that agri-environmental initiatives, including organic farming show job creation including amongst young people.
- The organic market is growing: the EU public and more affluent markets in general are showing increased demand for organic produce which is outstripping supply.

GM crops: 25 years of EU research, only two traits

A conservative figure for spending on GMO food research is 400 million euro for the period 1982-2007 with an average of 80 million euro per year (excluding applications like biofuels and pharma crops). This does not take funding by individual member states into account which was for example 47 million euro and 61 million euro for the UK and Germany in 2001 alone.

- There is no evidence of revolutionary developments in the foreseeable future – technical and market constraints restrict progress. The European Commission however funds a Technology Platform on plant biotech which is calling for 45 billion euro for agricultural biotechnology by 2015 *"if Europe is to remain competitive."*

Initially funded only through private research institutes, public funding for agri-environmental initiatives has increased in recent years although it remains marginalized. The European Environment Agency recently called for more funding into such initiatives. However, the European Commission's DG research has refused to fund a Technology Platform on organics, and the recently adopted EU Framework Programme 7, worth 50 billion euro, has selected biotechnology in food and agriculture as as a key thematic area.

Executive Summary/Glossary

Recommendations:

1. Mid Term Review of the EU Biotech Strategy should include failure of GM food and crops

- > The revised EU Biotech Strategy should **segment the different biotechnology sectors (green, white, red)** and assess each one according to its strengths and weaknesses. This should also be done in other policy and legislative processes.
- > Member States and the Commission should work together to ensure biotechnology **sector-specific data**
- > The Mid Term Review should take **current market reality** into account when deciding actions for food biotechnology. The views of EU citizens, policies of major retailers, and the right to GMfree food and farming must be unconditionally respected. On public opinion, the revised strategy must acknowledge that EU citizens have now been consistently opposed to genetically modified food and crops for ten years.
- > Based on the evidence from research, including government and industry figures, the revised EU biotech strategy **must acknowledge the failure of genetically modified food and crops and therefore exclude this sector when fixing new targets**
- > The European Commission should carry out a **policy-specific audit** of EU agri biotechnology policies and research funding

2. EU research priorities and funding should focus on agri-environmental sectors

- > The EU's framework programme 7 (FP7) should **de-prioritise its theme on biotechnology and food.**
- > **Future research priorities**, including under FP7, on competitive agriculture and food sectors should increase focus on the potential, and challenges, shown by **agri-environmental sectors**, including organic farming.
- > **Greater priority should be given to DG Research "Science in society" initiatives**
- > **A Technology Platform** on organic farming should be funded by the European Commission
- > EU funding under FP7 should be made available to develop an **EU research project on the socio-economic impacts of agri-environmental farming in EU member states.** Such a study should include stakeholder participation from the very beginning of the study and should be carried out by an independent body, such as the European Environment Agency.

3. Increased political support for agri-environmental measures, and indicators in all policies to ensure all Lisbon agenda goals are met

- > **Binding commitments and increased funding** for the Common Agricultural Policy (CAP) Pillar 2 must be adopted and implemented by all Member States, when the CAP is reformed in 2008, as agreed in 2003, and as proposed by the European Commission for the Financial Perspectives 2007-2013.
- > **Quantifiable commitments** to achieving the socio economic and environmental goals of the Lisbon Agenda must be made in EU Industry Policy
- > Members of all Commission **Advisory Groups** covering food and agriculture must be made public

BBSRC	Biotechnology and Biological Sciences Research Council
BRC	British Retail Consortium
CAP	Common Agricultural Policy
CBAG	Competitiveness in Biotechnology Advisory Group
DG Research	The European Commission's Research directorate
EU	European Union
GFP	Good Farming Practice
GM	Genetically Modified
GMO	Genetically Modified Organism
JRC	Joint Research Centre of the European Commission's Research Directorate
IFS	Integrated Farming System
ISAAA	The International Service for the Acquisition of Agri-Biotech Applications
M&A	Merges and Aquisitions
R&D	Research and Development
RDR	Rural Development Regulation
UAA	Utilised Agricultural Area
UK	United Kingdom
UUA	Utilised Agricultural Area of the European Union
US	United States

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