



PG Economics Limited

Wessex Barn Frampton Dorchester Dorset DT2 9NB UK

Tel: +44 (0)1300 321501 Fax/Voicemail: +44 (0)1300 321502

GM Crops in Europe – reality or myth?

A critical and forward looking examination of the market and economic issues affecting adoption and use

These questions and other answered in depth:

- *What (and how much) GM crops and commodities are currently being grown and utilised in Europe?*
- *What GM crops are in the pipeline for regulatory approval and availability to the European farmer and when will they be introduced?*
- *Will farmers adopt GM crops and what are the factors affecting this decision?*
- *How will the new labelling and traceability rules affect the marketplace?*
- *How will the markets for non GM derived products develop?*
- *Is co-existence of GM and non GM crops a real economic issue or not?*
- *What will be the balance between GM and non GM derived markets and crop plantings?*
- *Who will be the winners and losers?*

Economic & Technology Consultants to the Agricultural, Food and Biotechnology Industries

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Table of contents

Rationale for the report	3
Objectives.....	3
Contents of the report.....	4
Part 1: European GM arable crop technology	4
Part 2: The regulatory environment.....	4
Part 3: The economic/market impact affecting adoption.....	4
Part 4: Non GM derived crop product markets in Europe.....	4
Part 5: Will we see significant GM crop penetration in Europe?.....	5
PG Economics - the authors	5
Order and enquiry form – E-mail or FAX 44 (0)1303 840959.....	6

Rationale for the report

Now in their ninth year since commercialisation in North America, GM crops continue to be planted on an ever increasing global area. Yet in the European Union, the area planted to GM crops is negligible, a moratorium on the regulatory approval process for the use and planting of these crops has existed for about five years and many people in the EU perceive that there is little current or future demand for GM crops and their derivatives.

As 2004 begins, EU legislation designed to address concerns expressed by some citizens about the growing and use of GM crops, and approved in 2003, becomes applicable. New rules governing the safety approval of field trials and the growing of GM crops (Directive 2001/18/EC) came into force in late 2003 and new legislation relating to the labelling and traceability of GM crops and products becomes applicable in April 2004. In addition, guidelines on the co-existence of GM and non GM crops have been issued by the EU Commission and rules relating to the labelling and adventitious presence of GMOs in non GM seed are expected to be agreed across Europe in 2004.

This legislation should lead to the better functioning of markets and pave the way for European farmers and supply chain users to critically examine the merits of adoption and use of GM crops. The European consumer will also be in a position to differentiate and purchase food and food products containing GM ingredients.

Our approach will be to assess the impact of the various pieces of legislation together with the various market and economic factors that will now ultimately determine uptake of GM crops in Europe. We will consider the respective merits of GM crops and non GM crops (to farmers, processors and users, including consumers) and, give an objective and balanced assessment of the likely future adoption levels of GM crops in Europe over the next ten years.

The report will support decision-making/strategic planning and provide a central resource on the key issues, the products in development, the timetables, the potential impacts and adoption. The report will be researched and written by PG Economics and follows on from a wide range of reports and papers on GM crops and associated issues undertaken by PG Economics, including the development of non GM and GM markets, the farm level impact of various GM crops and co-existence issues.

Objectives

PG Economics is publishing this report to provide GM technology providers, input suppliers, the animal feed industries, farmers, oilseed crushers, food manufacturers, slaughterers/processors, distributors, traders, retailers, consumer groups and lobby groups with objective and sound analysis of the economic and market dynamics that are developing and will shape the future adoption of GM crops in Europe.

The report provides insights into the developing economic and commercial reasons affecting the likely availability and adoption of GM technology in European agriculture. This will assist the planning and communication of business strategies in global, European and national agricultural and food markets. Core strategic market information on arable crop-specific biotechnology will be presented and specific economic, market and strategic issues will be analysed.

Contents of the report

Part 1: European GM arable crop technology

A current and updated description of the status of GM crops under development including profiles on; the major players, research organisations, European trials and pipeline products. This will focus on agronomic traits like pest/disease resistance, herbicide tolerance and novel hybrids, as well as, input traits like starch, oil, protein quality and content. The objective of this section will be to build up a picture which demonstrates the current and future direction of GM crops for European agriculture and will focus on:

- What GM crops are currently being grown in Europe, including areas planted?
- What GM crops are under development for the European grower and when will they be introduced?
- What GM crops and commodities are being imported into Europe and what can be anticipated in the future?

Part 2: The regulatory environment

An overview of the key regulations/rules affecting the commercialisation of GM crops in Europe. This will include:

- Deliberate Release Directive 2001/18/EC
- Seeds Directive (presence of GM seeds in seed of conventional varieties)
- Regulations on GM food and feed labelling and regulation on traceability of GMOs and products derived from them
- Guidelines on co-existence, economic liability and the position of organic produce vis a vis adventitious presence of GM material
- Details of GM traits currently in the regulatory approval process

Part 3: The economic/market impact affecting adoption

An *objective* presentation and assessment of the actual and/or likely farm level impact of the technology on farm costs, revenues and pesticide use for a selection of crops/traits (maize, oilseed rape and sugar). This part of the report will focus on:

- The impact of the technology on production costs, husbandry practices, revenues and income
- Effects on pesticide use and other impacts (eg, on labour and fuel use)
- Impact of possible GM crop stewardship conditions and co-existence issues

Part 4: Non GM derived crop product markets in Europe

An updated and current examination of market developments including:

- Existing markets and sizes (GM and non GM) in food, feed and industrial markets
- Key features: price differentials, tolerances and where in the supply chain the cost is borne
- The future: products/sectors, market sizes, price differentials, price signals to farmers

Part 5: Will we see significant GM crop penetration in Europe?

A forward-looking assessment of GM crops in Europe. This will be based on a number of scenarios for the development of key factors affecting take-up of the technology, such as levels of consumer acceptance, price differentials, marketing and labelling policies of leading food sector players, costs of meeting GM crop use compliance conditions. It will cover:

- Likely dates for commercial availability of seed for farmers by main arable crops
- Forecasts of penetration of GM traits by main arable crops in five and ten years time (areas planted)
- Aggregated impact on farm incomes and pesticide use
- The winners and losers in the European marketplace

PG Economics - the authors

The report has been principally researched and written by two of the directors of PG Economics:

Graham Brookes: An economist who has 17 years experience of providing economic/market analysis & consulting services. He has in-depth knowledge of the markets and supply chain developments in many sectors including cereals, oilseeds and processed product derivatives (eg, animal feed, oils, meals/proteins). He has considerable experience and understanding of technology change issues, policy issues and impact on markets, especially relating to European Community Agricultural/Rural policy and the WTO. He has recently written papers on market dynamics for biotech verses non-biotech products, GMO identity preservation and segregation system economics, the possible farm level impact of GM crops in the UK, co-existence of GM and non GM crops and is author of the only detailed examinations of the farm level impact of commercially grown GM crops in Europe – insect resistant maize in Spain and herbicide tolerant soybeans in Romania.

Peter Barfoot: An agricultural economist with 18 years experience in the agricultural biotechnology industry and consultancy. Peter previously worked at the Agricultural Genetics Company for 12 years in project management, business planning and development. He has a good understanding of technology and its application in agricultural and food markets. He has undertaken many market research projects on the market development and exploitation of agricultural biotechnology over the last 5 years. He has recently undertaken research on potential new GMO product development in a range of crops including soybeans, oilseed rape, wheat, barley, maize and rice. He has also undertaken work on the possible farm level impact of GM crops in the UK and the co-existence of GM and non GM crops.

Recent reports published:

- ✓ Co-existence of GM and non GM crops in the UK
- ✓ Co-existence of GM and non GM crops: case study of maize grown in Spain
- ✓ Consultancy support for the analysis of the impact of GM crops on UK farm profitability
- ✓ GM Crops in Europe – planning for the end of the moratorium
- ✓ GM Rice: will this lead the way for global acceptance of GM crop technology?
- ✓ Co-existence of GM and non GM crops: economic and market perspectives
- ✓ Farm level impact of herbicide tolerant soybeans in Romania
- ✓ Farm level impact of Bt maize in Spain

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This report will be published by the end of March 2004 and can be purchased for £995. Pre-publication orders received before the 12 February 2004 are offered at a 15% discount - £845. An Acrobat (electronic) version is also available for those wishing to make the report available to multiple users within their organisation: price £3,000 (£2,550 if ordered by 12 February 2002).

Order can also be placed on-line at www.bioportfolio.com/pgeconomics/ or by completing the form below and e-mailing, faxing or posting to PG Economics Ltd.

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For additional information please contact either Peter Barfoot or Graham Brookes, Directors of PG Economics Ltd, Wessex Barn, Dorchester Road, Frampton, Dorset, DT2 9NB.

We can be contacted by email, telephone or fax:

Peter Barfoot, peter.barfoot@bioportfolio.com Tel: +44 1300 321501 Fax: +44 1300 321502

Graham Brookes, graham.brookes@btinternet.com Tel: +44 1303 840958 Fax: +44 1303 840959