

# From Mad Cows to GMOs: The Side Effects of Modernization

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*Ulrich Beck's Risk Society: Towards a New Modernity provides a lens through which we can analyze contemporary debates over risk regulation of agricultural biotechnology. This article establishes the political and cultural context into which genetically modified organisms (GMOs) were introduced in the European Union, by reviewing the HIV-contaminated blood scandal, mad cow crisis, and dioxin contamination episode. These public health and food safety scandals exemplify the side effects of modernization as outlined by Beck. Beck also predicted the development of a solidarity arising from the public's anxiety over the global distribution of modernization's risks. The impact of these cases on risk regulation illustrates the political and social reaction to the invisible, global risks of late modernity. The subsequent response to this reaction in European risk regulation further demonstrates the tension between a globalizing market and public anxiety in risk society.*

## I. The Side Effects of Modernization

Three decades ago, Ulrich Beck's *Risk Society: Towards a New Modernity* laid out the consequences of modernization. Industrialization had entered a new phase of overproduction, and Beck identified a shift from personal risks to global dangers.<sup>1</sup> Risks of late modernity differ from those that came before, specifically in that:

They induce systematic and often *irreversible* harm, generally remain *invisible*, are based on *causal interpretations*, and thus initially only exist in terms of the (scientific or anti-scientific) *knowledge* about them. They can thus be changed, magnified, dramatized or minimized within knowledge, and to that extent they are particularly *open to social definition and construction*.<sup>2</sup>

Risk society thus becomes a “catastrophic society”<sup>3</sup> where the media, scientists, and legal experts define

risks,<sup>4</sup> and the new side effects of overproduction are disseminated globally, requiring political solutions rather than individual mitigation. Furthermore, because of social influence, scientific validity does not necessarily determine risks.<sup>5</sup> In this type of society, “*solidarity from anxiety arises* and becomes a political force,” demanding action to shield citizens from risk.<sup>6</sup>

Beck highlights a range of these risks, from radioactivity and pollution to toxins in food. A study of European crises in the 1990s illustrates Beck's side effects of late modernity. A few years after *Risk Society* was published, a series of public health and food safety scandals reverberated across the European Union (EU). An HIV-tainted blood scandal unfolded in France early in the decade, followed by the discovery in the UK that bovine spongiform encephalopathy (BSE) – commonly known as “mad cow” disease – was responsible for variant Creutzfeldt-Jakob disease (vCJD), a rare and fatal human neurodegenerative condition. In the midst of the media furor over mad cow disease, another scandal emerged in Belgium: dioxin-contaminated chickens and eggs.

Efforts to assign liability for these incidents revealed that economic interests had trumped public health concerns in decision-making processes. Repercussions included criminal cases against public officials in France in the blood case, as well as plummeting levels of public trust in governments' ability to

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1 Ulrich Beck, *Risk Society: Towards a New Modernity* (London: Sage Publications, 1992).

2 Beck, *Risk Society*, *supra* note 1, at p. 22-23. Italics in original.

3 Beck, *Risk Society*, *supra* note 1, at p. 24.

4 Beck, *Risk Society*, *supra* note 1, at p. 23.

5 Beck, *Risk Society*, *supra* note 1, at p. 32.

6 Beck, *Risk Society*, *supra* note 1, at p. 49.

effectively regulate public health and food safety issues. In reaction to shifting public perceptions of risk, the EU began to codify the precautionary principle into its risk regulation in these issue areas, and acknowledged the need to shift competence in food safety from member states to the EU in order to coordinate regulation. This new approach coincided with the arrival of American genetically modified (GM) soy in Europe, leading to protracted debates regarding the safety of genetically modified organisms (GMOs).

This article demonstrates how the evolution of the precautionary principle reveals the entrenchment of Beck's risk society, and how the push for incorporation of the precautionary principle into food safety regulation represents the institutionalization of concern about the distribution of risks. To do so, it reviews research that links the tainted blood scandal, the mad cow crisis, and the dioxin contamination episode to GMO regulation and explores how recurring themes across cases fostered policy linkage in the public mind during the 1990s and into the early 2000s. An overview of the tainted blood case, which came to light in 1991, establishes the historical context into which GMO approvals were introduced. It also shows how the tainted blood scandal shaped risk-averse policymaking strategies for subsequent public health crises, such as mad cow disease. The mad cow crisis, which developed into a full-fledged public health disaster in 1996, revealed itself to be the defining moment of an *Annus horribilis*; it in turn shaped the regulatory responses to the dioxin contamination episode that followed in 1999. Mad cow further cemented the link between public health and food safety in the minds of the public and policymakers.

Acting as triggering events, these cases motivated reforms to existing regulatory institutions across the EU and eventually led to the creation of new public health and food safety agencies – such as the European Food Safety Authority (EFSA). Thus, this review analyzes how regulatory failures in public health and food safety contributed to a more precautionary approach to risk management for new technologies in food production, especially at the moment when GMOs appeared on the agenda. It also addresses how the incorporation of the precautionary principle as the foundation for food safety regulation was in part motivated by declining levels of public trust. More specifically, it looks at how these regulatory failures

were viewed as consequences of the liberalization and integration of markets, and how policy solutions responded to public fears over the potential systematic and irreversible harm of GMOs' invisible risks. As such, these cases illustrate Beck's point that media and legal experts play a role in the new risk society.

## II. *L'Affaire du sang contaminé*

In 1991, France was rocked by revelations that, after being warned about potential contamination by the human immunodeficiency virus (HIV), "officials at the country's National Blood Transfusion Centre had decided that distribution of non-heat-treated blood products to hemophiliacs would continue until all the stocks were depleted or until the law forbade it."<sup>7</sup> While other national governments were also blamed for mishandling HIV and blood supply safety, *l'affaire du sang contaminé*<sup>8</sup> was especially damaging to the French government due to the assignment of blame to French officials. The French media played an important role in drawing the public's attention to this issue, starting with a journalistic exposé in 1991. In the ensuing media frenzy, it became clear officials had known the factor concentrate (a clotting product given to hemophiliacs) was contaminated, but had chosen to withhold that information from France's hemophilia association and the Ministry of Health,<sup>9</sup> even though methods to detect and eliminate HIV were available.<sup>10</sup> Those decisions directly led to high rates of transfusion-related HIV-infection among French hemophiliacs, fueling public outrage.

The case's roots began in the 1980s. Early in that decade, the medical establishment was working to identify a new disease that would eventually be known as acquired immunodeficiency syndrome

7 Michael Orsini, "Reframing Medical Injury? Viewing People With Hemophilia as Victims of Cultural Injustice," 16.2 *Social & Legal Studies* (2007), pp. 241 et seq., at p. 245.

8 *L'Affaire du sang contaminé* is the French phrase used to denote the HIV-tainted blood scandal. Though the contamination and cover up occurred in the 1980s, it was not until the early 1990s that the French public became aware of the situation. *L'Affaire du sang contaminé* usually refers to the time period from when the first policy decisions that would impact the regulation of tainted blood were made (1983) until the last judicial rulings in the resulting courts cases were entered (2002).

9 Ibid.

10 Marlise Simons, "France Convicts 3 in Case of H.I.V.-Tainted Blood," *The New York Times*, 24 October 1992.

(AIDS) and its cause, HIV. Between 1981 and 1985, researchers discovered cases, developed a test to detect HIV in blood, and devised a method for heat-treating blood to inactivate HIV in plasma.<sup>11</sup> However, by the time the heat-treating process was developed, contaminated blood products had entered the blood supply. This contamination particularly affected hemophiliacs. In France, 1,200 out of 3,000 severe hemophiliacs had contracted HIV, and there were 4,000-6,000 transfusion-related cases of HIV infection.<sup>12</sup> France had the highest rates of infection in transfusion-related AIDS cases as a percentage of its total AIDS cases when compared to the US, UK, Germany, Australia, Switzerland, and Canada.<sup>13</sup>

The HIV-tainted blood scandal transformed the French conceptualization of and their approach to public health as a policy domain. *L'affaire du sang contaminé* was the first case that was truly a public health crisis (*crise sanitaire*) for the French, leading directly to the creation of governmental agencies responsible for promoting and regulating public health issues.<sup>14</sup> The tainted blood scandal is often characterized as the catalyst for regulatory reform because it exposed how unprepared the government was to face new risks.<sup>15</sup> Rattled by the revelations, the French blamed their government for failing to protect public health, and the government responded by

creating new agencies to satisfy the demand for more public health protection.<sup>16</sup> As a result of the exposé, four public officials were charged. Michel Garretta and Jean-Pierre Allain – the director and assistant director of the National Blood Transfusion Centre (NBTC) – were charged with misrepresenting the quality of commercial products, and Jacques Roux (former Director General of Health) and Robert Netter (former head of the Public Health Laboratory) were accused of failing to help “persons in danger.”<sup>17</sup> In 1992, Garretta and Allain were convicted and sentenced to four years in prison, though each had two years suspended, in addition to being ordered to pay the equivalent of \$1.8 million in compensation to those with AIDS and their families.<sup>18</sup> Roux received a four-year suspended sentence, and Netter was acquitted.<sup>19</sup>

While the basis of the case was abhorrent, outrage intensified when the trial revealed that officials delayed the heat-treating process and HIV tests for “commercial” reasons. By early 1985, American officials had warned that hemophiliacs were at risk of infection from non-heat treated blood products, and they had taken measures to cleanse the virus from the American supply.<sup>20</sup> American manufacturers of HIV tests attempted to sell their products in France for availability in March 1985, but were refused authorization.<sup>21</sup> Instead, French officials did not take action until approval of the French Pasteur Diagnostics kit in June 1985. Minutes from an interministerial cabinet meeting indicated that “approval of the American blood testing kits was deferred because the French government wanted to secure 35% of the national market for Pasteur.”<sup>22</sup> The delay was a result of pressure from the Health Ministry on the NBTC “to become profitable and to compete better with France’s neighboring countries.”<sup>23</sup>

In this case, the judicial system took a “blamist” approach to handling the scandal, targeting liability precisely on specific decision-makers,<sup>24</sup> namely NBTC leadership. Eventually the scope of blame widened to Cabinet ministers, in an effort to address their political responsibility. Laurent Fabius (former Prime Minister), Edmond Hervé (former Health Minister), and Georgina Dufoix (former Social Affairs Minister) were charged with manslaughter and tried by a special tribunal for their role in the scandal. Fabius and Dufoix were acquitted; Hervé was convicted, though he was not sentenced with the judge finding that “due to the length of the scandal, the for-

11 Eric A. Feldman, “Blood Justice: Courts, Conflict, and Compensation in Japan, France, and the United States,” 24.3 *Law and Society Review* (2000), pp. 651 et seq., at p. 660.

12 Ibid.

13 Michael Trebilcock, Robert Howse, Ron Daniels, “Do Institutions Matter? A Comparative Pathology of the HIV-Infected Blood Tragedy,” 14.8 *Virginia Law Review* (1996), pp. 1407 et seq., at p. 1418.

14 Sophie Chauveau, *L’Affaire du sang contaminé (1983-2003)* (Paris: Les Belles Lettres, 2011), at p. 19.

15 Chauveau, *L’Affaire du sang contaminé*, supra note 14, at p. 16.

16 Ibid.

17 Alan Riding, “Ex-French Officials Go on Trial in AIDS Case,” *The New York Times*, 25 June 1992.

18 Simons, “France Convicts 3,” supra note 10.

19 Ibid.

20 Ibid.

21 Ibid.

22 Trebilcock et al., “Do Institutions Matter?” supra note 13, at p. 1452; see also Feldman, “Blood Justice,” supra note 11, at p. 663, note 10.

23 Simons, “France Convicts 3,” supra note 10.

24 Christopher Hood and David K.C. Jones, “Liability and blame: pointing the finger or nobody’s fault,” in Hood and Jones (eds.), *Accident and Design: Contemporary debates in risk management* (London: Routledge, 1996/2002), pp. 46 et seq., at p. 46.

mer health minister had not benefited from the ‘presumption of innocence to which he is entitled’ and would therefore go officially unpunished.<sup>25</sup>

While much has been made of the mad cow crisis as the impetus for changes in the EU’s and individual member states’ food safety regulatory regimes,<sup>26</sup> it is important to note the HIV-tainted blood scandal’s impact. The timing of the mad cow crisis was certainly a factor in eroding trust in governmental institutions and their ability to protect the food supply, especially when combined with other issues of hormone-treated beef, a listeria outbreak, and dioxin scares. However, the HIV-tainted blood scandal, which occurred just a few years before, left deep scars in the public’s trust of the French government’s ability to protect public health. It also raised concerns that the government was more worried about protecting industry profits than protecting public health.

Following the disclosure of the tainted blood, the French government promised to protect its public from future public health crises.<sup>27</sup> To do so, the government enacted reforms for the regulation of the national blood supply: abolishing previous institutions and decision-making structures for blood regulation and disseminating their responsibilities among newly created regulatory agencies with “independent expert authority.”<sup>28</sup> Perhaps most importantly, the mishandling of blood contamination established that the government needed “to act in the face of potential risk.”<sup>29</sup> Yet the government was left reeling from the mad cow crisis a few years later, and the French were left wondering: if regulatory responsibility and oversight of public health issues were supposed to have been improved, why were they not working?<sup>30</sup>

### III. The Mad Cow Crisis

While *l'affaire du sang contaminé* was the first public health scandal in Europe to significantly undermine trust in government regulation of food and safety issues, it was the mad cow crisis that led to widespread awareness of the potential dangers of GMOs. Like the tainted blood scandal, the roots of mad cow were planted years before its true scope came to light. In the late 1970s, the UK made changes to procedures required to treat animal byproducts used to fortify livestock feed. Due to environmental

and cost concerns, these byproducts were no longer required to be treated with hexane gas to rid them of pathogenic agents.<sup>31</sup> In addition, the temperature of the heat-treating process to which they were subjected – also to destroy pathogenic agents in the tissues – was lowered.<sup>32</sup> In hindsight, the lower temperature was too low; pathogenic agents were not being completely eradicated.<sup>33</sup> Between April and September of 1985, UK veterinarians began to observe a disease afflicting British cattle similar to scrapie (a neurodegenerative disease observed in sheep), although the illness had never been identified in cows. After further studies, the disease was identified as bovine spongiform encephalopathy (BSE) in 1986. At the time, veterinarians found the illness to be more of a medical curiosity than a cause for alarm.<sup>34</sup>

But by 1988 the outlook had changed; significant increases in the number of sick animals raised the profile of BSE from curiosity to that of a major animal health issue. By March of that year, UK scientists had determined that sick animals had consumed animal-protein fortified feed, and in July, Margaret Thatcher’s government banned the use of animal byproducts in animal feed destined for ruminants. Yet, despite recognition of the potential harm from using animal-protein fortified feed, the UK agricultural lobby successfully pressured the government to grant a five-week reprieve on the ban in order to allow cattle owners to exhaust their feed stocks.<sup>35</sup> The

25 N.A., “Blood scandal ministers walk free,” *BBC News*, 9 March 1999, Section: World: Europe.

26 For examples, see: Ansell and Vogel, eds., *What’s the Beef? The Contested Governance of European Food Safety* (Cambridge, MA: The MIT Press, 2006); Debra Holland and Helen Pope, *EU Food Law and Policy* (The Hague: Kluwer International Law, 2004); Damian Chalmers, “Food for Thought: Reconciling European Risks and Traditional Ways of Life,” 66.4 *The Modern Law Review* (2003), pp. 532 *et seq.*

27 Sophie Chauveau, from interview, 30 January 2012.

28 Monika Steffan, “The Nation’s Blood. Medicine, Justice, and the State in France,” in Feldman and Bayer (eds.), *Blood Feuds. AIDS, Blood, and the Politics of Medical Disaster* (New York: Oxford University Press, 1999), pp. 95 *et seq.*, at p. 37.

29 Steffan, “The Nation’s Blood,” *supra* note 28, at p. 123.

30 Chauveau, interview, *supra* note 27.

31 Pierre-Marie Lledo, *Histoire de la vache folle* (Paris: Presses Universitaires de France, 2001), at p. 37.

32 *Ibid.*

33 *Ibid.*

34 Lledo, *Histoire de la vache folle*, *supra* note 31, at p. 36.

35 Lledo, *Histoire de la vache folle*, *supra* note 31, at p. 37.

UK took measures to control the spread of the disease further when in August 1988 it required all animals suspected of infection to be slaughtered and incinerated. Then, in November 1988, the UK instituted another ban, this time on the sale of milk from infected cattle for human or animal (with the exception of calf) consumption.

The UK government created two committees to analyze what was happening and to provide suggestions on how the disease should be handled. The Working Party on BSE's objectives were to conduct an expert risk assessment, identify any threats to human beings, and provide overall guidance to the government for BSE-related issues.<sup>36</sup> In February 1989, the group published what was seen as a "contradictory report"<sup>37</sup>; it ruled out the possibility of BSE crossing the species barrier into humans, while at the same time calling for the exclusion of high-risk material from food products. A second consultative committee met in 1989 and 1990, and was responsible for analyzing leading research and identifying required future research.<sup>38</sup> Its report "emphasized the need to develop scientific knowledge in a number of areas and cautiously noted that no reliable conclusions could be drawn about the spread of BSE to humans."<sup>39</sup> It did recommend, however, that additional research

was needed, although there was no immediate follow up by the government on the recommendations.<sup>40</sup> In the mid-1990s, the committee's leader went so far as to state that "British beef can be eaten by everyone."<sup>41</sup> Thus, the UK government continued to maintain that beef was safe to eat, claiming that scientific and medical studies supported this assertion.<sup>42</sup>

Nonetheless, public anxiety and confusion in the UK over mad cow were beginning to build and were further inflamed when scientific experiments showed that other animals could become infected from ingesting meat from infected cows. Sophie Reibel argued that public confusion over what to believe was justified. Writing in 1994, before it was officially recognized that BSE could, in fact, cross the species barrier between cows and humans, she noted that the public was overwhelmed with scientific "opinions" that alternated between declarations that beef was safe to eat and catastrophic predictions that a whole generation of Britons would be lost to mad cow disease.<sup>43</sup> The British government did not help to dispel the confusion; at the same time that it was implementing bans on milk consumption and on animal-based proteins in feed, it was also spending £1 million on a public relations campaign in May 1990 with the slogan, "Beef is safe."<sup>44</sup>

At the European-level, "the European Commission accepted assurances from the British Ministry of Agriculture that it posed no danger to humans" when BSE was first detected in the mid-1980s in UK herds.<sup>45</sup> But, as more studies showed the transmission of BSE to other mammals, Britain was forced to notify other member states of a potential food safety problem.<sup>46</sup> In 1989, the EU placed restrictions on the importation of live cattle from the UK. European states took individual protective measures as well. In 1990, France instituted its own ban on animal-based animal feed for cows, which was shortly followed by an EU ban in 1991 on animal-based feed for all ruminants. In an effort to diminish the damage that BSE fears were having on the UK's agricultural sector, the Minister of Health at that time, Stephen Dorrell, assured the public that there was "no conceivable risk" from eating British beef in 1995.<sup>47</sup>

Yet, just a few months later, the first major wave of the BSE crisis broke, forcing the UK government to reverse its position. In March 1996, the British government announced that the transmission of BSE from cows to humans was possible<sup>48</sup> and that the

36 Matthias Beck, Darinka Asenova, and Gordon Dickson, "Public Administration, Science, and Risk Assessment: A Case Study of the U.K. Bovine Spongiform Encephalopathy Crisis," 65.4 *Public Administration Review* (2005), pp. 396 *et seq.*, at p. 400.

37 Beck *et al.*, "Public Administration, Science, and Risk Assessment," *supra* note 36, at p. 401.

38 *Ibid.*

39 *Ibid.*

40 *Ibid.*

41 *Ibid.*

42 "On this day: May 16, 1990: Gummer enlists daughter in BSE fight." *BBC News*. 16 May 1990.

43 Sophie Reibel, *Encéphalopathie Spongiforme Bovine. Épidémiologies et Implications* (Paris: Polytechnica, 1994), at pp. 130-131. All translations from French are author's own.

44 Reibel, *Encéphalopathie Spongiforme Bovine*, *supra* note 43, at p. 131.

45 David Vogel, "The Hare and the Tortoise Revisited: The New Politics of Consumer and Environmental Regulation in Europe," 33.4 *British Journal of Political Science* (2003), pp. 557 *et seq.*, at p. 569.

46 Vogel, "The Hare and the Tortoise Revisited," *supra* note 45, at p. 569.

47 Michael White, "Dorrell says he regrets giving 'no risk' advice," *The Guardian*, 28 October 2000.

48 Jocelyn Raude, *Sociologie d'une crise alimentaire. Les consommateurs à l'épreuve de la maladie de la vache folle* (Paris: Lavoisier, 2008), at p. 7.



variant Creutzfeldt-Jakob disease (vCJD) – a new form of a fatal neurodegenerative illness affecting humans – was related to eating contaminated beef. As Matthias Beck, Darinka Asenova, and Gordon Dickson note, “with about 30,000 suspected cases of infected cattle and 10 reported vCJD cases in young people, the government’s view [that British beef was safe to eat] had become impossible to sustain.”<sup>49</sup>

In the UK, “the news that humans had likely been infected with BSE hit the United Kingdom, like a bombshell.”<sup>50</sup> The British cattle industry was nearly bankrupted and the revelations played a key role in the defeat of the Conservative government, who had been downplaying the danger from BSE, in the 1997 parliamentary election.<sup>51</sup> With increased anxiety among consumers – expressed through public protests and plummeting beef sales – a complete ban on cattle of more than thirty months was introduced, resulting in 3.3 million cattle being destroyed between 1996 and 1999.<sup>52</sup> In addition, the EU passed legislation prohibiting all British cattle and beef exports. Consumer reactions in the European marketplace were swift and severe. In France, the number of households purchasing beef fell by 30% in the weeks following the announcement.<sup>53</sup> In addition to decreased sales, from 1996 onward, EU officials implemented eradication programs within individual member states whenever they diagnosed BSE in cattle.<sup>54</sup> By 1997, the total number of BSE cases identified in cattle reached 179,087 in the EU, of which 99.5% were located in the UK.<sup>55</sup>

After a brief period of calm, the second wave of the crisis hit in October 2000, and this phase would be more serious and last longer than the first.<sup>56</sup> Scientific experts and public policymakers had expected to see a decline in the number of cases of BSE in cattle due to the implemented measures.<sup>57</sup> But instead of declining, the number of post-ban cases kept climbing, indicating that there was “either a higher cattle-to-calf rate of transmission than had previously been understood, or that the consumption of infected feed had continued.”<sup>58</sup> Whatever the cause of the increase, officials concluded that a large number of infected animals had entered the human food chain.<sup>59</sup> Between the first noted observance of the disease in 1985 and September 2000, 4.3 million cows in the UK had been slaughtered.<sup>60</sup> And the epidemic was spreading; cases of BSE were found in twelve European countries, the Falkland Islands, Canada, and Oman by 2001.<sup>61</sup>

This second wave caused even more damage to the EU’s agricultural sector. A poll from January 2001 showed that 45% of French citizens surveyed had reduced or stopped their consumption of beef.<sup>62</sup> Another survey gave more precise numbers: in the last four months of 2000, sales of beef in France had fallen nearly 35% in volume, and one household in four had reduced its purchases of beef while one household in ten no longer ate beef at all.<sup>63</sup> Consumers in other European countries exhibited similar behavior; the European Commission estimated that the costs of dealing with the BSE crisis totaled €100 billion.<sup>64</sup>

Besides the growing severity of the BSE crisis as an animal health issue, the public anxiety over human health reached hysterical proportions, and with good reason. Early UK reports estimated the maximum possible number of human cases at around 500,000, though by 2000 that estimate had been scaled down to 136,000.<sup>65</sup> The BSE crisis was, more

49 Beck *et al.*, “Public Administration, Science, and Risk Assessment,” *supra* note 36, at p. 402.

50 Michael Balter, “Tracking the Human Fallout from ‘Mad Cow Disease,’” 289 *Science* (Sep. 1, 2000), pp. 1452 *et seq.*, at p. 1453.

51 Balter, “Tracking the Human Fallout,” *supra* note 59, at p. 1453.

52 Beck *et al.*, “Public Administration, Science, and Risk Assessment,” *supra* note 36, at p. 402.

53 Raude, *Sociologie d’une crise alimentaire*, *supra* note 48, at p. 7.

54 Heather Berit Freeman, “Trade Epidemic: The Impact of the Mad Cow Crisis on EU-U.S Relations,” 25 *B.C. Int’l & Comp. L. Rev.* (2002), pp. 343 *et seq.*, at p. 351.

55 Beck *et al.*, “Public Administration, Science, and Risk Assessment,” *supra* note 36, at p. 399.

56 Raude, *Sociologie d’une crise alimentaire*, *supra* note 48, at p. 7; Lledo, *Histoire de la vache folle*, *supra* note 31, at p. 39.

57 Beck *et al.*, “Public Administration, Science, and Risk Assessment,” *supra* note 36, at p. 401.

58 *Ibid.*

59 *Ibid.*

60 Lledo, *Histoire de la vache folle*, *supra* note 31, at p. 39.

61 Lledo, *Histoire de la vache folle*, *supra* note 31, at p. 40.

62 Raude, *Sociologie d’une crise alimentaire*, *supra* note 48, at p. 7.

63 *Ibid.*

64 *Ibid.*

65 Balter, “Tracking the Human Fallout,” *supra* note 50, at p. 1452. In actuality, as of April 2015, The National Creutzfeldt-Jakob Disease Research & Surveillance Unit (NCJDRSU) – an organization created by the UK government to track vCJD – had confirmed 229 cases worldwide. The overwhelming amount (177 cases or approximately 77% of the total) were in the UK. France had the second highest rate with 27 confirmed cases or approximately 12% of the total. The remaining 25 cases are spread out over ten countries. NCJDRSU, “Variant CJD Cases Worldwide,” available on Internet at < <http://www.cjd.ed.ac.uk/documents/report22.pdf> > (last accessed 25 October 2015).

than any other public health issue, presented in the media with overwhelming fear and as a collective psychosis.<sup>66</sup> A *New York Times* article provides an example of this type of portrayal of BSE:

The human toll might seem small when compared with diseases like malaria, which kills millions of people every year. But the prospect of turning loose a stealthy, deadly and largely unknown pathogen is what most concerns scientists across Europe. The mad cow scare has touched off a panicky reaction against eating beef, but the worrisome fact is that many people already may be infected, perhaps because proteins known as prions that had somehow become aberrant were lurking in their baby food or hamburger many years ago. The danger to humanity, scientists say, is that the general level of potential infection will rise, making it easier for the disease to emerge in future generations.<sup>67</sup>

The disease's human symptoms fueled this depiction of vCJD as "mad cow disease." Patients with vCJD ex-

hibit "a progression of psychiatric and neurological symptoms that culminate in death, usually a year or two after the onset of the first indications of illness."<sup>68</sup> Unlike the known sporadic CJD strain that typically affects 50-to-70 year olds, the great majority of vCJD cases were found in people under the age of 30.<sup>69</sup> Furthermore, between the first and second waves the public had seen the suffering of vCJD patients paraded across their televisions,<sup>70</sup> just like the stories of young hemophiliacs with AIDS before them. Fears of the disease were compounded by the fact that, because of the large number of bovine-derived products, "consumption of meat and dairy products and exposure to products containing either tallow or gelatin (or their derivatives) is nearly universal,"<sup>71</sup> meaning that almost all consumers were potentially at risk. As such, the mad cow crisis affirmed the side effects of Beck's risk society: systematic and irreversible harm from invisible risks distributed worldwide.

French politicians, still dealing with the fallout of the blood scandal and conscious of the consequences of blame, adopted a risk-averse policy position in response to the mad cow crisis. Early measures by France included adherence to EU restrictions on the importation of live cattle from the UK and the ban on animal-based animal feed for cows, later extended to all ruminants. By 1999, the EU required the removal of all specified risk material (SRM)<sup>72</sup> from animal and human food chains; systematic screening of animals; a ban on *le jonchage* (a method used to immobilize cattle before they are slaughtered);<sup>73</sup> and a ban on any feed that contained meat- or bone-meal additives.<sup>74</sup> France had also taken the additional action of eliminating certain animal fats from animal feed.<sup>75</sup>

France initially followed the EU's embargoes on beef imports from the UK and from Portugal, which had commenced in 1996 and 1998, respectively. But the French government's reaction to the BSE crisis became much more severe than other member states, resulting in friction between the UK and France. In 1999, for example, while the EU decided to lift the embargo on all British beef and live cattle, the French government, under the advisement of the newly formed French food safety authority (*l'Agence française de sécurité sanitaire des aliments* – AFSSA) decided to maintain it.<sup>76</sup> Even with these measures in place, by October 2000 France had found 175 cases among its cattle herds.<sup>77</sup>

66 Raude, *Sociologie d'une crise alimentaire*, *supra* note 48, at p. 7-8. Raude illustrates the media's presentation with headlines from that time: "La grande peur de la vache folle" ("The Great Fear of Mad Cow") from the November 8, 2000 issue of *Le Monde*; "Un climat de psychose" ("A Psychotic Atmosphere") from the November 10, 2000 issue of *Le Parisien*; and "Panique sur le bœuf" ("Panic over Beef") from the November 17, 2000 issue of *France Soir*.

67 Barry James, "Europe's Spreading Food Scare: Untangling the Deadly 'Mad Cow' Mystery," *New York Times*, 7 December 2000.

68 Paul Brown, "Mad-Cow Disease in Cattle and Human Beings: Bovine spongiform encephalopathy provides a case study in how to manage risks while still learning the facts," 92.4 *American Scientist* (2004), pp. 334 et seq., at p. 334.

69 Balter, "Tracking the Human Fallout," *supra* note 50, at p. 1453; Brown, "Mad-Cow Disease in Cattle and Human Beings," *supra* note 68, at p. 339.

70 Lledo, *Histoire de la vache folle*, *supra* note 31, at p. 15.

71 Brown, "Mad-Cow Disease in Cattle and Human Beings," *supra* note 68, at p. 339.

72 Known in French as *matériaux risqué spécifiques* (MRS), in the context of the BSE crisis, specified risk materials are tissues such as the brains, eyes, spine, and marrow of infected animals that were identified as posing a higher risk of infection.

73 Catherine Coroller, "Saines mises à mort dans les abattoirs. L'abattage par jonchage, facteur possible de contamination de l'ESB, sera interdit," *Libération*, 15 March 2000.

74 AFSSA, *Nutrition et risques alimentaires. Vos questions sur... oméga 3, iode, allergies, sucre, vache folle, soja, promesses santé, eau... les scientifiques répondent* (Évreux: Les Presses de Kapp, 2005), at p. 56.

75 *Ibid.*

76 AFSSA, *Nutrition et risques alimentaires*, *supra* note 74, at p. 57-58.

77 Lledo, *Histoire de la vache folle*, *supra* note 31, at p. 40.

This risk-averse position in France has been linked to the outcomes of the HIV-tainted blood scandal:

[The HIV-tainted blood scandal] shocked French public opinion, calling into question the public's historic high regard for the competence of the public sector in a highly paternalistic state. It also continues to haunt French politicians, making them highly risk-averse, particularly with respect to potential threats to public health.<sup>78</sup>

French politicians had become more concerned with the consequences of blame in light of not only the deaths due to tainted blood, but also the criminal prosecution of public officials (though UK officials claimed the French were taking advantage of the crisis to boost French agriculture).

The mad cow crisis was not the first major regulatory failure in Europe, yet “the EU’s belated failure to recognize [the] health hazards [of BSE] severely undermined public trust in EU food safety regulations and the scientific expertise on which they were based.”<sup>79</sup> In France, the conceptualization of *les crises sanitaires*, which had crystallized during the HIV-tainted blood scandal, became further cemented in the public consciousness.<sup>80</sup> It also showed that authority over food safety had to be elevated to the EU-level; the crisis had started in the UK and then spread throughout the common market. Even beyond the borders of the EU, the spread of mad cow disease was different from preceding public health crises because it “represented a global risk by the measure of the number of populations (European, African, and Asian) that were exposed – in varying degrees – to the potentially dangerous products” due to the worldwide export of British beef between 1986 and 1996.<sup>81</sup> Because of its extent, the BSE crisis can be considered as the first real global crisis in food safety.<sup>82</sup>

In addition to the BSE crisis’ scope, the policy impact of regulatory failures during the 1980s and 1990s has been deeper than in previous decades.<sup>83</sup> The “cumulative impact” of these crises “has been to increase the public’s sense of vulnerability to and anxiety about the risks associated with modern society and this in turn has affected the political context in which regulatory policies have been made.”<sup>84</sup> In response to these concerns, a solidarity arising from public anxiety influenced the creation of food safety authorities or new ministries in several member states,<sup>85</sup> in addition to the formation of EFSA.

The creation of these agencies, which are responsible for risk assessment though not risk management, was in part an effort to rebuild the European trust in governmental ability to regulate food safety. The new, more “independent” agencies were also supposed to be less vulnerable to regulatory capture than the comitology system that had been in place during the BSE crisis.<sup>86</sup> These regulatory agencies were supposed to remove the overwhelming power of industry from policymaking and give some semblance of responsibility and control to politicians. Then again, the creation of new agencies also provided officials with potential “scapegoats for hard choices for which they might not otherwise be blamed.”<sup>87</sup>

#### IV. Dioxin Contamination

A little over a year before mad cow’s second wave, the Belgian government announced the widespread contamination of animal feed with dioxins on May 27, 1999.<sup>88</sup> This newest public scandal “erupted when European consumer confidence in food was particularly low,” coming not only on the heels of the first

78 Vogel, “The Hare and the Tortoise Revisited,” *supra* note 45, at p. 571.

79 Vogel, “The Hare and the Tortoise Revisited,” *supra* note 45, at p. 569.

80 Didier Fassin and Boris Hauray (eds.), *Santé publique: L'état des savoirs* (Paris: La Découverte, 2010); Boris Hauray, from interview, 9 February 2012.

81 Raude, *Sociologie d'une crise alimentaire*, *supra* note 48, at p. 6.

82 C. Fischler, “La maladie de la vache folle,” in M. Apfelbaum (dir.), *Risques et peurs alimentaires* (Paris: Odile Jacob, 1998), pp. 118, as cited by Raude, *Sociologie d'une crise alimentaire*, *supra* note 57, at p. 6.

83 Vogel, “The Hare and the Tortoise Revisited,” *supra* note 45, at p. 571.

84 *Ibid.*

85 Vogel, “The Hare and the Tortoise Revisited,” *supra* note 45, at p. 570.

86 *Ibid.*

87 Mark Thatcher and Alec Stone Sweet, “Theory and Practice of Delegation to Non-Majoritarian Institutions,” in Thatcher and Stone Sweet (eds.), *The Politics of Delegation* (London: Frank Cass and Company Ltd., 2003), pp. 1 *et seq.*, at p. 9.

88 Dioxins are “a group of chemical compounds released by processes such as waste incineration and the burning of household fuel, have been linked to health effects ranging from skin disease to cancer.” David A. Taylor, “Animal Feed to People Food: The Belgian Dioxin Incident,” 109.3 *Environmental Health Perspectives*, (2001), p. A133.



wave of BSE, but also after a listeria outbreak (1995)<sup>89</sup> and during the ongoing dispute between the EU and the US over the European refusal to accept American imports of hormone-treated beef.<sup>90</sup> Contamination most likely occurred in mid-January 1999, when animal fat at a Belgian fat and oil processing plant and animal feed manufacturer were mixed with dioxin-contaminated industrial oils.<sup>91</sup> In February, animal producers began to notice an increase in egg-laying impairments and neural disorders in chickens,<sup>92</sup> which were then traced to contaminated fat in the hens' feed.<sup>93</sup> The Belgian Ministry of Agriculture received a report on the situation on April 21, 1996, with a laboratory analysis confirming that "dioxin was present at high levels in the hens' feed and body fat" coming five days later.<sup>94</sup> Despite knowing in April 1999 that public health could be endangered, the Belgian government withheld this information for another month. Ostensibly, the delay was due to the compilation of a list of farms that might have received contaminated feed and the completion of tests to determine whether dioxin had reached the human food supply.<sup>95</sup> This delay, however, would be the eventual undoing of the ruling administration. By the time the government went public, over 1,000 Belgian farms had been endangered by contaminated animal feed, and farms in the Netherlands, France, and Germany were at risk.<sup>96</sup>

After the contamination announcement, the public backlash, fueled by media scrutiny of the govern-

ment's actions, was immediate and escalated the situation into a crisis.<sup>97</sup> Because of the government's prior knowledge and delay, the media accused the government of a cover-up.<sup>98</sup> The media claimed the Belgian Ministry of Agriculture prioritized the potential effects of notification on food trade over consumer safety.<sup>99</sup> Not only did the scandal break during a period when consumer confidence was especially low due to the mad cow crisis, but also, "[t]his narrative mirrored the primacy given to producer interests in Britain's mad cow episode, at the expense of consumer interests."<sup>100</sup> Accusations were framed around impending elections, with the implication that the government delay was "serving the economic interests of farmers' unions and the meat industry, and trying to protect itself in preparation for the upcoming general elections, rather than protecting public health."<sup>101</sup> Finally, the media painted the delay as "an irresponsible move by the Belgian government," which resulted in the public focusing "its blame on the government rather than those actually responsible for the contamination."<sup>102</sup>

Adding to consumers' anxiety was the invisibility of dioxin risks. Unlike with vCJD, human health effects from dioxin contamination are not physically obvious or easily assessable through medical tests.<sup>103</sup> Even after several years, "Not one person [had] been detected with any observable consequence of dioxin poisoning"<sup>104</sup> and no acute clinical health effects had been reported.<sup>105</sup> But that did not mean that Belgians

89 This listeria outbreak in France came on the heels of two other listeria outbreaks in 1992 and 1993. Although fewer individuals were sickened than the previous outbreaks, of the thirty-three cases in 1995, eleven pregnant women fell ill, resulting in four fetal deaths. The 1995 outbreak was also the first from unpasteurized cheese and was caused by an unusual phage type that had not been seen in other cases in Europe or North America.

90 A. J. McMichael, "Dioxins in Belgian Feed and Food: Chickens and Eggs," 53.12 *Journal of Epidemiology and Community Health* (1999), pp. 742 *et seq.*, at p. 743.

91 Casey J. Jacob, Corie Lok, Katija Morley, and Douglas A. Powell, "Government management of two media-facilitated crises involving dioxin contamination of food," 20.2 *Public Understanding of Science* (2011), pp. 261 *et seq.*, at p. 263; McMichael, "Dioxins in Belgian Feed and Food," *supra* note 89, at p. 743.

92 McMichael, "Dioxins in Belgian Feed and Food," *supra* note 89, at p. 743.

93 Jacob et al., "Government management of two media-facilitated crises," *supra* note 90, at p. 264.

94 *Ibid.*

95 *Ibid.*

96 McMichael, "Dioxins in Belgian Feed and Food," *supra* note 89, at p. 743.

97 Jacob et al., "Government management of two media-facilitated crises," *supra* note 90, at p. 264.

98 *Ibid.*

99 McMichael, "Dioxins in Belgian Feed and Food," *supra* note 89, at p. 743.

100 *Ibid.*

101 N. Ammerlaan, "Chicken Scare Flavour of the Day in Belgian Campaign," *Reuters* 31 May 1999, as cited by Jacob et al., "Government management of two media-facilitated crises," *supra* note 90, at p. 264.

102 Jacob et al., "Government management of two media-facilitated crises," *supra* note 90, at p. 264.

103 McMichael, "Dioxins in Belgian Feed and Food," *supra* note 89, at p. 742.

104 Luc Bonneux and Wim Van Damme, "An Iatrogenic Pandemic of Panic," 332 *BMJ: British Medical Journal* (2006), pp. 786 *et seq.*, at p. 786.

105 Nik van Larebeke, Luc Hens, Paul Schepens, Adrian Covaci, Jan Baeyens, Kim Everaert, Jan L. Bernheim, Robert Vlietinck, and Geert De Poorter, "The Belgian PCB and Dioxin Incident of January-June 1999: Exposure Data and Potential Impact on Health," 109.3 *Environmental Health Perspectives* (2001), pp. 265 *et seq.*, at p. 272.

were without risk of future consequences. A scientific analysis of potential exposure found that, while Belgians had been exposed to much smaller amounts of dioxins compared to populations in other contamination incidents, a much larger percentage of the population was affected.<sup>106</sup> Furthermore, “the analysis suggests that in terms of added cancer risk, the incident could result in between 32 and 1,540 additional cancer deaths over the projected lifetime of the total Belgian population of 10 million,”<sup>107</sup> though it would be difficult to trace those deaths to this episode. Thus, media coverage of the dioxin contamination scandal differed from that of mad cow because it did not include images and stories that chronicled the debilitating effects of disease on the human body. Yet, it was similar in that it played upon the fears of late modernity’s side effects: the unknowable, future impacts on human health and the widespread distribution of risk.

Despite the differences between the potential consequences of vCJD and dioxin contamination, the media made comparisons between the two scandals, illustrating Beck’s catastrophic society. As Luc Bonneux and Wim Van Damme note, “In a global world with global media coverage and competition for sensational news, any hypothetical doomsday scenario that could capture the public imagination risks unleashing a media storm... The perception of risk is then easily distorted from the actual risk.”<sup>108</sup> An article from *Le Monde* provides an illustrative example:

In less than a week, the dioxin-contaminated chicken scandal has taken on an international dimension. ...[I]t has become “Chickengate” and, in doing so, replicates and reinforces all the same elements that were observed three years ago at the beginning of the “mad cow” crisis: a real health risk, which the experts swear they cannot evaluate with precision, unfolding from an original, and more-or-less mysterious, case of contamination; a peek into the unsavory back rooms of the food-processing and agricultural industries; and a reminder that it is impossible to trace exactly how the majority of the products that we consume are produced.<sup>109</sup>

Such media comparisons to mad cow disease linked the public’s perception of dioxin contamination to BSE. The amplification of risk was also aided by the public’s outrage at “the toxic notoriety of dioxins, the

invisibility of the hazard, and the sense that officialdom had conspired against consumer interests,” because “as risk experts remind us, the perceived risk reflects both the assumed actual hazard and the attendant level of outrage.”<sup>110</sup>

The ramifications of the media coverage and the public outrage over the (mis)handling of the dioxin contamination produced policy responses from Belgium, France, and the EU that were, in hindsight, excessive in light of the actual risk to consumers.<sup>111</sup> After the Belgian government acknowledged the dioxin contamination at the end of May 1999, it took steps to limit the public’s exposure to contaminated products. On June 1, 1999, the Belgian government announced its ban on the sale of all Belgian chicken and eggs. In addition, the Ministry of Public Health ordered recalls for poultry, poultry-derived products (meat, eggs, mayonnaise, cakes, etc.), and all meat products with a fat content greater than 25%.<sup>112</sup> The Public Health Ministry also began a program for widespread product sampling and analysis, ordering any products determined to have excessive dioxin levels to be destroyed.<sup>113</sup>

On June 4, 1999, the European Commission announced the prohibition of any Belgian animal or animal product suspected of contamination from entering the common market. On the same day, France announced that it would implement a more extensive ban than the EU’s measure, by prohibiting the importation of all Belgian animals and animal products. This measure included a ban on the exportation of any French animal or animal products suspected of contamination due to the importation of dioxin-tainted feed to French farms. The Netherlands, Spain,

106 Taylor, “Animal Feed to People Food,” *supra* note 88, at p. A133.

107 *Ibid.*

108 Bonneux and Van Damme, “Iatrogenic Pandemic of Panic,” *supra* note 103, at p. 787.

109 J.Y. Nau, “Le temps des angoisses alimentaires (A propos du poulet à la dioxine),” *Le Monde*, 8 June 1999.

110 McMichael, “Dioxins in Belgian Feed and Food,” *supra* note 89, at p. 742.

111 *Ibid.*

112 Nik van Larebeke, Luc Hens, Paul Schepens, Adrian Covaci, Jan Baeyens, Kim Everaert, Jan L. Bernheim, Robert Vlietinck, and Geert De Poorte, “The Belgian PCB and Dioxin Incident of January-June 1999: Exposure Data and Potential Impact on Health,” 109.3 *Environmental Health Perspectives* (2001), pp. 265 *et seq.*, at p. 265.

113 Van Larebeke et al., “The Belgian PCB and Dioxin Incident,” *supra* note 104, at p. 265.

Austria, and Hungary announced that they would implement the stricter embargo as well.<sup>114</sup> Internationally, the US took this opportunity to institute a ban on all meat and dairy products from Europe.<sup>115</sup> Other countries outside of Europe, such as Canada, South Korea, Russia, South Africa, and some Middle Eastern countries, employed partial bans.<sup>116</sup> Together, these measures resulted in the slaughter and destruction of seven million chickens and 60,000 pigs,<sup>117</sup> and they brought Belgian trade to a “virtual standstill.”<sup>118</sup>

Like its more extensive ban on British beef during the mad cow crisis, France’s blanket-ban on Belgian animals and animal products created friction between France and Belgium. The Belgium government insisted that only certain products were at risk and that a complete ban on all Belgian animal products was excessive. Belgium’s main French-language newspaper described the ban as such:

Is this “contaminated blood syndrome”? In any case, after the trial this past winter of three former Socialist ministers accused of letting AIDS-infected blood products into the blood supply in the mid-1980s, France no longer fools around with public health. Even though it judges the risks to be minimal, France has brought out the heavy artillery in response to “Chickengate.”<sup>119</sup>

Furthermore, France’s decision to go beyond the EU measure inflamed the public spat developing between the European Union’s then-Agriculture Com-

missioner (Franz Fischler) and France’s then-Minister of Agriculture (Jean Glavany) over the timing of the French response. The dispute over responsibility devolved into Fischler denouncing the French government for failing to protect European public health, and Glavany accusing Fischler of being “anti-French” and “anti-democracy.”<sup>120</sup>

In the wake of domestic and international criticism of their crisis management, the Belgian Agriculture and Public Health Ministers resigned. Although the ministers insisted that they had handled the situation properly, they claimed that their resignations were an effort to help restore calm and public trust.<sup>121</sup> The incumbent Belgian government, though, could not staunch the damage with resignations. On June 14, 1999, the ruling coalition was defeated, in part due to having lost credibility during the crisis.<sup>122</sup> The crisis also helped the Belgian “green” party, Ecolo, to climb in political standing, with the press declaring Ecolo the real “winner” of the general elections.<sup>123</sup>

## V. GMOs on the Agenda

These cases shaped the social, political, and institutional contexts into which GMOs arrived in Europe. In the social sphere, public anxieties over food supply risks and the government’s ability to regulate them were growing. Citizens were no longer confident of their government’s commitment to protecting public health. In all three cases, public officials appeared to be more concerned with commercial interests than with public health consequences. For European politicians, the lessons were clear: missteps could lead to being voted out of office or, worse, criminal charges. Amidst fears of being blamed for policy decisions gone wrong, French political responses to public health threats evolved from ones of delay to almost immediate zero-tolerance by the end of the decade. The series of public health and food safety crises of the 1990s thus contributed to the development of risk-averse policymaking strategies to avoid blame. State governments needed to act in response to potential risks to avoid future catastrophes. Politicians began to delegate more political responsibility to regulatory agencies at both the EU-level and the member state-level whose mandates were influenced by these crises.

In the case of France, the repercussions of the HIV-tainted blood scandal demonstrate the public’s inter-

114 J.Y. Nau, “Dioxine : la France décrète un embargo sur tous les produits animaux,” *Le Monde*, 7 June 1999.

115 McMichael, “Dioxins in Belgian Feed and Food,” *supra* note 89, at p. 743.

116 McMichael, “Dioxins in Belgian Feed and Food,” *supra* note 89, at p. 743; Jacob et al., “Government management of two media-facilitated crises,” *supra* note 90, at p. 265.

117 Bonneux and Van Damme, “Iatrogenic Pandemic of Panic,” *supra* note 103, at p. 786.

118 Jacob et al., “Government management of two media-facilitated crises,” *supra* note 90, at p. 265.

119 Joelle Meskens, “Paris a déclenché l’artillerie lourde pour rassurer,” *Le Soir*, 7 June 1999.

120 J.Y. Nau, “Critiquée par la Commission européenne, la France cherche à se justifier,” *Le Monde*, 8 June 1999.

121 Reuters, “Belgian Farm, Health Ministers Offer to Quit Government,” 1 June 1999, as cited by Jacob et al., “Government management of two media-facilitated crises,” *supra* note 90, at p. 264.

122 Jacob et al., “Government management of two media-facilitated crises,” *supra* note 105, at p. 264.

123 Pierre Bouillon, “PS et PSC chutent, le PRL stagne, Ecolo grimpe,” *Le Soir*, 14 June 1999.

est in blaming officials for public health scandals, as the pursuit of criminal charges lasted almost a decade. The timing of this case affected the social context into which GMO approvals were introduced, since institutional and social contexts shape political approaches to blame risk. The first criminal trial coincided with the beginning of market approval debates for GMOs. Actual market approval and the mad cow crisis occurred just four years later. The second trial coincided with the creation of the French food safety authority. While mad cow has been clearly linked to questions about GMOs within the context of food safety, the blood scandal drew attention to larger questions about the government's ability to make the right decisions to protect public health. And, the length of the prosecution of this case kept these questions at the forefront in France.

As such, following this case and the subsequent reinforcement by the BSE and dioxin contamination scandals, public officeholders recognized agricultural biotechnology as possibly high blame risk. Policy strategies often change following a blame episode;<sup>124</sup> consequently, public officials became aware that they were responsible for responding not only to existing risks, but also to *potential* risks. As Beck established, scientists, legal experts, and the media play a role in defining risks in late modernity, requiring political solutions to perceived risks. For GMO regulation following these crises, that meant that national policymakers shifted to a strategy of abstinence: not approving GM crops for cultivation, in turn allowing public officials to avoid responsibility for regulating those crops and their products, which in turn trickled up to decision-making at the EU-level.

In managing the risks of new technology, "Decisionmakers can never relax in the assurance that they have identified the very best option; any choice may be shown to be mistaken by future events that surprise decisionmakers."<sup>125</sup> At the time of institutional formation, scientific studies showed GM crops and products to be of low risk to human health; however, GMO opponents argued that scientific risk assessments did not take the unpredictability of genetic transfer, possible long-term consequences, or socioeconomic impacts into sufficient consideration. Thus, while no new, widely-accepted scientific information has demonstrated a direct link between GMO consumption and risks to human health, uncertainty about the long-term effects of GMOs allow the policy strategy of abstinence to remain entrenched.

The mad cow crisis broke at a moment when consumers were particularly vulnerable to public health threats. Following the revelations of the HIV-contaminated blood supply, the first wave of the BSE crisis occurred between the two rounds of trials related to the blood case. At that moment, Europeans were questioning whether their governments had the best interests of citizens – and not business – in mind. The BSE crisis also raised important questions about the process of food production. European consumers began to more actively contemplate their food's origin and production process, especially as production and supply chains globalized. Furthermore, media coverage of the BSE crisis influenced the public's perception of governmental ability to protect public health. This loss of confidence spilled into the debate on GMO regulation. In Europe, "previous news coverage of issues such as mad cow disease had resulted in damage to public trust," and this damage shaped the environment into which the topic of GMOs was introduced.<sup>126</sup> Due to this pre-existing damage, "the new cycles of public interest in agricultural biotechnology were tilted from the start toward a negative outcome."<sup>127</sup>

The 1999 Eurobarometer survey, "The Europeans and Biotechnology," supports this argument.<sup>128</sup> The survey looked at "Europeans' attitudes to various problems connected with biotechnology," and included questions to determine, among other things: the attitudes of Europeans to the development of biotechnology, Europeans' knowledge of genetics, and an idea of which groups Europeans trust in this field.<sup>129</sup> Compared to the results of a similar survey in 1996, the report shows a drop in the percentage of all Eu-

124 Christopher Hood, *The Blame Game: Spin, Bureaucracy, and Self-Preservation in Government* (Princeton, NJ: Princeton University Press, 2013), at p. 150.

125 David Collingridge, "Resilience, Flexibility, and Diversity in Managing Risks of Technologies," in Hood and Jones (eds.), *Accident and Design: Contemporary debates in risk management* (London: Routledge, 1996/2002), pp. 40 et seq., at p. 45.

126 Dominique Brossard and James Shanahan, "Perspectives on Communication about Agricultural Biotechnology," in Brossard, Shanahan, and Nesbitt (eds.), *The Media, the Public, and Agricultural Biotechnology* (Oxon, UK: CAB International, 2007), pp. 3 et seq., at p. 10.

127 Brossard and Shanahan, "Perspectives on Communication," *supra* note 125, at p. 10.

128 INRA (Europe) – ECOSA, "The Europeans and Biotechnology," 52.1 *Eurobarometer* (Brussels: European Commission, 2000).

129 INRA, "The Europeans and Biotechnology," *supra* note 127, at p. a.



European respondents who believe that their way of life would improve as a result of genetic engineering (from 43% in 1996 to 37% in 1999).<sup>130</sup> Other data from the survey show that Europeans had, in general, negative feelings toward GM food, although they were more neutral on the idea of GM crops.<sup>131</sup> George Gaskell attributes this discrepancy to “different perceptions of use, risk, and moral acceptability” in regard to GM food versus GM crops.<sup>132</sup> Moreover, the negative European perceptions of GM foods as not “useful” or “acceptable” and as “risky” can be traced to the BSE crisis and other food scares.<sup>133</sup> As a result, Europeans’ increased sensitivity to food safety concerns after mad cow means: “People simply do not want to take the risk of eating GM foods and the absence of labeling and consequent denial of choice in the matter is the crucial concern.”<sup>134</sup>

Sylvie Bonny also places the introduction of GMOs onto the agenda within the context of BSE and contaminated blood, arguing that public opinion had been “strongly marked” by these affairs when GM seeds began to arrive in Europe in late 1996.<sup>135</sup> She asserts that the “debate on GMOs... was situated in a context strongly influenced by food safety issues (BSE, listeriosis, etc.) that had been widely publicized.”<sup>136</sup> Public attention to GMOs was increasing just as confidence in institutions and certain techno-

logical advances decreased, resulting in extensive media coverage of the burgeoning anti-GM movement and, in turn, a “fairly critical” view of GMOs within the media and general social debate.<sup>137</sup> As one GMO opponent notes, “Old Europe was truly not ready. Already worried about public health because of potentially contaminated meat, Europe was not prepared to welcome the first arrivals of GM soy and maize peacefully.”<sup>138</sup>

At the same moment that GM soy arrived and GM maize was under consideration for EU market approval, the mad cow crisis raised questions about the safety of the food supply, food production processes, and also the “naturalness” of production. After the announcement by the British government of the link between BSE and vCJD in 1996, the French were exposed regularly to media reports informing them that “the contents of their plates hid an invisible danger.”<sup>139</sup> And, it was within this context that French consumers discovered another incarnation of this “agriculture gone mad”: GMOs.<sup>140</sup> Thus, GMOs became symptomatic of an industrialized agricultural system that privileged quantity and profit to the detriment of quality, public health, and the environment.<sup>141</sup> Even though regulatory bodies claimed that the GM soybeans presented no health hazards, “tampering with the food chain without public consultation touch[ed] an extremely raw nerve...”<sup>142</sup> In other words, GMOs became symbolic of Beck’s side effects of late modernity. The mad cow crisis instigated a growing interest among European consumers in traceability and labeling requirements for food products. The arrival of American GM soy, set to enter the food chain unlabeled, in turn generated a more urgent interest in setting stringent traceability and labeling standards.

The mad cow crisis also illustrated the necessity of setting standards at the EU-level. Because of the common market’s free movement of goods and people, the consequences of BSE rippled from the UK across Europe. And, with food chains becoming evermore globalized, these ripples moved beyond European borders. Calls for a European food authority mounted, and the need for it only became clearer with the dioxin episode. Belgium’s dioxin contamination reinforced the fears and concerns that the first major wave of the mad cow crisis had stirred up. For one, the timing of the dioxin episode meant that public interest in food safety was high and it would continue to remain high into the next wave of the mad

130 INRA, “The Europeans and Biotechnology,” *supra* note 127, at p. 8.

131 INRA, “The Europeans and Biotechnology,” *supra* note 127, at p. 34.

132 George Gaskell, “Agricultural Biotechnology and Public Attitudes in the European Union,” 3 *AgBioForum* (2000), pp. 87 *et seq.*, at p. 89.

133 Gaskell, “Agricultural Biotechnology and Public Attitudes,” *supra* note 131, at p. 88-89.

134 *Ibid.*

135 Sylvie Bonny, “Why are most Europeans opposed to GMOs? Factors explaining rejection in France and Europe,” 6.1 *Electronic Journal of Biotechnology* (2003), pp. 50 *et seq.*, at p. 53.

136 Bonny, “Why are most Europeans opposed to GMOs?” *supra* note 134, at p. 53.

137 *Ibid.*

138 Dorothee Benoit Browaeys, *Des Inconnus dans... nos assiettes. Après la vache folle, les aliments transgéniques!* (Paris: Raymond Castells Éditions, 1998), at p. 19.

139 Alexis Roy, *Les Experts face au risque: le cas des plantes transgéniques* (Paris: Presses Universitaires de France, 2001), at p. 11.

140 *Ibid.*

141 *Ibid.*

142 Nigel Williams, “Agricultural Biotech Faces Backlash in Europe,” 281 *Science* (1998), pp. 768 *et seq.*, at p. 769.

cow crisis. The French reaction to dioxin contamination also reinforced their developing risk-averse position in food safety. Finally, this episode became a moment for French officials to question the EU's competency in food safety. As with the mad cow crisis, dioxins became linked to the debate over GMOs within the larger context of food safety regulation.

Besides increased calls for the creation of food safety agencies, these crises demonstrated the need to develop regulatory responses at the European-level. While the HIV-tainted blood scandal was distinctly French with significant domestic repercussions, the wave of "European" crises revealed weaknesses of the common market. Infected beef and contaminated eggs and chicken moved easily between European countries until embargoes were instituted. It became clear that regulatory provisions during the 1990s were not sufficient to deal with increased integration. These concerns translated into the debates on how to regulate GMOs:

The regulatory regime of the 1990s eventually collapsed in the wake of a series of health scandals and scares in Europe. These were not directly related to the [genetically engineered organisms] issue but dramatically affected public trust in policymakers, legislative frameworks, and regulatory institutions on both national and EU levels, and highlighted persisting problems in dealing with scientific evidence and uncertainty in risk assessment.<sup>143</sup>

Weakened public trust in policymakers, legislative frameworks, and regulatory institutions were considered when the current regulatory regime was created with "more emphasis on precaution, transparency, labeling, and stakeholder participation as well as on clear-cut separation of science and policy in risk-assessment procedures."<sup>144</sup>

The timing of the arrival of GMOs on the public policy agenda was also important for how the issue was perceived by the French public and how it led to the promotion of the precautionary principle at the EU-level when dealing with perceived risks:

...GMOs surfaced in force at about the same time as the public's confidence in institutions and certain technological advances had been shaken by several safety affairs, in particular the issues of contaminated blood, mad cow disease, asbestos, etc... These events led to definite distrust of firms and public authorities and increased the public's

attention to critical voices, and so the principle of precaution became an omnipresent reference.<sup>145</sup>

The crises' cumulative effects laid the foundation for the GMO debate between the EU institutions and the member states to become a *dialogue des sourds*. As a result of the crises, the European public did not trust either the EU authorities or their national governments to regulate GMOs appropriately. In response to declining public trust in the national governments and to pressure for better health and food safety protections, member states began to pursue strategies of abstinence (moratoriums for GMO approvals, refusing positive scientific assessments of GMOs, declaring "GMO-free" zones, etc.) in order to avoid potential risks. Within member states, this meant the institutionalization of public opinion and anti-GMO sentiment in the policymaking process, leaving open the question of whether GMOs should even be produced.

Over the last twenty years at the EU-level, however, public authorities developed a regulatory framework that implicitly accepted GMOs as inevitable. Accordingly, the EU's efforts have centered on assessing and managing GMO risks by setting stringent standards and monitoring procedures for all levels of the GMO production process through a number of Directives and Regulations. But as Maria Weimer notes, the EU's regulation of GMOs has been marked by two trends – politicisation and scientification – that have prevented successful deliberative decision-making, in turn failing to overcome the regulatory deadlock between the EU and its member states.<sup>146</sup> Thus, although both levels of governance are attempting to assess and manage risks, they are wrestling with different core concerns. Member states are still trying to determine *if* they should approve GMOs; the EU is trying to determine *how* they should ap-

143 Armin Spök, "Biotechnology Policy in the European Union," in Iain E.P. Taylor (ed.), *Genetically Engineered Crops. Interim Policies, Uncertain Legislation* (New York: Haworth Food and Agricultural Products Press, 2007), p. 229 *et seq.*, at p. 231.

144 Spök, "Biotechnology Policy in the European Union," *supra* note 142, at p. 231.

145 Sylvie Bonny, "Opposition to GMOs in France and Europe," in R.E. Evenson and V. Santaniello (eds.), *Consumer Acceptance of Genetically Modified Foods* (Oxon, UK: CAB International Publishing, 2004), p. 169 *et seq.*, at p. 174.

146 Maria Weimer, "Risk Regulation and Deliberation in EU Administrative Governance—GMO Regulation and Its Reform," 21.5 *European Law Journal* (2015), p. 622 *et seq.*

prove GMOs. In short, the EU continued to authorize GMOs for cultivation, while several member states outright banned GMO cultivation, in direct violation of EU law. These bans – and the Commission’s lack of legal standing to lift them – represent “a profound contestation of the Commission’s authority to decide on GMO cultivation for the Union as a whole.”<sup>147</sup>

## VI. Conclusion

Efforts to address this ongoing dissonance culminated in Directive (EU) 2015/412 in March 2015, which gave member states increased autonomy in this issue area. They now have the possibility of legally restricting or prohibiting the cultivation of GMOs within their territories.<sup>148</sup> Although beyond the scope of

this article, detailed analysis of the top-down approach by the Commission for GMO approvals in the face of strong opposition from member states and the European public reinforces Beck’s understanding of the challenges that late modernity’s risks pose in the political and social spheres.<sup>149</sup> Arriving at a moment of intense public and political interest in how food safety and public health risks were to be regulated, GMOs – and the development of a regulatory framework to address them – have “divided not only agricultural land (namely, into genetically modified (GM) and non-GM cultivation), but, with it, also the politics, societies and even identities in Europe.”<sup>150</sup>

The dissonance between the two levels of governance in the EU on GMOs illustrates differing approaches to risk regulation in Beck’s “catastrophic society.” As mentioned, GMOs symbolize Beck’s risks of late modernity: invisible, potential risks that scientific knowledge does not yet definitively understand, which in turn allows for social influence in defining those risks. At the EU-level, emphasis remains on scientific expertise for GMO approvals, with a focus on human health and environmental impacts. At the member-state level, national institutions recognize the need to acknowledge the side effects of overproduction, including socioeconomic impacts. As such, scientists, legal experts, the media, and other social factors influence member states’ GMO risk regulation. Directive (EU) 2015/412 is a step towards mitigating the regulatory deadlock facing the EU on the issue of GMOs. However, it remains to be seen whether this amendment can reduce the conflict among the EU’s institutions and its member states. It will also need to be watched closely to see if it allows for member states to address the scope of modernity’s side effects as each sees fit.

147 Weimer, “Risk Regulation and Deliberation in EU Administrative Governance,” *supra* note 146, at p. 625.

148 Directive (EU) Directive of the European Parliament and of the Council of 11 March 2015 amending Directive 2001/18/EC as regards the possibility for the Member States to restrict or prohibit the cultivation of genetically modified organisms (GMOs) in their territory Text with EEA relevance.

149 For examples of that detailed analysis, see: Weimer, “Risk Regulation and Deliberation in EU Administrative Governance,” *supra* note 146; Sara Poli, “Scientific advice in the GMO area,” in A. Alemanno and S. Gabbi (eds.), *Foundations of EU Food Law and Policy: Ten Years of the European Food Safety Authority* (Farnham, UK: Ashgate Publishing, 2014); Mark Pollack and Gregory Shaffer, “Biotechnology Policy: Between National Fears and Global Disciplines,” in Wallace, Pollack, and Young (eds.), *Policy-Making in the European Union*, 6<sup>th</sup> edition (Oxford: Oxford University Press, 2010), p. 331 *et seq.*; Mark Pollack and Gregory Shaffer, *When Cooperation Fails: the International Law and Politics of Genetically Modified Foods* (Oxford: Oxford University Press, 2009); Maria Lee, *EU Regulation of GMOs: Law and Decision Making for a New Technology* (Northampton, MA: Edward Elgar Publishing, 2008); Damien Chalmers, “Risk, Anxiety and the European Mediation of the Politics of Life,” 30 *European Law Review* (2005), p. 649 *et seq.*

150 Weimer, “Risk Regulation and Deliberation in EU Administrative Governance,” *supra* note 146, at p. 624.