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## **COEXISTENCE OR CONTRADICTION? GM Crops versus Alternative Agricultures in Europe**

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### **Abstract**

Agricultural biotechnology (agbiotech) has intersected with a wider debate about ‘sustainable agriculture’, especially in Europe. Agbiotech was initially promoted as an alternative which would avoid or remedy past problems of intensive agriculture, but such claims were soon challenged. Agbiotech has extended the dominant agri-industrial paradigm, while critics have counterposed alternatives corresponding to an agrarian-based rural development paradigm. Amid controversy over environmental and health risks in the late 1990s, an extra issue emerged – the prospect that genetically modified (GM) material would become inadvertently mixed with non-GM crops. In response the European Commission developed a policy framework for ‘coexistence’ between GM, conventional and organic crops. This policy has aimed to ensure that farmers can freely choose among different production systems, which would develop side by side, yet specific proposals for coexistence rules favour some choices over others. Such rules have been contested according to different policy agendas, each promoting their model of future agriculture. Moreover, a Europe-wide network of regional authorities has promoted ‘GM-free zones’ as a territorial brand for green, localised, high-quality agri-food production, whose diverse qualities depend upon symbolic, immaterial characteristics. This alternative has been counterposed to the agri-industrial production of global commodities – symbolised by the European Union, especially its product authorisation procedure for the internal market. ‘Coexistence’ policy was intended to mediate policy conflicts over GM crops, yet it has become another arena for contending agricultural systems, which may not so readily co-exist in practice. Wherever an agrarian-based rural development paradigm gains local support, its alternative agricultures are in contradiction rather than coexistence with GM crops.

**Key words:** agricultural biotechnology, genetically modified (GM) crops, admixture, segregation, coexistence, sustainable agriculture, agricultural paradigms, European Union, European Commission

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- the RGS-IBG joint conference (Royal Geographical Society with The Institute of British Geographers), 31 August 2005 in London, at a day-long session on GMOs coordinated by Chris Cocklin and David Gibbs; and
- the European Conference on Political Research (ECPR), Budapest, 8-10 September 2005 in Budapest, at a day-long session on 'Food and Environment' coordinated by Maarten Hajer and Anne Loeber.

## **1 Introduction**

### *1.1 'Coexistence' as a policy issue*

Agricultural biotechnology has intersected with a wider debate about 'sustainable agriculture', alternative futures, food sovereignty and precaution (McAfee, 2003). Moreover, agbiotech has become a focus for wide-ranging societal discontents – about the aims of agricultural production, cultural accounts of 'the natural', and whether private interests can serve the public good (Bridge et al., 2003). Agbiotech was initially promoted as an alternative which would avoid or remedy past problems of intensive agriculture, but such claims were soon challenged, especially in Europe.

In the late 1990s agbiotech faced greater conflict there, featuring disagreements about what potential harm from GM crops should be prevented. Moreover, an extra issue emerged – the prospect that GM material would become inadvertently mixed with non-GM products. This 'admixture problem' generated further conflict about whether GM crops were simply a new production option or rather a threat to other agricultures: Would they be complementary or contradictory? Could all types of agriculture compete freely as alternative market choices for farmers and consumers?

To address the admixture problem, the European Commission developed a new policy framework for the 'coexistence' of GM with conventional and organic crops. This evokes the Cold War slogan, 'peaceful coexistence among nations of different political-economic systems', which aimed to avoid direct military conflict, though of course proxy wars proliferated throughout the Third World. By analogy, a European 'coexistence' policy sought to avoid or manage political-economic conflict over agbiotech.

This paper analyses 'coexistence' as a policy framework. It will discuss three questions: Why did the admixture issue become so contentious? How did 'coexistence' become an arena for wider conflict over possible agriculture futures? What role has the metaphor played in political-economic competition between them?

To answer those questions, the paper uses two main analytical perspectives: divergent paradigms of agri-food futures, and discursive framings of these issues. After introducing these perspectives, subsequent sections analyse conflicts over Euro-agricultural futures, agbiotech in particular, coexistence policy, national-regional rules and 'GM-free zones'. The Conclusion summarises links between divergent agri-food paradigms and conflicts over coexistence policy.

For information sources, the paper draws upon an EU-wide research project (see Acknowledgements section). At the EU and national level, the research through 2004 analysed numerous documents as a basis for semi-structured interviews with key policy actors, e.g. industry, NGOs and farmers organisations. Those sources were supplemented by reports of later developments from trade journals and relevant conference websites (e.g., AER, 2005, 2006; Austrian Presidency, 2006).

### *1.2 Research methods*

For its research methods and information sources, the paper draws upon an EU-wide research project (see Acknowledgements section). At the EU and national level, the research during 2002-04 analysed publicly available documents from government, industry, farmers' organisations and NGOs. Most documents dealt with regulatory issues in general; some

focused on segregation and coexistence. Although only a few are cited in the References, the documents also provided a basis for Table 2 of this paper.

The documents also provided a basis for semi-structured interviews with key policy actors from the same organisations. At the EU level, for example, interviewees included staff responsible for segregation issues at the European Commission, EuropaBio, COPA, FoEE and Greenpeace.

After our research project finished in 2004, the coexistence issue attracted greater public controversy and policy conflict. Information on these developments was obtained from trade journals which specialise in EU-level regulatory issues in the agriculture sector (e.g. *Agra Europe*, *AgraFood Biotech*, *Food Chemical News*). Conferences on coexistence brought together more stakeholders into ‘GM-free’ coalitions and highlighted disagreements among policymakers, so the conference websites provided a key information source (e.g., FFA, 2005; AER, 2005, 2006; Austrian Presidency, 2006).

## **2 Framing agri-food paradigms: analytical perspectives**

Since the 1990s agri-food systems have developed an ‘economy of quality’, by analogy to the viniculture system of *appellation d’origine contrôlée*. This economic model differentiates among qualities rather than increasing productive efficiency. Such innovations valorise diverse qualities whose market value has a symbolic, immaterial character – dependent upon consumer satisfaction and vulnerable to reputational crises (Allaire, 2002: 172-176).

Alternative food networks have arisen in response to the European crisis of conventional intensive, productivist agriculture, as well as from consumer demands for more varied, distinctive ‘quality’ food products. Short food-supply chains have linked producers more closely with consumers. In this way, products can gain market value and allocate this to primary producers, while promoting an agrarian-based rural development (Renting et al., 2003). As broader means to connect producers with distant consumers, quality supply chains develop ‘spatially extended networks, which are selling brands, labels and seriously commodifying their culinary repertoires’ (Marsden, 2004: 138-39).

These developments can be analysed as ‘alternative geographies of food production’ (Whatmore and Thorne, 1997). Their success depends upon political alliances between farming and other interest groups in the agri-food chain, as well as with consumer and environmentalist interests around issues of food quality, safety and ecology. Such alliances have challenged the industrial-productivist policy consensus (Whatmore, 1994: 59-60).

Alternative agricultures also involve new links between quality, nature and the embeddedness of supply chains in local ecological conditions. These links warrant critical evaluation: ‘we should not be fooled into thinking of localness, naturalness, and embeddedness as sufficient in themselves; rather, we must show how these qualities come to be asserted and negotiated in food supply chains’, argue Murdoch et al. (2000: 122). For example, agronomic changes can mean farming more economically, by using on-farm resources rather than commodity-inputs, and/or by producing high-quality products which add value to the market price (Goodman, 2004). Such changes re-peasantise European farming, by contrast to industrial-entrepreneurial models for modernising agriculture (van der Ploeg et al., 2000: cited in Goodman, 2004: 6-8).

Given those divergent agricultural models, ‘rural space within Europe has become a “battlefield” of knowledge, authority and regulation’, argue Marsden and Sonino (2005). They theorise a competition among three paradigms. As the dominant one, complementing a

neoliberal policy framework, the agri-industrial paradigm promotes globalised production of standardized food commodities for international markets. In the post-productivist paradigm, rural spaces become consumption spaces for urban and ex-urban populations. In the sustainable rural development model, agri-production is relocalised, by embedding food chains in highly contested notions of place, nature and quality (ibid.).

Conflict among those paradigms can be analysed through issue-framing. Controversies in general can be understood as contending ways to frame issues and to define the problems that need solutions. According to Rein and Schön (1993), 'framing is a way of selecting, organizing, interpreting, and making sense of a complex reality to provide guideposts for knowing, analyzing, persuading and acting'. The policy process can be seen as interacting frames and problem-definitions: 'Interactive policymaking is now a practice within which people generate new identities' (Hajer and Wagenaar, 2003: 12).

Environmental discourses have been widely analysed as issue-framing. As Maarten Hajer argues, 'the environment' in particular has become a terrain of contested social values. Although environmental threats are often attributed to nature, they are always framed by policy agendas, through story-lines which selectively problematise some aspects of physical and social reality. The narrative devices include images, causal models and metaphors. Environmental discourses define problems and structure reality so that some framings seem plausible, while others are foreclosed. Each problem-definition implies future scenarios for linking nature, society and technology. New story-lines can bring together actors into coalitions (Hajer, 1995).

As this paper will argue, 'coexistence' has served as a flexible metaphor for contending discursive frames, policy agendas and agricultural paradigms. Each one has a different way to frame agbiotech – as contradictory or compatible with other agricultures.

### **3 Divergent futures for European agriculture**

The future of European agriculture has been contested in many arenas, especially in reform of the Common Agricultural Policy (CAP). The 1980s saw greater opposition to intensive cultivation methods, which were blamed for various agri-environmental and social problems. The 1990s saw greater efforts towards alternative agricultures; these featured extensive methods, diverse quality products, use of local and regional resources as inputs, and so forth. By the early 1990s, CAP subsidies were shifting away from production per se and towards agri-environmental schemes. Previously, environmental protection had been seen as constraining agriculture; now it was seen as re-legitimizing subsidies, by assigning farmers the role of environmental stewards (Clark et al., 1997).

In a 1997 proposal for further reform, *Agenda 2000*, the environment was broadly defined to encompass the overall socio-economic effects of agriculture, not simply agrochemical pollution. The proposal emphasized rural livelihoods, the quality of food production, and its 'environmental friendliness'. In passing, it suggested: 'The development of genetic engineering, if well controlled, could enhance production but may raise questions of acceptability to consumers' (CEC, 1997: 27, 29). As the rest of this section shows, contending agricultural scenarios have intersected with the European agbiotech controversy, especially through the admixture issue.

#### **3.1 Productivity versus quality?**

After the BSE crisis cast greater suspicion upon intensive agri-production methods, alternatives gained support. A new policy aimed to secure a multifunctional, sustainable and competitive agriculture throughout Europe. According to the Commission, agriculture can

harm the natural environment, but ‘abandonment of farming activities can also endanger the EU’s environmental heritage through loss of semi-natural habitats and the biodiversity and landscape associated with them’. Consequently

The CAP’s objectives include helping agriculture to fulfil its multifunctional role in society: producing safe and healthy food, contributing to sustainable development of rural areas, and protecting and enhancing the status of the farmed environment and its biodiversity (CEC, 2003d: 2; also in EU, 2000).

In that vein, subsidies would become conditional upon measures to conserve environmental resources. The EU would lower the support prices and phase out export subsidies. Consequently, farmers would need to produce competitively at world prices.

The Commission also made food quality the new key to farming policy. A rural development policy encouraged farmers to diversify their production and marketing: ‘Europe is known for the diversity of its farming and its agricultural products, which derive from its natural environment and farming methods developed over centuries’. Yet ‘the freedom to farm to market demands’ meant contradictory pressures; farmers were expected to be ‘efficient and sustainable’, while guaranteeing quality, food safety and environmental protection (CEC, 2004: 1).

To encourage high-quality food production, the EU has developed various quality logos. Products can be marketed with an added value while serving new demands of quality-oriented consumption. In 2004 such specialty products achieved a 6.2% market share, as compared to the 0.9% share of organic products (CIAA, 2004).

Alongside those efforts towards an agrarian-based rural development, the agri-industrial paradigm still dominates Europe; CAP reform favours neoliberal productivist policies. According to a blunt proponent, farm subsidies should be reduced and transferred to ‘funding to sustain and enhance the environment’, while ‘ensuring that environmental regulations do not stifle global competitiveness’ (Haskins, 2002). Moreover:

...where European agriculture can be competitive, this competitiveness should, within environmental limits, be maximised. Where it cannot be competitive, farming per se should be downgraded behind good environmental husbandry as the linchpin of a subsidy/welfare system (ibid: 7-9).

Small-scale producers have attacked that agenda, especially the plan for lower support prices. This policy would make farmers more dependent upon direct payments for their overall income. This ‘will benefit agri-industry and the distribution sector rather than consumers’, argued the Coordination Paysanne Européenne (CPE), representing farmers that rely on relatively less-intensive production systems. Under the reform, moreover:

European taxpayers will continue to:

- pay huge subsidies to huge farms, while driving the small ones out of business;
- support increasingly industrial farming methods, to the detriment of employment and the environment (CPE, 1999).

In the *paysan* view, such reform would encourage large-scale farms to continue their intensive methods and (at best) to steward an ‘environment’ outside farming. This would ‘accelerate the disappearance of multi-functional family farms’. Instead they advocated de-intensification measures, based on ‘remunerative agricultural prices and sustainable family farming, with multiple benefits for society’ (CPE, 2001). In other words, multi-functional skills should be sustained within farming communities. Thus they counterposed a rural development paradigm to the agri-industrial paradigm (cf. Marsden and Sonnino, 2005).

Amidst this conflict, some politicians counsel adaptation to ‘market demands’, as if these operated independently of policy. According to the DG-Agriculture Commissioner, EU

priorities for rural policy include the following: farming competitiveness, land management, diversification in the rural economy, and the quality of life in rural areas.

In order to receive this [subsidy] payment, farmers do not have to farm a given product. Instead, they must respect a number of demanding requirements related to environmentally-friendly land management, and public and animal health. This should mean that farmers' production choices will be directed by what the market wants, not by the range of subsidies on offer (Fischer Boel, 2005a).

### 3.2 Admixture as a new policy problem

Just as competing paradigms generate conflict over CAP reform, so they also have made agbiotech more contentious. Proponents have claimed that GM crops would reduce environmental harm, especially by decreasing pesticide use, while enhancing economic competitiveness through greater efficiency. Early on, environmental NGOs suggested that agbiotech would further industrialise agriculture, that any pesticide reduction would be unsustainable, that farmers would become dependent upon yet another technological fix (e.g. Haerlin, 1990).

In the late 1990s agbiotech intersected with contending accounts of sustainable agriculture. Within an agri-industrial paradigm, GM crops were promoted as eco-efficient tools for 'high-yield sustainable agriculture', i.e., for more safely sustaining intensive agricultural methods. Critics advocated less-intensive alternatives such as Integrated Pest Management and organic methods (Levidow et al., 2002). With Jose Bové as a figurehead, the CPE's French affiliate linked their own *paysan* identity with 'quality' products and skilled methods of agri-production, especially as a basis to justify physical attacks on GM crops (Heller, 2002).

Moreover, environmental NGOs stigmatised GM crops as contaminants. Their Europe-wide campaign against 'GM pollution' adopted a honeybee logo to symbolize 'unwitting agents of genetic pollution'. GM crop cultivation was framed as an immoral, irresponsible activity which undermined democratic accountability (Levidow, 2000). With this language, activists protested against grain imports from the US and attacked field trials from the late 1990s onwards.

Those societal conflicts underlay regulatory disagreements about GM products. EU member states disagreed about several issues: genetic modification as a source of unpredictable effects, 'substantial equivalence' as a basis to evaluate GM food, the 'adverse effects' (or harm) that should be prevented under EU law, and the appropriate non-GM comparator for evaluating potential effects of GM crops (Levidow and Carr, 2000; Levidow et al., 2007). Such conflicts have involved different, changing concepts of the 'Precautionary Principle' as a basis to identify scientific uncertainty about potential risks (Levidow et al., 2005). Such issues have also become prominent in international policy debates on agbiotech.

Beyond the 'adverse effects' already being evaluated in EU regulatory procedures, an extra issue emerged – the prospect that GM material would become inadvertently mixed with non-GM products. Such admixture would have many possible sources – e.g., pollen flowing from GM to non-GM crops, or the same farm machinery being used for both types. The admixture issue was framed by diverse interests and agendas. Farmers and food retailers sought to protect their products from economic loss, especially due to the public stigma of GM products. Agbiotech critics sought yet another weapon to restrict or block the technology; they warned that GM crops could irreversibly pervade the environment, thus 'contaminating' non-GM crops and natural biodiversity. Facing these pressures, some national authorities demanded measures to prevent admixture, as a pre-condition for



supporting approval of GM products or for permitting their use. Thus competing agri-paradigms aggravated socio-economic conflict over the admixture problem.

#### **4 Coexistence policy framework in dispute**

To address the admixture problem, the European Commission developed a new policy framework which went beyond simply accidental mixtures. The Commission introduced the term ‘adventitious’, meaning a ‘low-level, technically-unavoidable and unintended presence’ (CEC, 2001: 29). Reasonable efforts should be made to prevent mixing: if only traces of GM material occurred and were technically unavoidable, then their presence would not trigger a requirement for a ‘GM’ label.

At the same time, the term ‘adventitious’ implied a burden to demonstrate that the presence was truly unavoidable. According to the new law, ‘operators must be in a position to supply evidence that they have taken appropriate steps to avoid the presence of such material’ (EC, 2003: 11). This condition would later become controversial – not only for labelling requirements, but also for segregation measures to minimise the presence.

‘Adventitious’ originally denoted GM material present in grain or seed imports into Europe. Later the term also denoted gene flow from GM crops, which would require preventive measures to isolate them in a farming context. Through such measures, government sought to ensure farmers’ freedom of choice to cultivate GM, conventional or organic crops. According to this ‘coexistence’ policy, no agricultural option would be excluded.

In the controversy over segregation and coexistence, European policy actors framed the admixture problem according to their general stance towards agbiotech, as shown in the relation between Tables 1 and 2. Agbiotech opponents warned that ‘GM pollution’ would aggravate uncertainties about environmental and health risks, as well as jeopardize alternative agricultures, so a ban would be necessary. By contrast, agbiotech proponents argued that good agricultural practices would suffice to limit admixture: coexistence was possible and necessary to diversify agricultural production. Like the agbiotech industry, the European Commission argued that admixture is only an economic problem and sought ways to make coexistence feasible, thus potentially softening opposition to GM crops. The rest of this section analyses some contentious aspects.

##### 4.1 GM labelling rules beyond detectability

New developments raised the stakes and mass-media profile of the admixture problem. By the late 1990s the major food retail chains had excluded GM grain from their own-brand products, as a measure to respect consumer preferences (Levidow and Bijman, 2001). In early 2000 regulatory authorities disclosed that European farmers were cultivating seeds which contained GM material lacking EU approval. This discovery of ‘illegal planting’ intensified debate on how to set feasible thresholds of legal GM material in conventional seeds and agri-food products.

Following this debate, a draft regulation required GM labelling above a 1% threshold of adventitious presence, regardless of detectability in food or feed products (CEC, 2001b). By contrast, previous rules covered only detectable GM material. The European agbiotech industry attacked the proposal for unfairly stigmatising GM products; indeed, consumers would perceive a GM label as a ‘skull and crossbones’. Eventually the threshold figure was set at 0.9%, to be monitored mainly by national authorities (EC, 2003).

Organic crops raised the stakes for ‘contamination’, economic loss and thus conflict among farmers. According to the EU Organic Standards Regulation 1804/1999, organic crops could

not 'use' GM crops but had no statutory threshold for any GM material which may be inadvertently present. According to the Commission, the labelling threshold therefore would be 0.9% – i.e. the same as for conventional crops, by default of any separate rule. The prospect of allowing such amounts of GM material in 'organic'-labelled crops became contentious, especially for organic maize, given that GM maize had EU approval for commercial cultivation and so could plausibly spread its pollen to organic maize.

The European Commission also attempted to set thresholds in conventional seed, initially for the presence of GM varieties which can be legally cultivated in the EU. It proposed thresholds be set according to the out-crossing behaviour of each crop, at a level to ensure that any GM presence in food or feed would be kept below 1%, the proposed threshold for food. This level could be difficult to maintain over time, according to the EU's scientific committee:

Achieving the 0.3 and 0.5% thresholds [for seeds] will become increasingly difficult as GM crop production increases in Europe. In due course the 1% threshold [for food & feed] set by the Commission may have to be increased (SCP, 2001a).

EU experts emphasised that oilseed rape can cross-hybridise over great distances. Agbiotech opponents cited this gene flow as grounds to challenge the feasibility of coexistence, understood as zero GM material in 'GM-free' crops. According to EU experts, however, such 'zero tolerance does not exist' – as grounds to permit some GM material in conventional seeds. Environmental NGOs attacked that advice as led by 'political and commercial assumptions, rather than scientific criteria' (Greenpeace quoted in Agence Press Europe, 26.07.01). Legislative proposals for labelling conventional seeds were discussed for a long time but remained at an impasse. By default, meanwhile seeds had to be labelled as 'containing GM' if such presence was detectable. Itself contentious, this rule raised the stakes for any GM material present and thus for conflict between divergent agricultural paradigms.

#### 4.2 Segregation: routine measures or 'mission impossible'?

All those developments informed and intensified debate over appropriate EU-wide rules for coexistence. The lower the threshold for GM labelling, the more difficult and costly to guarantee separation. Environmental NGOs argued that coexistence would be difficult – even 'mission impossible', especially for oilseed rape, which would easily spread and readily contaminate its conventional counterpart (FoEE, 2002). Going beyond economic implications, moreover, such NGOs and even some regional authorities have portrayed any GM material present as an environmental risk issue.

Admixture was foreseen as more than an economic problem in another sense. Representing large-scale industrial-type farmers, the Committee of Agricultural Organisations of the EU (COPA) favoured free access to GM crops in principle but anticipated widespread public reactions:

Farmers fear they will become the centre of a public dispute. If the thresholds are exceeded, despite farmers' best efforts, then what?... If admixture eliminated conventional non-GM seeds, then this would go beyond a point of no return, thus ending freedom of choice (interview, COPA, 2002).

Moreover, the out-crossing and admixture problem posed an existential threat to organic producers. Their business depended upon a strict, feasible separation of agricultural systems: 'We need to make sure we protect a promising growth sector' (BÖLW, 2003). In their view, organic crops must remain strictly GM-free.

Responding to the controversy, the Commission gradually elaborated a policy framework on coexistence. Originally this foresaw agri-biotechnological techniques being assimilated into

conventional and organic agriculture (CEC, 2001: 7). Later its policy emphasised segregation from GM crops, to achieve several aims:

In order to fully apply the principle of freedom of choice for economic operators and to safeguard sustainability and diversity of agriculture in Europe, public authorities in partnership with farmers and other private operators need to develop agronomical and other measures to facilitate the coexistence of different agricultural practices without excluding GM crops (CEC, 2002: 14).

The Commission undertook to explore possible options ‘for agronomic and other measures to ensure the viability of conventional and organic farming and their sustainable coexistence with genetically modified crops. Moreover, the Commission recognises the importance of safeguarding the existing genetic resources in agriculture’ (CEC, 2002: 30).

EU and national studies analysed the feasibility of such measures. The studies indicated that current cultivation practices would have to be changed for some crops in order to guarantee coexistence, thus raising the cost and effort for farmers.

All farm types producing oilseed rape or conventional maize will need significant changes to meet their thresholds... changes may involve cooperation between neighbouring farms (DG-JRC, 2002).

To prevent mixing, then, two independent production systems would be needed, with effective segregation measures potentially incurring extra costs.

#### 4.3 Responsibility for segregation?

In March 2003 the Agriculture Commissioner Franz Fischler issued advice so that each national authority could specify coexistence measures appropriate to its conditions. Authorities could develop or clarify legislation to provide liability for economic damage from adventitious presence of GM material. The Deliberate Release Directive, the main risk regulatory framework on GM crops, could not be used to regulate adventitious GM presence because it did not qualify as environmental harm, Fischler argued. For similar reasons, local authorities could not simply impose a blanket ban to declare entire areas ‘GM-free’, as proposed by some regions. Moreover, the burden of coexistence measures should ‘fall on the economic operators (farmers, seed suppliers, etc.) who intend to gain a benefit from a specific cultivation model they have chosen’ (Fischler, 2003: 5). Under this criterion, the main burden would fall upon non-GM farmers, especially if ‘a benefit’ meant a premium price for their products.

But who should be responsible for segregation measures: GM or non-GM farmers? The Fischler proposal provoked disagreement over the burden of responsibility. The Committee of Agricultural Organisations of the EU (COPA) welcomed the commitment to provide financial liability in cases of economic loss to non-GM farmers. But they wanted clearer management rules so that all producers would have ‘legal security’ and so that all agricultural options would be economically viable (COPA, 2003). According to several environmental NGOs, the Commission was ‘dodging its responsibility’ to prevent genetic ‘contamination’ given its foreseeable consequences. Clear, effective EU-wide legislation was needed ‘to protect the agricultural assets of Europe’ (FoEE/EEB, 2003). Along with the Coordination Paysanne Européenne, environmental NGOs demanded clear statutory rules which put the burden entirely upon GM farmers.

In July 2003 Commission recommendations somewhat accommodated that demand, as follows: ‘...farmers who introduce the new production type should bear the responsibility of implementing the actions necessary to limit admixture’(CEC, 2003a: 9). GM crops would be a new production type nearly everywhere in Europe, so this framework provided a basis to place the major burden on GM farmers, at least in the short term. Why hadn’t the Fischler document allowed this option?

It would be difficult to justify why a specific technology, and its safe products, should be punished with extra burdens. But it is defensible to burden those farmers who create the

coexistence problem. This is a neutral way to handle the issue (Commission staff, interview, 2004).

The Commission recommendations elaborated a risk-management model for economic harm. They also extended earlier concepts of farm stewardship, especially from efforts to maintain seed and crop purity: ‘developing stewardship schemes and best practices for coexistence is a dynamic process that should leave room for improvement...’ (CEC, 2003a). Appropriate measures should be ‘efficient and cost-effective and proportionate’ to the aim: namely, how to maintain any GM presence below the statutory ‘tolerance threshold’ for GM labelling. Segregation measures were needed in order ‘to manage the possible accidental mixing (admixture) of GM and non-GM crops’. Such measures would depend upon the specific characteristics of the agri-environment and the crop. Member states should examine their liability laws for adaptation to any economic damage from adventitious presence of GM material (ibid.).

At around the same time, a statutory change potentially blurred the official distinction between economic and environmental issues. Under pressure from the Parliament, the Commission finally agreed to amend the Deliberate Release Directive, so that ‘Member states may take appropriate measures to avoid the unintended presence of GMOs in other products’, under new Article 26a (EC, 2003a: 20). Commission staff saw the outcome as an awkwardly ‘mixed Directive’, which could complicate the task of policing the boundary between economic and environmental issues. Article 22 requires member states to permit any GM product which has EU approval, yet the new Article could justify restrictions: ‘These articles are potentially contradictory, unless regulation is done in a balanced way’ (interview, Commission staff, July 2005).

The Commission’s coexistence recommendations met divergent responses from stakeholders. The agbiotech industry welcomed the guidance for ensuring ‘true choice’; however, ‘growers who meet a quality standard that provides a higher value product should not expect their neighbours to bear their management costs of meeting that standard’ (EuropaBio, 2003). By contrast, environmental NGOs criticised the guidance for unduly limiting stricter national rules, thus allowing some ‘GM contamination’. There were calls to limit admixture as much as possible and to clarify who holds responsibility. According to consumer groups, thresholds for GM material are acceptable only within a system that ‘guarantees that the contamination is really adventitious’, i.e., a system that minimises admixture. Farmers would need special training for measures to achieve this aim (BEUC, 2003: 2).

Likewise, according to a Parliamentary report, coexistence measures should aim to exclude GMOs ‘as far as is technically possible’, not simply below the statutory threshold for a GM label (EP, 2003: 15). Moreover, member states must have ‘the right to prohibit completely the cultivation of GMOs in geographically restricted areas’ (ibid: 8). Similar views came from expert advice solicited by environmental NGOs (Lasok and Haynes, 2005; cited in FoEE, 2005b).

Despite its concessions, the Commission still faced widespread demands to standardise EU-wide rules for coexistence. In the Commission’s view, such rules would be difficult to standardise, given the diverse systems emerging within member states. In principle the appropriate rules should depend on variations in agri-environmental conditions, e.g., the size and shape of farms in a region. In practice, however, political variation among countries seemed a more significant reason for diverse policies across Europe (interview, Commission staff member, July 2005). Indeed, coexistence rules not only specify what counts as non-GM spaces, but they also affect the terms of competition among agricultural paradigms.

## 5 EU-national-regional conflicts as test cases

For all the above reasons, ‘coexistence’ rules have been contested within member states, as well as between them and the Commission. Various organisations and authorities have sought to restrict GM crop cultivation, while promoting alternatives to agri-industrial production. Mainstream farmers’ organisations had originally advocated market access to GM seeds, but later they became more cautious – partly in response to pressures from their own organic sections, as well as concerns about economic liability and public suspicion.

For their rules to limit admixture, government authorities could cite the new Article 26a of the Deliberate Release Directive, authorising member states ‘to avoid the unintended presence of GMOs’. Such draft rules became test cases of compatibility with EU law, especially Directive 98/34, which requires that any technical norms or restrictions be proportionate to their purpose. On this basis the Commission accepted some frameworks for coexistence, such as the Danish draft law (Toft, 2005). However, the Commission rejected some other frameworks for disproportionately burdening GM farmers, especially by aiming to keep GM material far below the EU threshold for GM labelling. Likewise, according to the agbiotech industry, such constraints ‘would reverse fundamental freedoms of economic activity and would establish a dangerous precedent’; unrealistic standards ‘would effectively pose a ban on the choice of other producers’ (Europabio, 2005). Reinforcing this criticism, experts advised that such an excessive burden could mean substantial income loss for maize farmers and seed producers (DG-JRC, 2006).

According to the Commission, national coexistence rules must ‘allow market forces to operate freely in compliance with Community legislation’ (CEC, 2006: 3). Yet any rules restrict some freedoms more than others, thus favouring one agri-paradigm over others. National-regional conflicts with Commission policy express contending agendas for future agriculture, as reflected in the following examples.

### 5.1 Wales: statutory isolation distances

In Wales the neoliberal agro-industrial paradigm has been seriously challenged by an alliance promoting ‘quality’ agri-production for rural development (Marsden and Sonnino, 2005). This alliance has sought to exclude GM crops. The National Assembly for Wales has taken as restrictive an approach as is possible within EU legislation, with the aim of keeping its products distinctive for marketing purposes. The Assembly expressed concerns that the Organic Standards Regulation 1804/1999, which sets minimum standards for organic production, was inconsistent with gene flow from GM crops (Oreszczyn, 2005).

This conflict took the form of segregation rules. In the UK an industry-wide body had already set standard isolation distances to limit gene flow to non-GM crops. In 2001 Wales decided to put those standards onto a statutory basis, as a measure necessary to provide ‘an environment where non-GM crops can be grown’. On its behalf, the UK invoked the safeguard clause (Article 16) of the Directive. In response, the Commission sought the advice of its scientific advisory committee, which stated that the rules had no basis in environmental or health risks (SCP, 2001b). The Commission initially regarded Wales’ rules as invalid but took no formal action, at a time when anyway no GM crops were approved for cultivation in the UK.

By 2003 the EU-wide political context had changed in favour of Wales’ rules:

Under Article 26a [of the Directive], the UK could impose isolation distances. In fact, the July 2003 Commission recommendations considered the SCIMAC guidelines together with other input (interview, Commission staff member, February 2004).

Those isolation distances varied according to gene flow from each crop, so the Commission could accept Wales' rules as proportionate to the admixture problem. At the same time, these rules aimed to deter GM crop cultivation, while favouring an agrarian-based rural development paradigm.

### 5.2 Upper Austria: GM-free?

In Austria agbiotech has symbolized a threat to quality agriculture, especially organic products. Even before GM crops became a high-profile issue there in the late 1990s, the government was promoting organic farming – as ecologically sound, as 'quality' products, and as an economically feasible market-niche for an endangered national agriculture. This 'competitiveness' scenario contradicted the imperative to increase agricultural productivity through agbiotech. Austrian regulators unfavourably compared potential environmental effects of GM crops to methods which use no agrochemicals, among others grounds to oppose commercial approval (Torgersen and Seifert, 2000).

In 2003 the regional jurisdiction of Upper Austria decided to establish 'GM-free agricultural areas' and notified its draft Act to the Commission under EU Treaty Article 95(5), the safeguard clause for environmental and health protection. Its draft Act aimed to protect agricultural products and natural biodiversity from 'GMO contamination', especially in 'sensitive ecological areas'. As a rationale, a 2002 study had noted the small size of farms and the 7% organic production there, which together would make coexistence nearly impossible, e.g., by requiring a 4km isolation distance from any GM cultivation.

In response, the Commission requested advice from the European Food Safety Authority. Its experts judged that Austrian documents contained no new information regarding risks to human health or the environment, nor evidence to show that admixture concerns such risk issues; its advice explicitly excluded issues such as the management of coexistence (EFSA GMO Panel, 2004). Citing that advice, the Commission rejected the restrictions on several grounds: that the Austrian concerns 'relate more to a socio-economic problem' than to environmental protection, and that a blanket ban would not be a proportionate measure (CEC, 2003b).

From its economic strategy within an agrarian-based rural development paradigm, the region refused to back down. According to its premier, the EC proposals 'may be suitable for large-scale agribusiness, but they are certainly not for Upper Austria's small-scale farming' (Anon, 2003a). Upper Austria brought a case to the European Court of First Instance, which eventually supported the Commission stance.

### 5.3 Carinthia: licencing system

In late 2003 the regional jurisdiction of Carinthia (Austria) drafted a 'precaution law on gene technology', especially to address coexistence. Before cultivating a GM crop, a farmer must request authorisation, describing the structure of local fields and their own isolation measures. Then the local authority would decide whether to grant permission. If so, then the authority would accept liability for any damage, provided that the farmer has implemented the agreed measures. The rules would allow the region to prohibit GM crops in 'ecologically sensitive areas', e.g., near nature reserves.

Carinthia notified its draft law to the Commission, which raised several concerns about future burdens on GM farmers and restrictions on GM crops. Such restrictions must be

justified by the characteristics of a specific crop, as well as by the aim to comply with Community legislation on GM thresholds, i.e., purity levels of GM content in non-GM crops in neighbouring farms, rather than lower thresholds (CEC, 2003c). Those criteria were unclear in the Carinthian proposal.

Carinthia redrafted the rules to accommodate some criticisms and gained a somewhat positive response. ‘Although appreciating the quite significant improvements made to the draft initially notified, it was not yet possible to assess the proportionality of practical coexistence measures’ (CEC, 2003c). ‘Nevertheless the Commission accepted the proposal in principle, providing that additional conditions are fulfilled and that a *balanced approach* would be taken which would make GM farming possible’ (interview, Commission staff, February 2004). Carinthia became a test case for how stringent burdens upon GM farmers would be made possible, thus potentially deterring them in favour of an agrarian-based rural development paradigm. As policy advisors there have noted, moreover, ‘GMO-free zones might create a specific image for marketing regional products and services’, such as tourism, thus broadening the economic relevance (Jank et al., 2006).

#### 5.4 Germany: ‘peaceful coexistence’?

In Germany the stakes for coexistence were raised by more intense conflict between the earlier pro-biotech policy versus proposals for alternative agricultures. In 2000 the BSE crisis in Germany provided a new opportunity for critics of the *Agrarfabriken* or factory farming, a phrase pejoratively linking intensive agriculture with animal diseases. As a challenge to the agro-industrial paradigm, the government initiated the *Agrarwende*, (literally) turning agricultural policy towards consumer interests, informed choices and sustainable methods. Led by a Green Party politician, a new Ministry promoted organic agriculture as a model for more sustainable farming and aimed to increase its share to 20% within ten years. As a result, agbiotech came under increased pressure, as it was perceived as threatening future choices within the *Agrarwende* (Boschert and Gill, 2004).

Germany initially debated co-existence as a necessary means of safeguarding consumer choice. Later the emphasis shifted to producer choice, especially the need to avoid a ‘war in the villages’, e.g. court cases claiming economic damage from other farmers. In 2002 a German study sought ways to reconcile opposing interests, through a system for preventing and mediating conflicts among farmers. It regarded the Deliberate Release Directive as an appropriate statutory basis for such measures: ‘permission to market a GMO may include an order to take measures to avoid property damage through pollination’, as a specific condition of use and handling (Öko-Institut, 2002a).

In transposing the Deliberate Release Directive, Germany built upon its new Article 26a, which said: ‘Member states may take appropriate measures to avoid the unintended presence of GMOs in other products’. According to the new German law which took effect in 2005, coexistence would have three instruments: an obligation to take precautionary action to prevent ‘negative material effects’ of GMOs, in particular through ‘good farming practice’; a site register informing local farmers about any GM cultivation; and a compensation scheme for conventional and organic farmers. As a government rationale for such measures, ‘there will be little hope of arriving at a state of peaceful coexistence’ if farmers remain under threat of economic loss and legal liability (cited in Boschert and Gill, 2004).

‘Precaution’ was also cited as grounds to minimize out-crossing, to safeguard agricultural and consumer choices, and to manage the ‘peaceful coexistence’ of different forms of agriculture and consumption. Under the new law, environmental parameters such as out-crossing serve as dual indicators of environmental and economic damage, thus implicitly conflating them. Financial compensation would be due if GM presence means that a food

product could not be labelled in a way that it otherwise could be. The law establishes ‘joint and several liability’ for economic loss due to GM presence in non-GM crops, so that all local farmers may be held liable (Boschert and Gill, 2005).

In the drafting stage the Commission requested clarification on possible conflicts with EU law. For example, if Germany later adopted a ‘GM-free’ label, then this could mean overly stringent measures to ensure no detectable GM presence, thus going beyond the scope of the July 2003 guidelines. Nevertheless, the Commission provisionally accepted the final law as proportionate, pending future developments.

The new German law intensified domestic conflicts between advocates of contending agri-paradigms. The law was attacked by the main farmers' union and the agbiotech industry for unduly constraining cultivation of GM crops. After the SPD-Green coalition lost power in 2005, the Christian-Democrat/Social Democrat coalition government sought to lighten potential burdens for GM farmers.

### 5.5 Italy: *de facto* ban

Italian agbiotech opponents have sought to protect the agro-food chain as an environment for craft methods and local specialty products, known as *prodotti tipici*. In the 1990s the government allocated subsidies to promote such products but foresaw these being displaced by GM crops. According to a Parliamentary report, the government must ‘prevent Italian agriculture from becoming dependent on multinational companies due to the introduction of genetically manipulated seeds’ (Terragni and Recchia, 1999).

Moreover, when local administrations apply EU legislation on sustainable agriculture, they should link these criteria with a requirement to use only non-GM materials, argued the Parliament. It adopted such arguments from Coltivatori Diretti, a million-strong union of mainly small-scale farmers, who saw GM crops as a threat (ibid.). Since then environmental NGOs, farmers’ organisations and regional authorities have built a network seeking to exclude GM products from Italian agriculture.

Italy’s policy favours non-GM and alternative agricultures, for reasons beyond the admixture problem. Under the 2003 Italian law implementing the EC Deliberate Release Directive 2001/18, GM crops must be kept compatible ‘with the need to safeguard the agro-biodiversity of agricultural systems and the agricultural production chain, with particular reference to typical [local], biological, and high-quality products’. A 2005 decree linked experimental GMO releases with potential negative impacts on the image of local products. The decree also regarded any shift of resources from pre-existing production towards more efficient new production (e.g. GM crops) as a risk that should be evaluated, regarding any loss of competitiveness and markets for pre-existing crops (cited in Niespolo, 2005).

The admixture issue was used for a *de facto* blockage of GM crops. The Agriculture Ministry issued an administrative decree that no GM crop cultivation would be permitted until each region establishes technical rules to ensure coexistence of conventional and organic crops. According to the Agriculture Minister, the decree would avert ‘the risk of diffuse and uncontrolled contamination by GMOs’ (FoEE, 2005a). By late 2006 there were still no technical rules that could lift the ban, which has gained broad support. A minor exception has been Futuragra, which demands ‘freedom of research and of GM cultivation’ (*Agro-Food Biotech*, 12.12.05); favouring the agri-industrial paradigm, this cultural association represents relatively more industrialized farmers in northeast Italy.

Developments in late 2006 illustrate how an agbiotech blockage gained support from most political parties, despite their sharp divisions on other issues. Together they proposed to



protect Italy's traditional agro-food heritage from genetic modification. The Italian 'GM-Free Coalition' met with officials from relevant Ministries, who all agreed on several proposals, especially to protect the identity of organic products from GM contamination, and to request Commission support for restrictive measures (Monitoraggio normativo OGM, 2006).

### 5.6 Spain: contending alliances

Of all EU member states, Spain has the greatest commercial cultivation of GM crops. GM maize is cultivated there in regions where grain cooperatives store all maize together for sale as animal feed within Spain, with no segregation, so GM material does not necessarily lower the market value. From an economic standpoint, segregation measures would be needed only near organic maize cultivation. Exemplifying the agri-industrial paradigm, a Right-wing farmers' group has promoted GM crops as a means to enhance productivity, economic competitiveness and environmental benefits.

In 2004 the government adopted guidance on coexistence, based on expert advice about pollen flow. The seed producers association accepted these recommendations as compatible with their own guidelines on good practices for cultivating GM maize. A government Commission of Biovigilance was set up to ensure coexistence of GM crops with other types (Tàbara et al., 2004).

The government guidance came under criticism, especially on grounds that they accept any 'GM contamination' below the EU labelling threshold and assign inadequate responsibility to GM farmers. According to some farmers' groups, coexistence is impossible because segregation cannot be guaranteed. Some organic maize farmers claimed that GM contamination already lowered the value of their crops (Greenpeace Spain, 2004).

When the government drafted statutory rules on coexistence, more stringent ones were demanded by the Rural Platform, representing Left-wing farmers' unions, environmental groups, organic farming associations and rural development organisations. They proposed that GM 'contamination' be kept below 0.1%, i.e., the level of detectability, not simply below the 0.9% EU labelling threshold. They also proposed greater separation distances, an obligation upon GM farmers to inform neighbouring farms well in advance, and clear liability for GM contamination (Anon, 2005b). In that regard, organic farmers wanted statutory protection not dependent upon bringing other farmers to court, lest this litigation aggravate the conflict. In sum, Spain's guidance and draft rules easily complied with Commission policy but provoked domestic conflict with advocates of alternative agricultures.

## **6 'GM Free' as a regional brand**

Since the 1990s European agbiotech critics have counterposed 'sustainable agriculture', meaning cultural-economic strategies for 'quality' agri-products. More policy actors have framed the admixture issue along those lines, especially to deter GM crop cultivation. A major conference described the issues as follows:

The competitiveness of EU agriculture is becoming increasingly important for the economic well-being of farmers and for the development of rural areas. Many participants have stressed the importance of quality production, including products linked to traditional practices and geographical origin in order to safeguard the European model of agriculture, with its balance of socio-economic, environmental and territorial aspects. Others have emphasized the need to create a culture of innovation and to put science, including biotechnology, at the service of agriculture (Austrian Presidency, 2006, Conclusions).

Yet alternative agricultures too depend on an innovation culture, as this section shows.

## 6.1 GM crops as economic insecurity

Commission policy came under greater pressure to address the economic insecurity of non-GM crops. In November 2003 it was asked by ten regional governments to agree that they could define their own territory as a 'GM-free zone' and to assign liability according to 'the polluter-pays principle' (FoEE, 2003b: 15). Such plans were criticised as politically motivated and as unnecessary to achieve segregation. According to DG-Environment, 'the request for establishing GM-free zones is very often driven more by ideological concerns than by an objective assessment of the risks involved' (Spinart, 2003).

Rebuttals came not only from agbiotech opponents, but also from mainstream politicians and farmer organisations, seeking to protect the market value of non-GM crops. According to the vice-chair of the EP Agriculture Committee, 'This discussion [on coexistence] is not about ideology but about practice and economics' (Anon, 2003b). Mainstream farmers originally advocated market access for GM seeds, but some became more cautious about market insecurities, given the threat of legal liability and consumer rejection. Recognizing this economic uncertainty, a UK advisory body stated that crop cultivation must 'go with the grain of the future direction for farming: reconnecting farmers to the national and international marketplace and a strong shift in the direction of enhancing the farmland environment' (AEBC, 2003: 12).

Although agbiotech opponents originally argued that coexistence would be impossible, by 2003 they were emphasising the need for stringent rules to protect conventional and organic crops. A European Parliament report demanded liability rules to protect non-GM farmers, as an element of a coexistence regime (EP, 2003). This initiative came from Green MEPs, who thereby softened their previous opposition to GM crops:

Without legislation for liability and coexistence, we oppose GMOs. Of course, if we accept coexistence, then we accept GMOs in some form, provided that all procedures are in place and respected. We have undergone a political evolution, from opposing GM crops to demanding stringent rules.... In the political evolution of the Green Group, MEPs from some countries – Netherlands, Spain, Germany – have relatively greater influence. This is important from a political viewpoint, so we propose the most stringent regulations possible (EP Green Group advisor, interview, February 2004).

Such efforts towards more stringent rules for GM farmers soon merged with explicit alternatives to the agri-industrial model, as described next.

## 6.2 GMO-free network

Within a rural development paradigm, alternative agricultures have been increasingly counterposed to agbiotech. 'Quality' agriculture can denote protection of local environments, beyond any specific product characteristics. At their founding conference in Berlin in January 2005, several regional authorities linked 'GMO-free zones' with food sovereignty, 'quality' labels on food products and regional-cultural biodiversity. With the slogan, 'Our Land, our Future, our Europe', their charter identified GM crops as a threat to 'sustainable and organic farming and regional marketing priorities for their rural development' (FFA, 2005). In particular:

Most European regions have made the promotion of sustainable and organic farming and regional marketing priorities for their rural development [...]. Most Europeans don't want GM-food. To serve this demand is part of a region's food sovereignty and an important economic chance. Regional authorities must be able to protect quality labels, purity standards, organic production and designations of origin at competitive prices (FFA, 2005).

At a subsequent Florence conference, speakers more explicitly promoted a geopolitical alliance for a 'sustainable' future agriculture. As conference host, the Tuscany Regional

President linked the precautionary principle, zero tolerance for the presence of GMOs, and uncertainty about their compatibility with environmental protection:

We wish to avoid any standardisation of products which no longer have anything to do with their place of production. In Europe there must be room for a model of agriculture which is based on a genuine identity, cultural characteristics, high-quality GMO-free products (AER/FoEE, 2005).

The Florence conference resulted in ‘The charter of regions and local authorities of Europe on the coexistence of GMOs and conventional and organic crops’, which in turn started the Network of GMO-free Regions. According to the charter, specific ‘coexistence’ plans would be based on in-depth feasibility studies examining the environmental, socio-economic and cultural impact of GMOs. Areas could be designated as ‘GMO free’ in order to protect any added value of certified quality products.

A larger conference broadened the network for alternative futures – now counterposed to agri-industrial methods, including GM crops. Entitled ‘Safeguarding Sustainable European Agriculture: Coexistence, GMO free zones and the promotion of quality food produce in Europe’, the conference was sponsored by the Assembly of European Regions and Friends of the Earth Europe. It aimed ‘to define the most appropriate EU legal framework for an efficient coexistence regime’ (AER/FoEE, 2005c). Moreover, local environments were framed as cultural-economic assets under threat from GMOs. In their declaration, the organisers sought:

To allow regions to determine their own agricultural development strategy, including the preservation and development of regionally adapted genetic resources and the right to prohibit GMO cultivation (ibid.).

At the conference numerous regional representatives elaborated that agri-development theme, by describing their ‘natural’ environment or special cultivation methods as a basis to market local products and services. According to a speaker from southwest England, for example, their local authority is committed to ‘treating the environment as a highly valuable capital asset to be managed intelligently for long-term economic benefit’ (FoEE, 2005). According to a report on the conference, the speakers had explained ‘how their local specialised agriculture was a precious resource that plays a vital role in marketing their region’ (ibid: 15).

An even larger conference promoted ‘GMO-free regions’ to a broader public during International Green Week in January 2006 in Berlin. By this time, ‘GMO-free’ declarations had come from more than 160 regions, 3500 municipalities and local authorities, and tens of thousands of farmers in Europe (see Figure 1). According to the Network, they were reclaiming their rights to local and regional self-determination – with regard to their landscapes, eco-systems, agricultural practices, food traditions and future economic development. Moreover, farmers and food processors cooperated to find sources of non-GM animal feed for their GM-free animal products, thus increasing the pressures to segregate distinctive markets for grain (AER, 2006).

Appropriating the ‘coexistence’ metaphor, then, a new discourse-coalition sought a competitive advantage for alternative agricultures. Their storyline linked several themes: precaution, environmental risk, socio-economic regionalism, market competition, consumer choice, rural development and *paysan* identity. Through these discursive links, a new coalition brought together diverse stakeholders: farmers, agronomists, grain traders, regional administrators, politicians, consumer organisations and some early opponents of agbiotech.

This coalition aimed to influence the new Barroso-led Commission to permit restrictive measures at regional level (Anon, 2005a). Supporters attempted to persuade the new DG-Agriculture Commissioner, who held the main responsibility for coexistence policy. Responding to their concerns, she mentioned the irreversible threat from admixture: ‘The

most important thing is to guarantee that GM crops are kept quite separate from other crops, because once they become mixed, there is no way back' (Fischer Boel, 2005b).

Yet market freedom was more important – and contentious. As she emphasised in a conference talk, segregation rules must allow the cultivation of safe GM crops:

Where a product has been shown not to be harmful, in principle the rules of the free internal EU market apply. So, also, do WTO rules, as we have seen. The debate on co-existence must be about ensuring co-existence, not preventing it... co-existence policy is not about the safety of people, animals or the environment (Fischer Boel, 2006).

At the same conference, a fellow Commissioner blurred that official distinction:

As an Environment Commissioner, I am keen to ensure that the environment is protected from potential risks arising from the cultivation of GMOs. Coexistence measures, on top of the benefits they provide in purely commercial terms, can play a role in this respect (Dimas, 2006).

In that vein, some authorities were considering environmental issues within coexistence rules, as well as including segregation issues within risk regulation procedures (Levidow and Carr, 2007). The issues could not readily be contained within the Commission's sharp distinction between legislative regimes for environmental risk and economic loss, especially given that regional authorities had wider reasons for deterring GM crops.

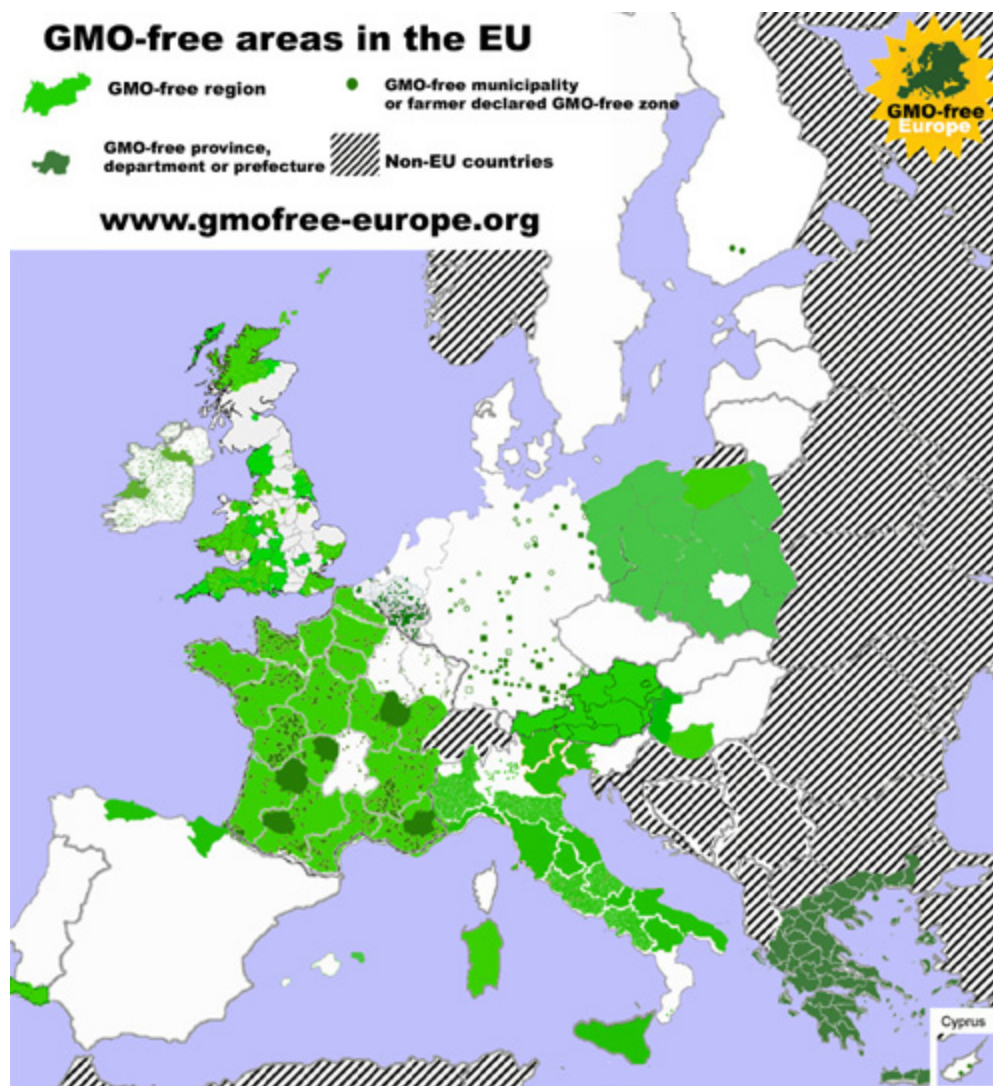


Figure 1: Map of GMO-Free Regions. Credit: [www.gmofree-europe.org](http://www.gmofree-europe.org)

## 7 Conclusion: agbiotech in coexistence or contradiction?

Agricultural biotechnology has intersected with a wider conflict over the meaning of sustainable agriculture, especially in Europe. Stances towards agbiotech correspond to different future scenarios for rural space (cf. Marsden and Sonnino, 2005; see again our Table 1). From an agri-industrial paradigm, GM crops are promoted as eco-efficient tools for more safely sustaining intensive agricultural methods. Relatively more industrialised farmers seek access to GM crops as a more efficient means to compete in the bulk commodity market. From an agrarian-based rural development paradigm, opponents warn against various uncontrollable risks of agbiotech, while counterposing high-quality or high-skill agri-production as a truly sustainable future. This future overlaps somewhat with a post-productivist paradigm, given that alternative agricultures also provide a basis for eco-tourism. In these ways, the agbiotech controversy extends earlier arguments over priorities for CAP reform – about whether to sustain or supersede intensive agriculture; how to enhance the quality of food products, farmland and regional development; and how to reconnect producers with consumers.

In the late 1990s a new issue emerged: the prospect that GM material would become mixed with non-GM crops. This admixture problem has been variously framed as a task for routine management measures, or as an unacceptable risk of ‘GM contamination’ – according to different policy agendas (Table 2; cf. Hajer, 1995). When the EU set stringent rules for ‘GM’ labelling, this raised the stakes for effective measures to segregate GM material from non-GM crops. Since the 1990s, precaution was already a contentious concept for evaluating environmental and health risks of GM crops. Later it became even more contentious, especially as agbiotech critics conflated uncertainties about economic and environmental risks, even for GM products which obtain EU safety approval.

Debate has ensued over whether GM crops simply offer an additional option or rather threaten other agricultures, especially organic crops. In this asymmetrical conflict, alternative agricultures face an existential threat from the agro-industrial paradigm and so seek total segregation or even exclusion of GM crops in particular. Environmentalist groups, organic and many small-scale farmers have advocated bans on GM crops. The admixture issue has drawn in more stakeholders, especially farmers’ organisations and regional authorities.

From its agri-diversity policy frame, the European Commission has elaborated a policy on ‘coexistence’ between GM, conventional and organic crops. This officially aims to ensure that farmers can freely choose among those production systems, which would develop side by side. Within this framework, segregation measures could ensure that any ‘adventitious presence’ of GM material remains below the threshold for labelling products as GM. Specific national rules could assign a burden of responsibility for segregation, as well as liability to compensate any economic loss incurred by non-GM crops.

Despite the official language of free choice, any rules limit the choice of some farmers more than others, thus favouring one agri-paradigm over others. In response to criticism, Commission guidance has accommodated widespread demands that GM farmers should bear the economic burden of segregation measures. But some draft rules have sought to minimise any ‘adventitious’ presence, on grounds that this term should mean only those admixtures which are technically unavoidable. The Commission has rejected such rules for imposing a disproportionate burden, which could deter or preclude GM crops. This response disappointed many regional authorities, which had previously expected Commission support for their development policies.

Through ‘GM-free zones’, moreover, some regional authorities have sought to brand, structure and market their territory for economic competitive advantage. Rural space is redesigned for green, high-quality agri-production; this agenda aims to enhance the market value of diverse local agri-products and other environmental assets. Any prospect of nearby GM crops is framed as a threat to local genetic resources and regional marketing strategies; dissociation from agbiotech symbolically reinforces the natural status of local food (cf. Murdoch et al., 2000). ‘GM-free regions’ create immaterial, symbolic qualities for relocating agri-production, while protecting specialty markets from reputational crises (cf. Allaire, 2002). This alternative has been counterposed to the agri-industrial production of global commodities – symbolised by the European Union, especially its product authorisation procedure for the internal market. In that sense, GM-free zones can be interpreted as efforts towards EU-free zones.

Thus the coexistence issue has become a new battlefield for contending policy agendas: between an agrarian-based rural development versus a neoliberal agri-industrial paradigm (cf. Marsden and Sonnino, 2005). As a Europe-wide discourse coalition, a GM-free network links various regions into an alternative model for future agriculture, potentially generating new social identities around distinctive local resources and networks (cf. Hajer and Wagenaar, 2003: 12). Such networks depend upon new political alliances between actors in the agri-food chain and environmentalist organisations (cf. Whatmore, 1994).

In such ways, ‘coexistence’ provides a deceptively common language for divergent meanings and policy agendas. Appropriating this Cold War metaphor, the Commission has aimed to avoid, contain or mediate conflicts among farming systems. Yet contending policy agendas have shaped the official coexistence framework and keep it contentious (see Table 2).

Those societal conflicts pose great difficulties for the Commission. To manage the admixture problem, its framework sharply distinguishes between environmental damage, which lies within agbiotech risk regulation, and merely economic damage, which remains outside. Yet some segregation measures have blurred those distinctions, as grounds to restrict GM crops which have EU-wide safety approval.

To manage economic risk to non-GM farmers, the Commission framework adopts a quantitative purity model. By contrast, ‘GM-free zones’ frame agbiotech as a symbolic threat to local cultures and identities, as a basis to demand zero tolerance for GM material – or even for any nearby GM crops. Such ‘harm’ is not recognised by international trade law, which disciplines EU policy and regulatory practice.

As a related difficulty for the Commission’s policy, its tripartite taxonomy – of GM, conventional and organic crops – treats the latter as an exception. By contrast, an agrarian-based rural development paradigm encompasses organic crops within diverse ‘quality’ alternatives to intensive industrial production. To mediate such conflicts, the Commission seeks national rules that ‘allow market forces to operate freely’, almost as if market freedom were natural. Yet rules shape markets, thus conferring advantage to one agricultural future over others. Consequently, the admixture issue has divergent framings which politicise any rules for coexistence.

In sum, ‘coexistence’ policy has become yet another arena for contending agricultural paradigms, which may not readily co-exist in practice. Wherever a rural development paradigm gains local support, its alternative agricultures are in contradiction rather than coexistence with GM crops. Thus the ‘coexistence’ metaphor has contradictory meanings – perhaps like its Cold War antecedent.

## TABLES

*Table 1: Agricultural development frames*

<i>Legislators &amp; regulators</i>	<i>Agbiotech promoters</i>	<i>Agbiotech opponents</i>
<b>Agri-diversity policy</b> European Commission & some governments	<b>Agri-industrial paradigm</b> Europabio, EPP Group of MEPs	<b>Agrarian-based rural development paradigm</b> Greenpeace, FoEE, CPE, Green Group of MEPs
Consider the risks of not developing technologies to remedy unsustainable agriculture (CEC, 2002: 15).	Technological innovation = progress. GM crops can safely sustain intensive agriculture. Don't stigmatise GMOs: protect the environment!	De-intensify & re-localise agriculture; support multifunctional farms & sustainable family farming (CPE).
Develop the knowledge-based economy for international competitiveness of European industry (EU Council, Lisbon 2000).	Support aims of Lisbon summit (implying that competitiveness depends on greater productive efficiency).	Oppose GM agriculture as non-competitive, e.g. losing markets and jeopardising non-GM markets.
Internal market requires common standards.	Internal market requires common standards.	European agriculture needs diverse quality standards.
Regulatory decisions should be based on sound science and other legitimate factors.	Regulation should be science-based, consistent and workable.	Regulation should be based on the Precautionary Principle (recognising uncertainties of risk science).
Consumer choice is essential for gaining consumer confidence.	Consumers need a choice to buy GM or non-GM products.	Consumer choice is paramount (in its own right).
Freedom of choice for economic operators.	Freedom of choice for economic operators.	Consumer and farmers' choice.
Products should be labelled as 'GM' above a threshold of adventitious presence.	New labelling rules would impose a 'skull & crossbones', unfairly stigmatising GM products.	Labelling threshold of GM adventitious presence should be as low as possible and demonstrably unavoidable.

*Table 2: Coexistence frames*

<i>Legislators &amp; regulators</i> <b>Agri-diversity policy</b> List in Table 1 + COPA	<i>Agbiotech promoters</i> <b>Agri-industrial paradigm</b> (see Table 1)	<i>Agbiotech opponents</i> <b>Agrarian-based rural development paradigm</b> List in Table 1 + AER
Coexistence is necessary and feasible. No form of agriculture should be excluded; national rules should allow market forces to operate freely.	Coexistence is necessary and feasible.	A coexistence system appears to be practically impossible and unnecessary (2001). Coexistence needs stronger rules, even 'GM-free zones' (2003)
Admixture is an economic issue about how to limit adventitious presence (or inadvertent admixture) of safe GM material.	Admixture is about economics – distinct from safety issues.	GM pollution (admixture) would aggravate uncertainties about environmental & health risks.
Management measures should be proportionate, based on specific knowledge about agricultural systems and gene flow.	Normal management measures will be adequate to segregate forms of agriculture. Disproportionate burdens on GM crops deny choice to farmers and consumers.	Management measures may never be adequate to protect non-GM crops.
The burden should fall on economic operators who intend to gain a benefit from a specific cultivation model (Fischler, March 2003). Farmers who introduce a new production type should bear the responsibility (CEC, July 2003)	Growers who meet a quality standard that provides a higher value product should not expect their neighbours to bear their management costs of meeting that standard.	The polluter should pay: GM growers should have full responsibility and strict liability.
Liability rules are a matter for each member state. Environmental Liability Directive covers only (significant) environmental harm from GMOs.	National law on civil liability offers abundant possibilities to seek compensation for any economic damage.	Need new legislation to guarantee compensation for GM pollution – not covered by the Environmental Liability Directive.

**EU-level organisations: abbreviations**

AER = Assembly of European Regions  
COPA = Committee of Agricultural Organisations of the EU  
CPE = Coordination Paysanne Européenne  
EPP = European People's Party, esp. Christian Democrats  
FoEE = Friends of the Earth Europe



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