

EU agbiotech controversy

What has been on trial?

Since the 1980s agbiotech (agricultural biotechnology) has been promoted as a symbol of European progress and political-economic integration. According to proponents, agbiotech provided a clean technology for enhancing eco-efficient agro-production; this would fulfil the beneficent promise of a European Biosociety, by analogy to the 'Information Society', likewise based on technological progress.



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By the early 1990s biotech further epitomised promises of a 'knowledge-based society', promoting capital-intensive innovation as essential for economic competitiveness and thus European prosperity. Through such efforts, Europe would become 'the most competitive and dynamic, knowledge-based economy in the world', declared the EU Council at its 2000 Lisbon summit.

By then, however, agbiotech was being turned into a symbol of anxiety about multiple threats: the food chain, agro-industrial methods, their inherent hazards, global market competition, state irresponsibility and political unaccountability through globalisation. By referring to various food scandals, especially the BSE crisis, 'GM food' was negatively associated with factory farming, its health hazards and unsustainable agriculture. Since the late 1990s the phrase 'GM-free' has become a common reference point for positive social identities; these link appeals to European cultural diversity, agro-food quality and democratic sovereignty.

An opposition movement grew by encompassing diverse issues, arenas and constituencies. New alliances linked agricultural, environmental, consumer and trade issues, thus going beyond the normal remit of individual NGOs. Expert bodies are generally limited to specialist scientists, but agbiotech critics successfully entered this arena by challenging official expert advice – for scientific ignorance, political bias and narrow accounts of environmental harm. Opposition strategies mobilised cultural resources across all relevant arenas – judicial, regulatory, expert, experimental and commercial.

The agbiotech controversy often gained large public audiences through the mass media, as well as active involvement of many civil society groups. They took up ideas from small activist groups as well as from high-profile campaigns of large NGOs. Together these activities had several roles: testing models of citizen roles and public representation, developing citizens' capacities to challenge official claims, creating civil society networks to which governments could be held accountable through various trials. These dynamics continuously expanded trials, defendants and arenas – what was put on trial, how, where and by whom.

Such trials arose along three overlapping themes – safety versus precaution, eco-efficiency versus agro-industrial hazards, and globalisation versus democratic sovereignty – as analysed in this article.

Safety claims versus precaution

Lab and field trials were intended to generate evidence of product safety, thus demonstrating a scientific basis for expert risk assessments, which in turn could justify commercial authorisation. Yet safety science became contentious. Expert safety claims underwent criticism for bias, ignorance and optimistic assumptions, leading to multiple trials.

When France led the EU-wide approval of Bt maize 176, its favourable risk assessment was widely criticised by member states as well as NGOs. When France further proposed to approve maize varieties derived from Bt 176 in 1998, Ecoropa and Greenpeace filed a challenge at the Conseil d'Etat, the French administrative high court, on several grounds – that the risks had not been properly assessed, that the correct administrative procedures had not been followed, and that the Precautionary Principle had not been properly applied. These NGO arguments gained some support in the court's interim ruling. Thus a government was judicially put on trial for failing to put a GM product on trial. When UK lab experiments found harm to rats from GM potatoes, the disclosure led to trials of other kinds. The project leader, Arpad Pusztai, questioned the safety of GM foods on a television programme. He was

soon dismissed from his post and was then subjected to character assassination by other scientists. His experimental methods were criticised by a Royal Society report. International networks of scientists took

opposite sides on that issue. NGOs put his employers and other critics symbolically on trial, by attributing their actions to political and commercial motives. The controversy reinforced consumer anxiety

about GM food, as well as retailers' efforts to exclude GM grain from their own-brand products. When a Swiss lab experiment found that an insecticidal Bt maize harmed a benefi-



cial insect (lacewing), expert authority was put on trial. Criticising the experiment, other scientists cast doubt on its methodological rigour and its relevance to commercial farming, as grounds to discount the results in the regulatory arena. In response, agbiotech critics reversed the accusation: they raised similar doubts about the rigour of routine experiments that had supposedly demonstrated safety. Potential harm to non-target insects remained a high-profile issue, attracting further research and expert disagreements. Citing scientific uncertainties, some regulatory authorities rejected Bt maize or demanded that its cultivation be subject to special monitoring at the commercial stage, thus further testing safety claims and monitoring protocols. In the latter two risk issues, surprising experimental results were deployed to challenge safety claims, optimistic assumptions and expert safety advice. Regulatory authorities were put symbolically on trial for failure to develop adequate scientific knowledge for risk assessment. When new evidence of risk was criticised for inadequate rigour or relevance to realistic commercial contexts, similar criticisms were raised against safety claims and their methodological basis.

For the safety assessment of GM food, EU regulatory procedures were eventually put on trial. After Italy banned several foods derived from GM maize, the Commission sought to lift the ban. In 2000 the Commission requested support from the EU regulatory committee of member states, thus putting Italy on trial by its peers. But they instead sided with the defendant, while criticising the regulatory short-cut for safety approval based on substantial equivalence. After this role-reversal, the Commission soon abandoned substantial equivalence as a basis for easier approval in the GM Food and Feed Regulation. This retreat opened up more methodological issues, scientific uncertainties and assessment criteria for expert deliberation; such judgments were kept on trial by member states as well as civil society groups.

Eco-efficiency versus agro-industrial hazards

Agbiotech began with a cornucopian promise, attributing beneficent properties to genetic modification. Thanks to precisely controlled genetic changes, GM crops would provide smart seeds, as ecoefficient tools for sustainably intensifying industrial agriculture. These promises were extended

by the 'Life Sciences' project, featuring mergers between agro-supply and pharmaceutical companies, in search of synergies between their R&D efforts. It promised health and environmental benefits as solutions to general societal problems. Critics turned agbiotech into a symbol of multiple threats; productive efficiency was pejoratively linked with agro-industrial hazards. Biotech companies were accused of turning consumers into human guinea pigs. In France, critics cast agbiotech as *malbouffe* (junk food), as threats to high-quality *produits du terroir*. In Italy GM crops were cast as agro-industrial competition and 'uncontrolled genetic contamination', threatening diverse, local quality agriculture. Using the term *Agrarfabriken* (factory farm), German critics linked agbiotech with intensive industrial methods, threatening human health, the environment and agro-ecological alternatives. Through these cultural meanings, agbiotech was put symbolically on trial as an unsustainable, dangerous, misguided path. Institutions faced greater pressure to test claims that GM crops would provide agro-environmental improvements as well as safety.

Those informal trials shaped conflicts over regulatory criteria from the mid-1990s onwards. When EU procedures initially evaluated GM crops for cultivation purposes, they were deemed safe by accepting the normal hazards of intensive monoculture; this normative stance was portrayed as a scientific judgement, while casting any criticism as irrelevant or political. Yet such hazards were being highlighted by critics, framing risks in successively broader ways. Their discourses emphasised three ominous metaphors: 'superweeds' leading to a genetic treadmill, thus aggravating the familiar pesticide treadmill; broad-spectrum herbicides inflicting 'sterility' upon farmland biodiversity; and pollen flow 'contaminating' non-GM crops.

These ominous metaphors expanded the charge-sheet of hazards for which GM products could be kept on trial. Moreover, these broader hazards would depend on the behaviour of agro-industrial operators, which consequently became a focus of prediction, discipline and testing. Regulatory procedures came under pressure to translate the extra hazards into risk assessments. In its risk assessment for GM herbicide-tolerant oilseed rape, Bayer claimed that farmers would eliminate any resulting herbicide-tolerant weeds, but Belgian experts

questioned the feasibility of such measures. Citing that advice, the Belgian national authority rejected the product, rather than invite a commercial-stage experiment for testing the extra hazards.

GM herbicide-tolerant crops had been promoted as means to reduce herbicide usage and thus to protect the environment. But UK critics portrayed more efficient weed-control as a hazard: broad-spectrum herbicides could readily extend the 'sterility' of greenhouses to the wider countryside, which would be turned into 'green concrete'. The UK government was denounced for ignoring the agro-environmental implications. The Environment Ministry eventually took responsibility and funded large-scale field experiments, where farmer behaviour was put on trial along with the GM crops. The experimental results led to a regulatory impasse for the GM crops that could have been approved. In those ways, putative societal benefits from agro-industrial efficiency were cast as threats and thus as extra accusations to be adjudicated. More generally, broader accounts of harm meant more uncertainties about whether GM crops could generate such harm in the agro-food chain. Uncertainties went beyond any testable characteristics of products per se, because the potential effects would depend upon operator practices. As a more cautious way forward, the commercial stage was anticipated as a real-world experiment, testing assumptions about human practices as well as their environmental effects.

Globalisation versus democratic sovereignty

Field trials were meant to demonstrate the agronomic efficacy and safety of GM crops, as well as the diligent responsibility of the authorities. But the fields were turned into theatrical stages for protest. They used an 'X' or biohazard symbol to cast agbiotech as pollutants and unknown dangers, thus justifying sabotage as environmental protection. When facing prosecution, they used the opportunity to put the state symbolically on trial for inadequately evaluating or controlling GM crops, and thus for political irresponsibility.

Agbiotech had been promoted as an essential response to global market competition, but critics represented agbiotech as a threat and agent of 'globalisation'. The originator of GM soya, Monsanto, was targeted as a global bully 'force-feeding us GM food'. Before the European Commission

approved GM soya in 1996, NGOs and some member states demanded mandatory labelling for all GM foods. However, this demand was rejected, with warnings that any such requirement would provoke a WTO case against the EU. On this basis, the no-labelling policy became vulnerable to attack as globalisation undermining consumer choice and democratic sovereignty. Pressure mounted from local protests at supermarkets, linked with labelling demands from Europe-wide consumer and environmentalist groups. By 1998 European retail chains adopted voluntary labelling of their own-brand products with GM ingredients. But different rules across EU member states, alongside NGO surveillance of GM material in food products, potentially destabilised the internal market. So the EU soon established more comprehensive, standard criteria for the EU-wide market. Thus a commercial trial undermined the original EU policy, which then changed along lines accommodating public demands. Activists appealed to democratic sovereignty when carrying out and defending sabotage actions. The UK government implied that decisions about GM crops lay elsewhere, beyond its political control; this claim was denounced as an irresponsible, undemocratic surrender to globalisation, thus legitimising sabotage. Further to the French example above, in 1998 the WTO approved higher US tariffs against several

specialty foods including Roquefort cheese, as compensation for lost exports of US beef. Paysans attacked MacDonalds as a symbol of WTO rules forcing the world to accept hazardous malbouffe such as hormone-treated beef and GM food. As defendants in court, the paysans sought to put 'globalisation' on trial, represented by the French government as well as biotech companies. Democratic sovereignty also became an explicit theme in judicial trials. When some EU member states blocked the authorisation procedure for new GM products from 1999 onwards, they were demanding precautionary reforms in EU rules. At the same time, their de facto EU moratorium was turned into a public symbol of sovereignty versus globalisation. Agbiotech opponents discursively linked the moratorium with attacks on GM crops and support for the paysan activist Jose Bové against his prosecution by the French authorities. When the US government brought a WTO case against the 'illegal moratorium' and national bans on GM products, the EU was formally put on trial. In its defence case, the Commission warned the WTO about its legitimacy problems, as extra reasons for the WTO to respect the sovereign right of governments to regulate products in a prudent manner. At national or regional level, democratic sovereignty became general grounds to legitimise measures or actions restricting GM products.

Conclusion

Agbiotech was turned into a symbol, object and catalyst for multiple overlapping trials. Beneficent claims were challenged along several lines: safety versus precaution, eco-efficiency versus agro-industrial hazards, and globalisation versus democratic sovereignty. Activists' accusations were taken up by large environmentalist and farmers' organisations, as well as by wider groups in civil society, acting as a pervasive mobile 'jury'. Through a cultural rationality, questioning the drivers and aims of an innovation, protest challenged the technical rationality of official risk assessment. The defendant symbolically on trial was expanded – from product safety, to biotech companies, their innovation trajectory, regulatory decision-making, expert advisors, government policy and its democratic legitimacy. Informal-symbolic trials shaped formal trials, as well as role-reversals between accused and accusers. In these ways, protest challenged the democratic legitimacy of a biotech-driven development pathway, while also creating greater scope for alternative pathways.

Acknowledgement

This article is drawn from the analysis in Les Levidow and Susan Carr, *GM Food on Trial: Testing European Democracy*. London: Routledge 2010. ■



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Gender & Technik-Forschung

Von der „Chancengleichheitsforschung“ zur empirisch-dekonstruktiven Geschlechterforschung

Die Geschichte der Gender & Technik-Forschung hat gezeigt, dass die hier zusammen gedachten Begriffe, Geschlecht und Technik, und ihr Verhältnis zueinander mehrfachen Prüfungen und Weiterentwicklungen unterzogen worden sind. Ausgehend von einer an Chancengleichheit orientierten Beschäftigung mit dem Thema haben sich Forschungsrichtungen entwickelt, die die gesellschaftlichen Voraussetzungen von Geschlecht und Technik untersuchen und damit das Ziel verfolgen, gesellschaftlich vorherrschende Bilder und Stereotypen zu destabilisieren.



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In ihrem Essay „A Room of One's Own“ (1929) entwarf die englische Schriftstellerin Virginia Woolf pionierhaft eine Programmatik für die Betrachtung des Verhältnisses zwischen Frauen und Literatur. Sie tat dies, indem sie zunächst einmal beide Begriffe, Frauen und Literatur, kritisch unter die Lupe nahm und das gängige Alltagsverständnis dieser Begriffe sowie eine naive Vorstellung vom Zusammenhang zwischen beiden hinterfragte. Auf diese Weise ist sie zu einer Zeit, in der es weder eine ausgefeilte feministische Theoriebildung noch eine Frauen- und Geschlechterforschung gab, naturalisierenden und essenzialisierenden Annahmen über Geschlecht und über das Kunstschaffen entgegen getreten. Für die Technikforschung aus Genderperspektive ist der Rückgriff auf eine vergleichbare Pionierin nicht so einfach. Doch lässt sich Woolfs Grundgedanke nahtlos auf die Beschäftigung mit dem Verhältnis „Frauen und Technik“ übertragen.

Befragung der Begriffe

Die folgende Beschäftigung mit diesem Thema ist daher in ähnlicher Weise eine Befragung der Begriffe selbst. Sie erzählt die Geschichte der kritischen Auseinandersetzung damit, was mit Frauen, mit Technik und mit dem Zusammenhang zwischen beiden genau gemeint ist. Eine Gender & Technik-Forschung ohne ein tieferes, reflexives Verständnis dieser Begriffskonstellation bleibt, das zeigt die Forschungslage, unterkomplex und tendiert dazu, vor-

handene Stereotypen zu reproduzieren. State of the Art ist heute die theoretische Grundauffassung, dass sowohl Geschlecht als auch Technik Ergebnis sozialer Herstellungsprozesse sind. Ebenso gilt, dass ihr Verhältnis in keiner Weise vorab, etwa naturhaft oder sachlogisch, festgelegt ist. Gender und Technik sind ko-konstruiert und bedingen sich wechselseitig (vgl. Wajcman 2000). Im Folgenden werde ich nun einige Forschungsrichtungen genauer aufschlüsseln, diskutieren und dabei Entwicklungstendenzen aufzeigen.

Chancengleichheit und Fachkräftemangel

Geschlechterforschung und Gleichstellungspolitik weisen zum gegenwärtigen Stand vor allem in Bezug auf die klassischen Ingenieurwissenschaften wie Elektrotechnik und Maschinenbau weitreichende Überschneidungen in ihren Erkenntnisinteressen und Handlungsorientierungen auf. Empirische Studien der Hochschul- und der Arbeitsmarktforschung diagnostizieren eine ungebrochene geschlechtliche Segregation, die dieses Berufsfeld bis heute prägt. Sie monieren entweder die „Zurückhaltung“ der jungen Frauen gegenüber der Technik, die mangelhaften Karrierechancen für Frauen in technischen Berufen oder einen andauernden gender pay gap. Die Technikwissenschaften erscheinen heute als nicht mehr ganz zeitgemäße „letzte Bastion“ einer Männerdomäne, deren geschlechterbezogene Stabilität auch angesichts fundamentalen soziotechnischen Wandels erklärungsbedürftig erscheint. Trotz insgesamt steigender Anteile weiblicher Studierender an der Gesamtzahl aller Studierenden in Deutschland und Österreich weisen Fachrichtungen wie Elektrotechnik, Maschinenbau und das jüngere Fach Informatik einen äußerst geringen Frauenanteil unter den Studierenden auf.¹ Insofern erscheint die technische Domäne geradezu als ein Bereich, an dem der erklärte Anspruch der Gegenwartsgesellschaft, Chancengleichheit zu gewähren, besonders augenfällig scheitert. Dies steht zugleich im Widerspruch zum immer wieder geäußerten eklatanten Mangel an qualifizierten technischen Fachkräften. Der geringe Frauenanteil in den Tech-