

GETTING BACK ON TRACK

Industry's responses to challenges and societal expectations

20

A host of challenges

The biotechnology industry has faced a range of political, regulatory and public acceptance challenges in recent times. Most of these have come from Europe, which contrasts strongly with countries in North and South America, in particular, which have had high adoption of genetically modified (GM) crops in the past 10–15 years. With GM cotton, the same is true for Australia, Burkina Faso, China and India.

On a global scale, biotechnology is the most rapidly increasing crop technology in the history of agriculture and an integral part of modern farming, with more than half of all GM crops being grown in developing countries since 2012. What has happened in Europe to keep it out of step with – and lagging behind – its global agricultural competitors?

Food is an emotive area

Food advertisers like to stress traditional imagery: the family farm, happy children eating a wholesome breakfast, fresh ingredients ripening in the sun and so on. The general public sees little of the everyday reality of harvesting, producing or processing its food because this would detract from the wholesome, happy vision.

Today's public therefore knows little about modern farming and food production methods, especially people living in richer nations, where the majority are concentrated in urban areas. The whole idea of using modern technology to improve food is alien, and we tend to fear the unknown. Generally, the more we know, the more open we are to innovation.

Cultural traditions also influence attitudes. The population of northern Europe tends to favour agricultural innovation more than those living around the Mediterranean. Take, for instance, the contrast between France and the Netherlands. France is a vast, agriculturally rich expanse producing many desirable foods that are usually marketed as natural or traditionally produced. The Netherlands, on the other hand, is small and densely populated, with a history of being open to new techniques in high-technology greenhouses, hydroponics crops in nutrient solutions, computer-controlled animal feeding systems, animal breeding and so on.

KEY THEMES

- Interest groups opposing genetic modification.
- Poor decision making.
- Misinformation.
- Strategies to overcome hostility.
- Nine lessons learned by industry.

A 2012 UK survey by LEAF (Linking Environment And Farming) found that fewer than half of those surveyed correctly identified butter as coming from cows.



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Unsurprisingly, there is widespread aversion to biotechnology in France, while in the Netherlands there is far more support – a direct function of their differing cultural backgrounds and geographic realities.

The scientific ignorance of politicians

Politicians and policy makers can also hinder the acceptance and adoption of biotechnology through their limited understanding of the basic science that underlies it. Few have a scientific background, which means that managing the rules governing the technology or speaking publicly about it is very challenging.

Linked closely to this shortcoming in politicians is the political climate in which biotechnology entered the public arena. People at large lost faith in the ability of the authorities to be honest about scientific issues and protect their health in the wake of “mad cow” disease – bovine spongiform encephalopathy (BSE) – which was first confirmed in 1986. Initially, politicians and scientists alike assured the public that feeding meal made from processed animal parts to herbivorous animals was perfectly safe. But they were proven wrong not just by BSE infection in cattle, but by the emergence of a human variant of the disease a few years later – in 1994. These crucial events shaping public perception of science and politicians in Europe were rapidly followed by the introduction of GM crops.

Genetic modification played absolutely no part in the appearance of “mad cow” disease, but the two became linked in the minds of the public, fuelling fears that modern food production methods could not be trusted.



Some politicians have also played politics with GM to gain advantage. During terrible droughts and famines in Africa, for example, the Zambian president said that his countryfolk would rather starve than eat GM “poison”, and rejected food aid from the USA containing GM maize – which had also been claimed to make men sterile. Many European ministers, past and present, still openly attack the safety of the new technology despite thousands of safety assessments and almost two decades of use with no demonstrable adverse health or environmental effects or incidents.

Interest groups

A number of interest groups openly – and not so openly – have reason to manipulate attitudes to biotechnology.

- Food manufacturers and retailers have a variety of attitudes. In most of the Americas there is widespread acceptance and use of GM foods while in Europe there is considerable reluctance. Public resistance and fear of being targeted by campaign groups are probably to blame.
- The main international traders of commodity products may not be opposed to GM products *per se*, but they have a problem. They have to separate out

GM and non-GM supply chains, which complicates their operations and makes them much more costly. In addition, supply and liability problems can occur because a given GM variety may be approved in one jurisdiction but not in another.

- Many organic farming movements oppose GM for both ideological and economic reasons. On the ideological side, it is thought of as unnatural and therefore hostile to organic principles. Economically, the argument is that GM methods are incompatible with organic practices due to possible cross-fertilisation of crops in bordering fields. Ironically, it might well be that since GM production allows for reduced pesticide use, making output cheaper and less polluting than its organic counterparts, it could even be less environmentally damaging. Traditional Bordeaux mixture, for example, composed of copper sulphate and lime, is frequently used in organic farming as a fungicide even though its run-off into streams and rivers is toxic to wildlife.
- Some international development groups are opposed to GM production methods because they fear that they could disempower farmers and so impede development. Others, including leading charities such as the Bill and Melinda Gates Foundation and Oxfam, lend their support to the new technologies.
- Adding to the general uncertainty, countries with large-scale food production compete with other regions cultivating GM products – which is why there has been a race in the Americas to reduce approval time for new crops.

Unsatisfactory decision making

A major challenge facing the biotech industry is the current state of decision-making systems, which tend to be politicised, dysfunctional or plain non-existent.

In some countries there are simply no legal or technical processes in place for assessing and approving the new technologies, or for allowing field trials. They may have been set up in the past but now lack the financial resources or trained personnel to maintain them. Other countries may have the legal or technical processes but these are just dysfunctional – for example, most Directorates-General of the European Commission do support GM, and it is in the European Council representing the Member States and European Parliament that discord and delay occur.

Most problematic, however, are countries or regions where decision making has been politicised – and the EU is no exception. Here, the approach to approving products is, in theory, science-based. In reality it is not, for three reasons:



There is ample evidence from international experts and local farmers that modern biotechnology aids development and drives more predictable and sustainable food production.

- First, the decision-making process sets independent scientific judgements on safety made by the European Food Safety Authority (EFSA) against the political views of national politicians who vote on that safety assessment before approving GM products. The result is a constant calling into question of the scientists' assessments about safety by some politicians, thereby undermining public trust in the science.
- Second, the EU system makes a distinction between approving products for import and those for cultivation. Products for import are regularly approved because they are grown in major commodity-growing countries that export to the EU. However, they are not approved for cultivation. So, Europeans are importing GM produce for both human and animal consumption, but are not allowed to benefit from growing it on European soil.
- Third, the EU has a threshold level above which products with GM content must be labelled. However, Europeans indirectly consume, through animal feed, more than 30 million tonnes of GM protein every year in the form of unlabelled meat, eggs, milk and other animal products whether they recognise it or not. That is the equivalent of 60 kilos of GM product per year for every one of the 733 million European consumers, of which 505 million are in the EU.

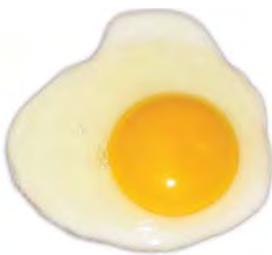
The role of misinformation

Some – but not all – of the interest groups opposed to GM have been highly successful in injecting biased information into the public domain. Wild claims and scare stories about GM crops have been promoted over the years since their introduction. But none of these has come true. According to a report by the European Commission in 2010 on *A Decade of EU-Funded GMO Research*, studies of more than 2 trillion GM food meals eaten show no negative effects on health or the environment. Biotech crops have an excellent record.

The claims by anti-GM groups that Europeans are opposed to GM food and crops are often based on incorrect interpretations of opinion polls. The polls themselves can be misleading too. They might, for example, ask people to state how worried they are about GM or to say whether they agree or disagree with statements such as “GM food is unnatural”. These kinds of questions effectively prompt answers in a pre-determined direction.

A more open-ended approach can elicit a different response. One of the questions in a 2010 Eurobarometer survey, instead of asking “How worried are you by...”, simply

Despite reluctance to accept genetically modified foods, the average European consumes 60 kilos of meat, eggs, milk and other products from animals raised on genetically modified fodder every year.



David Benbenick/PD

asked people to say what things come to mind when thinking about possible problems or risks associated with food. In this case, only 8 per cent of Europeans spontaneously identified worries about GM.

Members of the mainstream media, too, admit that they may have made mistakes in their coverage of GM issues. Early on they were quick to publicise claims by anti-GM groups, casting them in the role of David versus the Goliath of big business dominating our food chain – thereby acting as consumer champions. But now, those same journalists – many of whom lack scientific training – have wondered whether they were too ready to take sides in what was, and still is, an attractive media controversy.

Some governments have also injected questionable information into the public arena. The Ministry of Health of one European government joined with Greenpeace and organised a press conference to present new research claiming possible health damage from GM food. When the research was later shown to be deeply scientifically flawed, the ministry had to publicly retract it.

The cost of regulatory compliance

It takes a great deal of time and money to develop GM crops, from initial discovery to final authorisation and planting. A new biotech trait can take over three years to obtain regulatory approval and cost as much as € 140 million to introduce.

There is also pressure between different regulatory systems. In 2011, Argentina announced that it intended to reduce the time required for product approval, followed in 2012 by the USA saying that it was going to introduce efficiencies to halve the time needed.

The challenge posed by the cost and complexity of the EU's regulatory system for GM crops should, given lack of evidence of harm to people or the environment, lead to a system based on that evidence.

How has industry dealt with these challenges? To combat the factors impeding the progress of new biotechnologies in Europe, a range of strategies has been deployed.

Proactive communications

The biotech industry initially thought that the European public's hostility to GM in the mid-1990s stemmed from a misunderstanding of the science behind the new products and technology. This was wrong. Public opinion was shaped by a more



Argentina and the USA are working to simplify and shorten the regulatory process for new genetically modified food crops.

complex combination of lack of scientific knowledge, lack of trust in science and policy makers, and a romantic if misconceived view of food production. In other words, the public's attitude was moulded not so much by science as by feelings and emotions.

The core of the debate was fear of science and its manipulation of nature. Industry should have been focusing on this subjective element rather than trying to communicate how safe, and how like existing products, the new GM products were. No amount of scientific information could dispel the worry created by words such as "Frankenfoods" used by GM's opponents. The fact that scientists seemed to be arguing among themselves did not help matters either, driving up levels of public confusion and anxiety.

After a poor start, industry rallied by embarking on a proactive, locally focused communications effort. Unfortunately, by then, the European approval system meant that no new products were available on which to have a meaningful discussion with the public. Meanwhile, mistrust remained about those products on which governments had imposed a moratorium. The only products that could be discussed were being grown elsewhere and could only be imported into Europe to feed animals, not humans.

Small wonder then that industry failed to gain the trust of Europeans who anyway had plenty of cheap food and could not see the need for GM alternatives. More recently, though, the debate has shifted. From trying unsuccessfully to communicate about the science of GM to a public with neither the time nor the interest to delve deeply into the technicalities, industry has moved the focus towards issues such as global responsibilities and freedom of choice. The dialogue today is less about getting safety approval for marketing new products and more about where, when, why and by whom such products are being used and the availability of choice between non-GM and GM foods.

In other words, discussions about GM now centre on the original reason for developing the new products and processes: to produce more and better food, and with fewer inputs, in order to meet the demands of the growing global population. Freedom, human rights and feeding the world fairly, especially people living in food and economic poverty in the developing world, are emotive topics that the public can understand and engage with. This has also resulted in a more balanced exchange of views within the media and among politicians.

Given that Europeans have access to plentiful, inexpensive food, it is not surprising that they remain largely unaware of the benefits that biotechnology can offer.



Better public affairs effort

In the 1980s, industrial GM organisations had a broad-brush, generalist approach to public affairs revolving around how they managed their relationships with various stakeholders to explain company policies, provide information and debate issues affecting their operations.

This did not work well. Industry began to realise that, with GM, it had to be far more focused in its communications efforts because each region has its own rules for governing the approval and marketing of GM products. Whereas North America, for example, makes assessments based on the product rather than on whether GM is used in the production process, Europe has a process-based approach. A country-by-country strategy is therefore essential.

Because GM commodities are traded globally, the different regulatory systems around the world should not impede the free movement of goods – as laid down by World Trade Organization rules. The industry's public affairs policies have to take this into account alongside its scientific discussions at the heart of the various approval systems around the world.

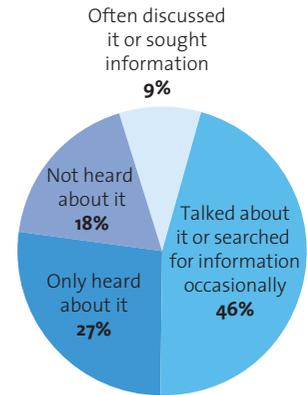
Summing up: lessons from experience

The biotechnology community has learned nine important lessons from its experience in facing the many challenges to GM over the years.

- 1 Risk assessment measures devised by politicians without a proper scientific basis do not contribute to improved safety or increased public trust.
- 2 The influence of anti-GM interests on the EU's decisions means that the rate of uptake of biotechnology is determined by regulatory systems rather than by the needs of farmers or the public, or even scientific progress.
- 3 Initially, the biotechnology community was ill-prepared for aggressive media campaigns and failed to counter them effectively. Misleading claims should be corrected immediately, as false myths are very difficult to dispel. The only way is through discussion about existing products, consistent safety and clear-cut benefits.
- 4 The public is not helped by discussions based on science: they need to focus on real, tangible products and benefits.
- 5 Many Europeans are reconsidering their previously negative position on GM crops and food. They are beginning to see them as an answer to hunger and malnutrition, helping the developing world raise production and counter rural poverty. Europeans are also realising that scaremongering claims are

Figure 20.1 Awareness of genetically modified food

EU 27, 2010



Source: European Commission, 2010

European attitudes to genetically modified food may change as people learn more about it.

overstated and that the rest of the world is adopting GM at a rapid rate, leaving the EU on the economic and development sidelines. In addition, they believe that GM crops could help solve environmental problems.

- 6 European consumers rely heavily on foreign produce to meet their food needs. But the countries from which the EU imports are becoming less and less sensitive to the non-GM preferences of some Europeans.
- 7 Most of the countries in the EU that oppose GM have a culture in which science and innovation are relatively undervalued.
- 8 Worldwide, farmers want to be able to cultivate GM crops because they benefit economically from them. When allowed to, they choose GM and stick with the technology.
- 9 Europe's foot-dragging over GM crops has slowed uptake of the technology in developing countries that follow or are influenced by the EU's example, especially in Africa.