

Interesting case histories

No crisis is ever exactly the same as any other. There are always variations and different factors to be taken into consideration, even in incidents which appear to be identical. But much can be learned from case histories. The details of those which follow have been culled from published information or personal experience. Some have been selected as interesting examples of how a problem has been tackled or even exploited. Others have been chosen because, in the view of the author, they have been watersheds in establishing guiding principles in the way in which crises should be handled. Some of the content may even be hearsay, but this is felt to be important to convey the atmosphere at the time.

Most crises arise unexpectedly. That is their nature. If it were not, the problem probably would never have become a crisis. However, a small proportion can be anticipated sufficiently in advance for preliminary preparations to be made.

18.1 The crisis that brought down a government

In Europe, a food crisis brought down a government. It happened in 1999 and is described in one of the regular articles the author contributed to Food Safety & Security, a specialized subscription newsletter produced in the United Kingdom which has an international circulation. He wrote:

“Few situations have so dramatically underlined the vulnerability of the food industry and the problems of dealing with a major crisis, its ramifications and consequences than the discovery of dioxins in animal feed from several producers who had used fats from a supplier near Ghent, in Belgium.

“Overnight Belgians, renowned as a nation of food lovers, were forced to become vegetarians as stores cleared their shelves of poultry, eggs, beef, pork, and related products. *Les Belges* could not even buy a few of their country’s delicious chocolates to console themselves because they were suspect as well.

“There were allegations the government had known of the problem for several weeks. Two ministers resigned and, a fortnight later, their center-left government was swept aside in parliamentary elections, leading to Prime Minister Jean-Luc Dehane, Europe’s longest serving premier, resigning as leader of the Christian Democrats.

"Two executives of the company implicated in the scandal were arrested and accused of tampering with the fat that was supplied to the animal feed mills—various oils and fats have been mentioned but one of my sources suggests the dioxins came from used engine sump oil. A Dutch minister also resigned after criticisms of the way he handled the situation.

"In a typically confused situation, everyone was suddenly trying desperately to be seen to be putting the interests of the consumer first, from the European Commission and members of the European Parliament to ministers in bordering countries. The Belgian government—in a "spirit of openness"—even added a special section to its web site (<http://belgium.fgov.be>) to provide its version of events. It was an enlightened move and was probably the first time in Europe that the Internet had been used for such a purpose.

"Governments in countries as diverse as Finland, Russia, Saudi-Arabia, South Korea, Ghana, Australia, and the United States announced import bans and issued warnings as the extent of Belgium's export trade emerged. Some even banned all food imports from the European Union.

"The situation developed into the most serious food crisis since mad cow disease (BSE), attracting predictable headlines like Mad Chickens and Chickengate. It is also the first time, to the author's knowledge that a food crisis has toppled a government.

"At the risk of sounding cynical, the real trick of crisis management is to be perceived to have handled the situation well even if that is not strictly correct! Nevertheless, if people feel that you have acted promptly and put their best interests first you will win sympathy and support.

"In Belgium there has been little sympathy or support since a television station first ran the story that chickens and eggs were contaminated with dioxins from feed containing this highly toxic chemical which is linked to cancer.

"The media claimed the crisis had shattered public confidence in the government, which had been covering up the scandal for some weeks because of impending elections. As the crisis escalated, even mayonnaise, pastries, cakes, and ice-cream were implicated as well as pork, beef, and those famous chocolates.

"Some reports said that the dioxins traced in the contaminated chickens were at levels up to 1500 times the normal. The problem came to light when hens from which day-old chicks were reared and birds for roasting became so ill one farmer asked his insurers to investigate.

"It gradually emerged that 416 poultry farms in Belgium—out of a total of 3266—used the feed over the risk period. During that time 458 million eggs and four million fowls were exported to France and other countries, including Britain, in spite of the fact the contamination had been known officially for at least a month. The contaminated fat was eventually traced to having been supplied to ten animal feed mills in Belgium as well as one in France and another in Holland.

"Those figures graphically indicate the scale of the dilemma, which faced the government as it contemplated the huge financial and human consequences of any action.

"Sadly, the resulting implications are even more serious. The cost is being estimated in millions of dollars—\$767 million at the latest count—and there

has not yet been any mention of the jobs that will be lost or the businesses which inevitably will collapse in the wake of the bans which were imposed and the impact of the adverse publicity. However, perhaps the cost and the consequences would have been less if someone had taken action sooner and in such a way that they were perceived as the People's Champion.

"After the conservatives were swept into dominance in the Belgium parliament for the first time in more than a century, Guy Verhofstadt, the party chairman, remarked: 'We have to change the way we govern. We have to learn to act before problems arise.'

"This can be a difficult position to take, even when the financial implications are not so enormous and especially when you find yourself actively seeking adverse publicity for the products which you normally promote with such pride. But somehow you must suddenly look at the situation from the perspective of worried consumers and take the actions and give the assurances which will win their support. Achieve the right tone and your consumers might even thank you for bringing the problem to their attention.

"Such a response might sound far-fetched but can and does happen if the media statements and recall advertisements are couched in the right terms and you have cultivated a loyal customer base over the course of many years.

"The other major issue that this and every crisis raises is the importance of being able to trace every batch of product. The slaughter, sale, and export of suspect flocks and products were banned but it is the author's understanding that the chickens and eggs from a variety of farms were being used in such huge volumes by some processors and manufacturers that it proved extremely difficult to pinpoint those birds which had consumed the contaminated feed or in which products their meat or eggs may have been used. In this instance, there were complications because of the absence of a definitive list of farms and animal feed manufacturers which had used the contaminated fats.

"This underlines the importance of traceability. Every business faced with a food problem must be able to trace suspect batches rapidly so that if people have already begun to buy the products they can be publicly recalled. On the other hand, if they can be removed from the distribution chain before there is any risk to the consumer, a public recall can be avoided. In such circumstances it is also essential to be able to advise customers who have not received a suspect batch that their supplies are safe and wholesome. That can be as important as the recall of the contaminated batch or batches. Otherwise you will find your 'good' products being removed from the shelves as quickly as the 'bad' ones!

"Of course, eating one contaminated chicken or piece of chicken is unlikely to make anyone ill but that is hardly a palatable argument. Nevertheless, the Belgian government and a French minister made a point of stating that there were no reports of anyone becoming ill as a result of eating any of the suspect food. Hopefully only a few consumers realized how flawed this argument was because, like smoking, the effect of consuming dioxins is cumulative and not immediate!

"If anyone is unfortunate enough to develop cancer in later life it will be impossible to prove it resulted from eating some of these contaminated products. Once again, those who used this argument should have viewed the remark

from the point of view of the consumer. The British government was more circumspect, advising that consumption 'would not be expected to cause harmful effects ... due to the relatively short period of exposure'."

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Subsequently, the European Commission threatened legal action against Belgium for concealing information about the contamination for a month after ministers knew about it as well as for failing to carry out measures that the commission's scientific advisers required for food to be guaranteed safe for export. Many critics believed several factors helped to make the crisis worse than it might have been. Belgium's political system is complex and has so many rulers that the country ends up being inefficiently governed. It has a federal government; three regional governments in Flanders, Wallonia, and Brussels; separate cultural administrations for French, Dutch, and German speakers; plus 19 different councils. Food safety is the responsibility of three different ministries—agriculture, public health and economy—and they were not communicating with each other.

Since that outbreak, the European Commission has introduced a rapid alert system for food and animal feed. It was considered to have worked well following the discovery in the Netherlands of dioxin-contaminated potato by-products.

The scare started at the beginning of November 2004 when the Dutch farm ministry began sealing off livestock farms after cancer-causing dioxin was found in animal feed that had also been exported to neighboring Germany and Belgium. A total of 162 Dutch cattle, pig, sheep and goat farms as well as eight Belgian and three German farms had bought feed based on waste potato peelings that were found to be contaminated. It came from a Dutch unit of McCain Foods Limited, the world's largest manufacturer of frozen French fries or chips, said the Dutch ministry.

McCain and ministry officials said the reason for the contamination was marl clay imported from Germany—dioxins are known to occur naturally in some clays. The clay from Germany was used as part of a new potato-grading process. It was added to a water bath to adjust its density so that lower-density, lower-quality potatoes could be sorted from the good ones. McCain Holland launched a broader investigation and stopped feed sales from its three Dutch factories.

However, within a few days, tests showed the contamination did not pose a threat to human health. The French fries and potato wedge products intended for human consumption did not contain unacceptable levels of dioxins. Most of the contamination was associated with the discarded peelings.

John Byrne, European Commissioner for Health and Consumer Protection, expressed confidence in both the new system and the food chain. The dioxin levels in meat samples were found to be well below the stipulated threshold.

Byrne said the scare emphasized the importance of traceability and the progress made in reducing the risks in the food production industry.

He added: "So far, our system of traceability and alert notifications is working well. It is vital that the confidence of the consumer in our food chain is maintained."

The new European Union (EU) regulation, which came into force in January 2005, requires traceability for all stages in the value-adding chain. To comply, companies are having to set up systems enabling them to rapidly and exhaustively trace products through the supply chain if they do not already have them in existence. In April 2004, the European Commission introduced the Trade Control and Export System (TRACES) aimed at improving the management of animal movements both from outside and within the EU.

It is interesting that, when shopping in a major French supermarket in November 2004, the author found that packs of some vegetables like potatoes and Brussels sprouts carried details of the origin of the product, even down to the name of the individual farm together with its address, phone and fax numbers. It was interesting to see companies beginning to act ahead of legislation.

18.2 The crisis that ravaged the Far East

An outbreak of avian flu that rampaged through 10 Asian countries at the end of 2003 and the beginning of 2004 led to the deaths of 22 people, the slaughter of over 100 million birds and had devastating effects on the economies of the countries involved as well as hundreds of businesses, from small farmers to major processors employing thousands of people.

The outbreak and its economic impact were unprecedented. Chicken is eaten in virtually every country. Governments and industry were thrust into the world spotlight. The crisis could not be ignored, particularly when it emerged that some of the countries involved were major exporters of poultry. The outbreak hit headlines and was top of the news agendas of TV and radio stations worldwide.

Grim photographs and footage showed the widespread culling of flocks in different countries, even footage of birds being buried alive. The media and the Internet followed the daily spread of the virus with a profusion of news stories and background information.

There were two fears. Firstly, the highly contagious virus might spread among people rather than remain a disease that only affected those in close proximity to the birds. The virus usually spreads where there are poor veterinary standards and lax hygiene at markets where live fowl are sold and slaughtered, especially in 'wet' markets. Horrifying television reports showed just how poor those standards were in some of the countries affected.

Secondly, concern grew that the outbreak could develop into a worldwide pandemic because animals such as chickens, pigs or even cows have played a role in creating deadly new strains of influenza viruses for which people have no immunity. This concern was fuelled by the fact that flu outbreaks have killed tens of millions of people over the past century. Thankfully, those fears did not materialize but they added even greater alarm to an already serious situation.

The first outbreak was confirmed by South Korea in December 2003. Within weeks it had spread throughout the Far East, affecting China, Cambodia, Indonesia, Japan, Laos, South Korea, Thailand, and Vietnam. A less virulent strain of the virus was reported in Pakistan, Taiwan, the United States, and

Canada. Millions of birds were slaughtered and countless farms were placed in quarantine as people died and became ill.

As a precaution Singapore ordered a practice cull of 5000 'spent hens' as an emergency measure to ensure everyone was ready in case of an outbreak and to test its contingency plans.

The deadly H5N1 strain of the influenza virus was also detected in a leopard, a tiger and two domestic cats in Thailand. It was the first time in the world that bird flu has been found in cats and tigers.

As the death toll rose, countries banned the import of poultry, poultry meat, eggs, and even day-old chicks from the infected areas.

Inevitably, as the epidemic spread and more people died or became ill the recriminations started. Governments were accused of covering up the outbreak. After weeks of speculation, Thailand's prime minister admitted that his government had suspected an outbreak of bird flu—the British Poultry Council even alleged the country had been covering up the outbreak since November 2003. Vietnam and Indonesia along with Thailand were criticized for attempting to cover up outbreaks in an attempt to protect their agriculture and tourism industries.

Governments and interest groups began expressing doubts about the World Health Organization's prescribed method of stopping the spread by livestock culls and import freezes and that these measures were hurting poultry industries unnecessarily. Thailand was also warned that it might be lifting restrictions in affected areas too quickly.

While one can argue that the various governments should have revealed the outbreaks more quickly, one can understand the dilemma that faced them because of the disastrous effect the announcements would have on their country's prosperity. Agriculture and tourism would be badly hit.

However, by the end of January 2004, the nations concerned joined forces to fight the outbreak and held crisis talks in Bangkok, Thailand's capital. The delegates agreed to implement disease-control measures recommended by the World Health Organization, the Food and Agricultural Organization (FAO) and the World Organization on Animal Health and to jointly research diagnostic tools, vaccines, and antiviral drugs. The authorities were urged to be open and transparent, pointing to the lessons learned in tackling problems that had arisen over attempts to cover up the scale of the SARS (severe acute respiratory syndrome) outbreak that had hit China and Canada earlier in 2003 and killed a total of 774 people and made a further 8098 ill, the majority in Asia.

As with any crisis, of course, the dilemma is to rapidly establish the scale of the problem and marshal all relevant facts before going public with the information. This was particularly difficult because the disease was unknown when it first emerged. In addition, as far as China was concerned, tackling the outbreak involved a vast operation educating more than 60 000 health-care workers in how to manage SARS, how to use personal protective equipment and how to assess suspected victims. Possible patients were clustered together into one ward of a hospital and eventually confined to 16 hospitals that were dedicated to managing the outbreak. High-risk people such as family members

were also placed in quarantine. In Canada, researchers set up a dedicated SARS laboratory and bought the necessary equipment during the course of one weekend, such was the urgency of the situation.

Research now needs to be put into place to find suitable drugs to treat victims of bird flu and to have sufficient stocks available or a ready source of their manufacture so that future outbreaks can be controlled more quickly. Plans should be prepared to tackle future outbreaks which, based on past experience, would seem inevitable from time to time.

The previous year, in March 2003, the Dutch poultry industry was brought to a standstill by fowl pest, a different but equally infectious and fatal viral disease. Slaughterhouses were closed and the government put in place a transport and export ban. Tens of thousands of birds were killed within a one kilometer radius of the infected farms to prevent the virus spreading further.

It was Holland's first outbreak of the virus in 35 years and hit the heart of the country's poultry farming industry. Poultry breeders said the measures were too little and too late. They believed birds within a three kilometer radius should have been slaughtered. They also criticized the government for not acting more quickly and so allowing the disease to spread to further areas.

Holland is Europe's largest exporter of poultry, principally to Britain and Germany. The industry is vulnerable to infectious diseases because of the high intensity of farming methods.

In November 2004, the World Health Organization warned that domestic ducks could pose a new avian flu threat. It said that three international agencies warned that the birds could be "acting as a silent reservoir for the H5N1 avian influenza virus, which is highly pathogenic in chickens, and may thus have acquired an important new role in the transmission of the virus to other poultry and, possibly, to humans as well".

The announcement continued: "The concern is greatest in rural areas of affected countries, where traditional free-ranging ducks, chickens, and wildlife mingle, frequently sharing the same source of water, according to a joint statement by the United Nations Food and Agricultural Organization (FAO), the World Health Organization (WHO) and the Office of International Epizooties (OIE).

"Findings pointing to an altered role for domestic ducks join other recent evidence that the H5N1 virus circulating in parts of Asia has increased its virulence in chickens and mice (a laboratory model for mammals) and has expanded its host range to include mammals, such as certain members of the felidae family, e.g., cats and tigers, not previously considered susceptible to infection.

"A new laboratory study of domestic ducks infected with several H5N1 viruses isolated in 2004 shows that, when compared with infections caused by viruses from 2003, domestic ducks are shedding more virus for longer periods and as before, are doing so without showing signs of illness.

"The study found that the quantities of virus excreted by healthy-looking ducks could approach those excreted by visibly diseased chickens, the agencies said. It was of public health concern that ducks might be infected and shed virus for long periods, yet give no warning signal in the form of visible signs and symptoms that alert officials and the public to take precautions.

"WHO, FAO and OIE said affected countries should be encouraged to include possible exposure to apparently healthy domestic ducks when assessing the risk of infection to humans and to issue appropriate advice for people living in infected areas. Such advice should cover the handling of domestic ducks, particularly at slaughter (e.g., scalding ducks prior to plucking), and avoiding use of water that had been in contact with ducks for human consumption without being treated."

The agencies said that the discovery of the altered role of domestic ducks in the transmission cycle of the virus needed to be addressed soon as it might complicate efforts to control the disease in poultry and to prevent further human cases. The three agencies, therefore, called for urgent animal surveillance research to establish how widespread the incidence of infection in ducks without symptoms has become. They also called for research on the effectiveness of current vaccines on duck populations.

In connection with this announcement, it is interesting that in October 2004 it was reported that 23 tigers had died from bird flu at a private zoo in Thailand. They had been fed carcasses of chickens infected with the disease, said a government official. The tigers had been dying at the Sriracha Tiger Zoo in central Chonburi province since September 14, said Charal Trinvuthipong, director of the Bird Flu Prevention and Elimination Center. The animal park was forced to close its doors to the public while authorities investigated.

Trinvuthipong said another 30 tigers were sick and it was believed they had all contracted the virus because they had eaten chicken carcasses that were believed to be infected. Veterinarians were checking for the disease at chicken farms in the province where the zoo obtained the birds that were fed to the tigers.

Apparently, more than 400 tigers at the zoo were regularly fed raw chicken.

During the first wave of bird flu in Thailand in 2004, a clouded leopard and a white tiger died at another zoo in the same province.

News of the latest tiger deaths came as the government prepared to cull ducks, which were thought to play a major role in spreading the deadly virus which had killed 31 people in Thailand and Vietnam and forced the cull of tens of millions of chickens during the year.

In September 2004, a 26-year-old Thai woman who died of acute pneumonia was described as a 'probable case of human-to-human transmission' of the virus. Thailand's Ministry of Public Health stressed that the probable cause of human-to-human transmission followed prolonged, close contact between the woman and her sick daughter, who also died from bird flu. Unlike human flu, the virus did not show an ability to spread easily. However, research on the virus's recent evolution shows it has become steadily better at replicating in mammals in the past few years and may now be learning to spread between them.

18.3 The crisis that took the fizz out of a soft-drinks giant

When Coca-Cola, the world's largest soft-drinks giant, launched its new bottled water Dasani in the United Kingdom in March 2004, it was intended as the

prelude to rolling it out in Europe. Already, Dasani was the second-biggest selling water brand in America and a \$15 million advertising blitz was lined up to launch it in Britain. The company's worldwide bottled water sales had grown by more than 50% in each of the past three years, so ambitions were high.

But within a few days the accident-prone company, once so sure-footed, had to call off the launch and rethink its plans for Europe.

It is unclear how the media discovered the source of the water in the distinctive blue bottles labeled Dasani but the news leaked out that it came from the same mains that supplied Sidcup, in south-east London, the suburb in which its bottling plant was located. Journalists had a field day with the story and water board officials defended the quality of the water the factory used, which also supplied the rest of Sidcup. Dasani sold in some shops for 95p (\$1.5) for 500 ml, whereas Thames Water, the local water supplier, provided it for around 0.06p (a few cents) a liter, twice the amount.

To be fair, Coke never claimed it was mineral water. The company had never claimed it came from a bubbling mountain stream or from a spring amidst a remote landscape. Its advertising made much of the reverse osmosis technology it used to purify the product. It was purified water not the mineral variety and was billed 'as pure as water gets'.

But two weeks into the launch, tests found more than double the legal standard level of bromate, a chemical that can increase the risk of cancer. The phrase 'cancer water' crept into damaging headlines. Coca-Cola said the withdrawal was a precaution and that there was no immediate health or safety issue. It blamed calcium added to the water as part of the purification process for the bromate.

What went wrong? Critics claimed that Coca-Cola was 'arrogant' and assumed that what worked for them in the United States would be successful elsewhere. Perhaps, it did not take into account likely people's attitudes in a different country and research the market sufficiently. Perhaps, no one was astute enough to think of the likely implications if it was discovered the water came from the regular mains supply and a sufficiently robust defense was not prepared in advance. Whatever went wrong, it was an expensive debacle.

Later the same year, in November 2004, Coca-Cola again found itself in hot water and making headlines in the British press. This time its mineral water bottling plant in the picturesque Malvern Hills, on the Herefordshire-Worcestershire border, was the focus. The company had submitted a planning application to Herefordshire county council to run a 1.7-mile pipeline through an Area of Outstanding Natural Beauty to increase its supply of water from a second natural spring.

If successful, this would enable Coca-Cola to increase production of its bottled water from this area from 2.6 million gallons a year to 11.3 million. The present supply comes from Pewtress spring, which feeds directly into the bottling plant.

However, conservation groups in the area are opposed to the application. They say the second spring supports a fragile wet woodland environment and that extracting such a large amount of water could deprive rare flora and fauna of much-needed water.

The Malvern Spa Association, which preserves 20 wells in the hills, has pointed out that the level of water talked about is 'massive'. They are worried whether extracting this additional quantity of water would bleed the area dry.

The quality of the water from the area is so highly regarded that people make special journeys to the wells to collect it and take it home for their own use.

To add to the company's general woes, there was been an interesting spin-off from Operation Iraqi Freedom, the war in Iraq in 2003. As well as a threat a crisis can be an opportunity and Muslim businessmen realized Coca-Cola was a symbol of America, the main country that launched the bid to free Iraq from Saddam Hussein, its dictator.

Three rival brands of cola were launched: Mecca-Cola, Quibla-Cola and Zamzam-Cola. The aim was to provide thirst-quenching fizzy drinks for Muslims and anyone wanting to boycott American drinks. Zamzam-Cola sold 10 million bottles in four scorching months. Orders for Mecca-Cola poured in from around the world, including Britain, Belgium and Germany. To encourage sales, Quibla-Cola gives 10% of profits to developing nations and plans to support projects in countries where its soft-drinks are sold. It has launched a range of four other drinks: Quibla 5, Quibla Water, Quibla Fantasy and Quibla Mango. In the United Arab Emirates, a regional drink, Star Cola, has proved extremely popular.

18.4 The fiasco that humiliated a government

Another interesting example of how important it is never to assume that what suits one country will work in another without researching local opinion is the mixed reception that has greeted genetically modified (GM) crops and foods. While they have been accepted in some parts of the world they have been the subject of protests in others, even where malnutrition is rife. They have also led to a humiliating experience for the UK government.

The lessons emerging from the GM crops fiasco in Europe are that public opinion can be blind to scientific fact and that people become suspicious if they feel they are being forced into accepting something against their will.

Originally, transgenic crops were launched in the United States. It was a textbook launch supported by leading scientists and various authorities. The development and advantages of such crops were trailed for some years before their introduction, including the fact they could help the poorer nations of the world in their battle against hunger. The new crops appeared to be readily accepted by many farmers but gradually reservations crept in, fuelled by suspicions raised in the United Kingdom, Europe and other parts of the world, especially by environmental pressure groups.

Fertile minds called the products 'frankenstein foods' and branded the crops 'frankencrops'—wonderful material for the media, especially the red top tabloid newspapers who reveled in the colorful headlines. Pressure groups staged elaborate media events, uprooting trial crops and being arrested for their trouble...in full view of the assembled media. Among those arrested was Lord Melchett, then head of Greenpeace in the United Kingdom. He

subsequently joined the Soil Association as policy director, another pressure group that campaigned particularly vigorously against the new crops.

The UK government launched a public debate—GM Nation with a budget of £500 000 (\$750 000)—as well as a review of the science behind the issues and a study into the overall costs and benefits associated with the growing of such crops.

People emphatically rejected the idea of growing and eating GM food. They expressed their views in 1200 letters and more than 600 public meetings attended by at least 8000 inhabitants. However, there are strong suggestions that the results were skewed by the actions of pressure groups opposed to the crops. They swamped meetings with their members and encouraged floods of critical letters.

In October 2003, the results of the farm-scale evaluation trials were announced to an audience of some 100 journalists, 10 TV camera crews and 200 representatives of NGOs (non-governmental organizations) as well as farmers and other interested parties.

The results of the largest trial of GM crops ever conducted in the world showed that oilseed rape and sugar beet had a worse impact on farmland wildlife than conventional crops. The third crop tested, GM maize, proved better for wildlife than its conventional counterpart. The evaluations took place on 280 fields through the country.

However, the authors of the report made the point that their findings did not relate to the fact that the GM herbicide tolerant crops were genetically modified but to the differing herbicides and herbicide management systems that accompanied them and the conventional control crops.

In Europe, most governments delayed making any decisions because they were aware that many of their citizens had little enthusiasm for such crops and food. The EU imposed a moratorium on the approval of new crops though some varieties had already been given the green light—for example, they are grown extensively in Spain. The EU's move came under pressure from the World Trade Organization after the Bush administration filed a complaint against their action, so the EU replaced it with a requirement that any foods with over 0.9% GM content had to be labeled as such. Given most people's hostility towards such commodities, it was much the same as an import ban. Because of consumer reaction, retailers have avoided stocking products containing them and so manufacturers have not included them in their formulations.

However, despite overwhelming opposition from many members of Parliament, the United Kingdom government surprisingly gave approval for the growing of GM maize. The decision turned into a major embarrassment when the leading biotechnology company, Bayer CropScience, said it was giving up plans to grow the maize commercially in Britain. The government had placed a number of constraints on the initial conditional approval for the growing of its Chardon LL maize which affected the viability of project.

Then, in May 2004, the European Commission bowed to pressure from the United States and lifted its six-year moratorium by approving the import and sale of canned and frozen GM sweet corn provided it was clearly labeled as

such. The decision, however, sidestepped the issue of GM crop cultivation where there is a risk of cross-contamination.

Ironically, there is much to support in relation to the development of transgenic crops. In an information statement for the guidance of members and others who log onto its award-winning site (www.ifst.org), the United Kingdom's Institute of Food Science and Technology (IFST) says: "Genetic modification has the potential to offer very significant improvements in the quality, quantity, and acceptability of the world's food supply. Food scientists and technologists can support the responsible introduction of GM techniques provided that issues of product safety, environmental concern, information and ethics are satisfactorily addressed. The IFST considers they are being addressed and need even more intensively to continue to be so addressed. Only in this way may the benefits that this technology can confer become available, not least to help feed the world's escalating population in the coming decades."

In fact, GM crops are being grown throughout the world with the largest quantities being produced in the United States, Argentina, Canada, and China. Globally, nearly 12 million hectares of GM maize were grown in 2002. In the United States, around 25% of the maize crop is genetically modified.

18.5 A crisis that found a government wanting

Few people could have been unaware of the major crisis that devastated the United Kingdom's agricultural industry in the last decade: bovine spongiform encephalopathy (BSE).

The enduring image of BSE was that of huge funeral pyres and dense clouds of smoke rising into the sky as the bodies of thousands of dead cattle were incinerated. Today, BSE or 'mad cow disease' as it was dubbed by the media, is a problem that is still affecting many countries. It is a slowly progressive and ultimately fatal nervous disease in cattle. It first appeared in the United Kingdom in 1985 and, by 1990, was appearing at the rate of over 1000 new cases a month. It has been generally accepted that it was caused by the organism which causes scrapie, a brain disease of sheep and goats, crossing the species barrier to cause a similar disease in cattle.

The hypothesis of a Government-appointed committee of enquiry, the Southwood Committee, was that the contamination arose because modern rendering practices failed to destroy the scrapie agent in bone meal derived from sheep products that were being used in cattle feed. The committee's contention was that continuous processing of meat and bone as well as a reduction of solvents used to remove excess fats from the material resulted in the loss of the high-temperature regime which, previously, was believed to have destroyed scrapie.

Public concern centered on the fact that, pathologically, BSE resembles Creutzfeldt-Jacob disease (C-JD), a human condition which causes slow degeneration of the brain and dementia. A human form of BSE, new variant C-JD (vC-JD) was identified and, at one stage, it was feared many people could be facing the prospect of a lingering death in later years through eating beef products. There are now some suggestions that the number of eventual victims may

not be as high as originally anticipated but estimates vary widely because it is not known how many people could be harboring the disease. Some calculations vary between 1300 and 16 000 and there are suggestions that the current number of victims could be the first wave of a bigger epidemic. Successive government health ministers are blamed for not urgently commissioning studies to end the uncertainty.

Because animal feeds contain a proportion of protein that could originally be from various unspecified sources it seemed farmers had been unwittingly feeding their cattle with rations which contained contaminated meat and bone meal. Consequently, stringent measures were taken to avoid the possibility of such transmission. Under the BSE Order 1988, slaughter of all cattle suspected of having the disease became compulsory and compensation was paid to farmers though some claims are still being disputed. To contain the disease, carcasses had to be incinerated or buried, and any milk had to be destroyed.

Transmission studies were inaugurated to establish whether the disease spread naturally from cow to cow, or cow to calf and an inquiry came to the belief it was transmitted to ruminants in concentrated rations containing material from sheep.

This practice had prevailed in the United Kingdom and in Europe for over a century, but was stopped in July 1988. It was hoped that this measure and the slaughtering of infected cattle would eradicate BSE within 10 years but cases continue to crop up. If it is proved that the disease is transmitted vertically, that is from cow to calf, it could take several more years to eradicate BSE from the national herd. With this possibility in mind, in 1990 the House of Commons Agriculture Committee recommended a comprehensive scheme to identify and trace all such cattle. Farmers were also discouraged from breeding from the offspring of cows with BSE.

In 1989, the use of offals such as brain, spinal cord, tonsil, thymus, spleen and intestines was banned in human food to remove any perceived risk to people. However, due to poor practices in abattoirs, particularly in some European countries, some of these banned materials are still found in meat and carcasses from time to time.

In 1993, when a case was reported of a farmer who had contracted C-JD, it was suggested he had eaten meat and drunk milk from his dairy herd. In 1994, when a young girl contracted C-JD, her fondness for beef burgers was blamed. Some other cases are believed to have originated in the same way but, tragically, other people have been infected and sentenced to an unpleasant death from blood transfusions that were meant to help or save their lives. At the time, it was not realized that the blood was infected.

The epidemiology of BSE and other encephalopathies is extremely complex. Therefore, in 1990, a three-year project costing £12 million was launched to identify the causative organism, methods for its detection and diagnostic tests in live animals.

There is much to be learned from the way the media in the United Kingdom handled the story. Originally, the agricultural correspondent of the *Daily Telegraph* heard of a strange disease that seemed to have affected a small number of cattle. He went to see for himself and immediately called it 'mad cow disease'.

The description stuck but it only began to attract major attention when the disease was reported in a cat. Apparently, it had been transmitted from pet food containing offal from infected cattle or sheep. Then the story took wings. The media knew they were catering to a nation of animal lovers.

Headline writers, especially those working for the red top tabloids, have to devise short, eye-catching headings that fit the column widths available. It was hard enough to pronounce bovine spongiform encephalopathy let alone fit these words across six columns in large type! Newscasters and commentators, who usually have to cover their subjects with even fewer words than print journalists, found equal difficulty in pronouncing such a complicated medical name. The term 'mad cow disease' stuck. Also, that is why encephalopathies in people became 'human mad cow disease'. It is all part of the quest to make complicated technical matters comprehensible to the bulk of the population.

Remarked food consultant Professor Keith Anderson: "We have had to live with a term which is a misnomer and belies the truth of the condition. Perhaps the veterinary profession, the farmers and the food industry should have tried to come up with a simple term to pre-empt the use of this tag. Even bovine brain disease would have been better because the cows are not 'mad' in the accepted sense of the word, but are suffering from a degeneration of the brain which affects other parts of the body and noticeable muscle control. However, even that does not have the right tabloid ring about it."

In a leaflet distributed by leading supermarkets to put into perspective the problems and risks associated with BSE, Professor Sir Richard Southwood pointed out that, with existing precautions, there was more reason to be concerned about being struck by lightning than catching BSE from eating beef and other products from cattle. Sir Richard was chairman of the working party set up by the Department of Health and the then Ministry of Agriculture, Fisheries and Food in 1989 to investigate the whole issue of BSE. Nevertheless, the issue has remained on news agendas because of continued but smaller outbreaks around the world.

Dealing with such an issue is always a prolonged exercise in damage limitation. The story keeps on taking new twists and turns. The situation has to be constantly monitored and trade bodies play a vital part in keeping their members informed of developments. Within companies, it is important that everyone with a need to know is kept up-to-date by the regular revising and re-issuing of contingency statements or 'backgrounders'. These should provide objective technical background as well as suggested or approved responses to media enquiries.

For a company using meat from countries where the disease was unknown, the matter was simple: "We only use meat from cattle born, bred and raised in countries where BSE is unknown" was all that needed to be said. For other companies, the response was not as simple. They had to be positive and reassuring while further research was still being urgently carried out to discover more about the disease. They had to use more careful language like: "We do not use any of the offals implicated in BSE in any of our products. We obtain our meat only from particularly reliable suppliers known to us over a long

period of time. There has never been any evidence that we have ever been supplied with meat from BSE infected cattle. The slaughterhouses from which we obtain our meat are all operated under veterinary supervision."

There were many puzzling aspects about the emergence of vC-JD. Many thought it came from eating meat products infected with BSE. However, the 1993 annual report of the Creutzfeldt–Jakob Disease Surveillance Group said the group could find no connection between dietary factors and the disease. One individual who developed the disease, for instance, was a strict vegetarian for 20 years prior to death. The report also made the point that preliminary analysis of the intake of various types of meat showed no statistical difference between cases and controls.

Formal analysis had been carried out in the first 54 cases of C-JD with comparable controls with respect to lifetime history of eating certain meat products. The report concluded: "We have found no convincing evidence that the eating of a range of meat products is associated with an increased risk of C-JD."

Since the report was produced, cases of C-JD have been identified in countries where BSE was unknown, which is another interesting development.

There are other interesting aspects to the outbreak. Commenting in 1999 in the aftermath of the peak of the outbreak and the lessons that were emerging, the author wrote in *Food Safety & Security*:

It is always difficult to deal with uncertainty, and it is not easy for companies or governments to decide how best to act in the face of incomplete information, or how to communicate risks that are not easy to quantify to the public in an appropriate way. A major aim of the recently published Phillips report on the UK's BSE crisis was to learn from past mistakes, and provide recommendations for the future handling of such issues.

The difficulties of dealing with uncertainty and the communication of risk were discussed with hundreds of witnesses and commented on at length in the long-awaited report on the UK government's handling of the emerging BSE (or 'mad cow disease') crisis. The general outcome was a call for greater openness, so that an atmosphere of trust and credibility could be established in such circumstances.

Of course, this is correct. However, one cannot help but wonder what the outcome of such a policy would have been in the 1980s, when the first indications were appearing of a mysterious new cattle disease which might—or might not—affect human health, and which would certainly have a devastating effect on Britain's farming industry.

At that time in the United Kingdom, the media were giving extensive coverage to food safety issues. Indeed, one national daily newspaper had a policy of 'splashing' any potential food problem across its front pages, because it boosted circulation figures.

People have to eat and drink. When there is a problem, not unnaturally, they want instant answers and immediate reassurance that what they are consuming is safe and wholesome. But sometimes this is impossible. It may take several years before scientists can provide definitive answers.

The BSE crisis provided a classic example of this. It is now believed that the first cattle became infected in the early 1970s. Today, some 30 years later, the

experts still do not have all the answers. Indeed, some questions may never be answered.

In 1988, the news of increasing contamination of UK eggs with *Salmonella* had a devastating effect on the poultry industry, while costing the government's then Junior Health Minister, Edwina Currie, her job for purportedly overstating the risks.

So what would have been the reaction in the 1980s if there had been more transparency over BSE? A media frenzy would almost certainly have occurred. Without a doubt, at least some of the huge impact that BSE has had on the United Kingdom's cattle-farming industry would have occurred sooner rather than later.

Even today, with the lapse of time and widespread awareness of BSE and its ramifications, we are currently seeing a parallel crisis developing in France over increased findings of BSE in French cattle and reports that two people in France have contracted vC-JD (believed to be the human form of BSE). Farmers and other businesses are being affected. Sooner or later, we are likely to see similar concerns and reactions in other European countries, because many experts are convinced that BSE is more widespread than is being reported.

Media frenzies and the possibility of consumer panic are always likely to be the outcome until people come to the realization that it is not always possible to provide immediate answers and reassurances when a potential problem is found. However, such a dramatic change in outlook will only begin to emerge when people feel that their interests and well-being are being put ahead of the commercial interests and profits of the parties involved, such as farmers and food companies—as well as the political interests of government factions.

The three 'golden rules' of crisis management—tell the truth, admit responsibility if you are to blame and say you are sorry—were not really established until 1982, when pharmaceuticals giant Johnson & Johnson dealt so brilliantly with extortion and contamination threats concerning its Tylenol pain-relief capsules. Though the problem was not caused by the company, Johnson & Johnson took responsibility for warning the medical community and consumers of the contamination and, throughout the crisis, was perceived to be putting the well-being of its customers before profits.

At that time, as is still often true today, many companies were reluctant to accept responsibility or to be particularly informative. 'No soundly based scientific evidence' was a useful phrase indeed! However, when dealing with uncertainty it can be far too easy to hide behind such a comforting phrase. The caveat 'absence of solid evidence is not the same as solid evidence of absence' needs to be borne in mind. Despite growing scientific evidence that BSE probably could spread to species other than cattle, for a long time UK government ministers kept their heads firmly buried in the sand, steadfastly denying even the possibility of a link between BSE in cattle and any threat to human health.

Without doubt, governments and the food industry must make a major effort to win the confidence and credibility of consumers. However, this will take many years, because of the mistakes which continue to occur—almost every

issue of *Food Safety & Security* included examples—and because most people are not knowledgeable about how scientific understanding develops, or the need for theories and research findings to be challenged and debated.

If the food industry is to win consumer confidence, it will also have to answer many other questions, such as: How can it be right to give ruminants rations containing material from their own kind? How can it be right to put chicken droppings into animal feed? How can the industry be trusted to remove specified risk materials from carcasses, when some of its members have been prepared to sell meat condemned as unsuitable for human consumption?

Practices such as these seem highly questionable to the lay person. How can people be expected to trust an industry which engages in such practices, apparently solely for greater profit? How can the public trust experts serving on special committees, if they may be funded by companies with potentially vested interests?

In the 1980s, how would the general population have reacted to announcements that a possible problem had been detected in beef, that it would take years before scientists could identify the cause or the risks to general health but that, in the meantime, the general view among scientists was that beef was probably safe to eat?

Such statements could perhaps have led to the release of further information, earlier calls and support for more research (e.g. perhaps the earlier development of cattle-screening tests or of experiments to examine the possibility of BSE occurring in sheep), and the development of general discussion as scientists progressed with their investigations and research. There would still have been widespread concern—and, undoubtedly, widespread media coverage—but perhaps the public's reaction would have been more controlled and less outraged.

Sir Robert May, the chief scientific adviser to the UK government, told the Phillips inquiry: "You can see the temptation ... to hold the facts close so that you can have international discussion and the formation of a consensus so that a simple message can be taken out into the market place. My view is strongly that that temptation must be resisted, and that the full messy process whereby scientific understanding is arrived at with all its problems has to be spilled out into the open."

The report goes on to say: "Our experience over this lengthy Inquiry has led us to the firm conclusion that a policy of openness is the correct approach. When responding to public or media demand for advice, the government must resist the temptation of attempting to appear to have all the answers in a situation of uncertainty. We believe that food scares... thrive on the belief that the government is withholding information.

"If doubts are openly and publicly explored, the public are capable of responding rationally and are more likely to accept reassurance and advice if and when it comes. We note, by way of example, that the Spongiform Encephalopathy Advisory Committee (SEAC) and the Ministry of Agriculture, Fisheries and Food (MAFF) have made public the fact that an investigation is being carried out into the question of whether BSE has passed into sheep. We do not understand that this has led to a boycott of lamb."

It is indeed interesting there has not been a decrease in the sales of lamb, though I do wonder what the media would have made of this investigation if it had been announced earlier on in the BSE crisis.

The following general lessons from the BSE crisis are listed in the Phillips report:

- To establish credibility it is necessary to generate trust;
- Trust can only be generated by openness;
- Openness requires recognition of uncertainty, where it exists;
- The importance of precautionary measures should not be played down on the grounds that the risk is unproved;
- Scientific investigation of risk should be open and transparent;
- The advice and reasoning of advisory committees should be made public;
- The trust that the public has in chief medical officers (CMOs) is precious and should not be put at risk; and
- Any advice given by a CMO or advisory committee should be, and be seen to be, objective and independent of government.

Obviously, these comments are relevant to the future handling of any crisis, whether or not it relates to food. It is encouraging that when, soon after the appearance of the report, there was a train crash in the United Kingdom, in which four people died, the company responsible for the condition of the track quickly admitted responsibility.

This was also the case when the first fatal crash in the history of Singapore Airlines occurred in Taiwan. Though the company was criticized for the insensitive way in which it dealt with the relatives of those on board—no doubt complacency had overtaken preparation and crisis rehearsals—it rapidly identified the cause of the accident, and even released a transcript of the cockpit conversation immediately preceding the crash.

The train accident resulted from a disturbing lack of timely maintenance work, and the aircraft crash was apparently caused by serious human error. But at least the two companies concerned were quick to admit responsibility and to express their regrets.

No company, industry or government can hope to gain the public's trust until it is consistently seen both to anticipate, and take responsibility for the potential consequences of its actions and decisions.

It is ironic that even with the benefit of the lessons learned from the BSE crisis, a parallel crisis developed in France over increased findings of BSE in French cattle and reports that two people had contracted vC-JD. The government appeared to be handling the situation no better than the United Kingdom did. In the process, it was considered to have lost public confidence.

The tragedy is that people are dying from vC-JD, some as a result of receiving a transfusion of contaminated blood. In June 2004, a 25-year-old British woman died in the United States from vC-JD. She is thought to have contracted it from beef she ate in the United Kingdom before her family emigrated to America 13 years ago. She was the only person in the United States diagnosed with the disease and had been fighting the condition for two years.

In September 2004, thousands of patients in the United Kingdom received letters warning them that they could be at risk of developing the human form of mad cow disease. Health Secretary John Reid said about 4000 people might be at a 'very small risk' of developing the human form of mad cow disease because of exposure through blood plasma products. The warnings came after the first possible case of a person dying after contracting vCJD through a blood transfusion. It led to a ban on people who had received a blood transfusion since January 1980 donating blood. It later emerged that another person who received a blood transfusion was carrying the vCJD agent though they died of unrelated causes.

In a further development in Brussels on October 28, 2004, the European Commission announced that it had submitted French research findings on TSE (Transmissible Spongiform Encephalopathy) in a goat to an expert panel.

In a cautiously worded press release,¹ the Commission stated: "Following the findings by a research group in France that they suspect the presence of a TSE infection in a goat's brain which tests cannot distinguish from BSE, the European Commission has submitted the data received from the French authorities to the Community Reference Laboratory (CRL) for TSEs based in Weybridge, England, for an evaluation by an expert panel.

"TSEs are transmissible spongiform encephalopathies, namely BSE affecting cattle, and scrapie affecting goats and sheep. The expert panel will evaluate, over the next two weeks or so, the scientific evidence to see if it indicates the presence of BSE in the goat.

"This isolated incident does not present a risk to public health as the goat and its herd did not enter the food chain."

Bovine spongiform encephalopathy has never been found under natural circumstances in ruminants other than cattle. Its presence in goats or other ruminants has been viewed as theoretically possible but has never been detected. Nevertheless, for many years safety measures have been applied in respect of all farmed ruminants (cattle, goats and sheep) to offer maximum public health protection.

"These safety measures include the prohibition on feeding animal proteins in the form of meat-and-bone meal, the removal of specified risk materials (i.e. the removal of tissues such as brain, spinal cord, part of the intestines) from the food and feed chain, the slaughtering of herds affected by scrapie (a disease in goats and sheep similar to BSE but not infectious to humans) and a TSE surveillance/monitoring programme in all member states.

"The goat was detected as part of the EU wide surveillance programme designed to detect suspicious TSE strains in small ruminants. Over 140 000 goats have been tested since April 2002."

Arising from this EU testing programme, a healthy goat slaughtered in 2002 in France was tested at random for TSEs. On the basis of the initial positive finding of a TSE which differed from the normal scrapie strains, further scientific study has been carried out on the suspected brain (the necessary assays take

¹ <http://europa.eu.int/rapid/pressReleasesAction.do?reference=IP/04/1324&format-HTML&aged=0&la>

two years) leading to the conclusion by the French experts that they believe the brain could be BSE-positive.

"If confirmed, this would be the first ever such finding in a goat. This goat was the only animal in the flock affected. All goats in the flock, including the affected one, were destroyed and tests on all 300 adults in the flock were negative for all TSEs."

In a series of questions and answers on its web site dealing with food and feed safety, the Commission pointed out that goats can suffer from scrapie, which has been known for centuries and that, until now, there has been no evidence of the existence of BSE in the EU's sheep and goat population 'under natural conditions'. The extensive tests of the goat included a mouse bioassay which takes two years to complete. The TSE was detected in a healthy goat as part of normal surveillance measures that had been in place in the Union for many years. As a precautionary measure milk and meat from herds affected by a TSE case cannot be used. Therefore, people could continue to consume milk, cheese and meat from goats.

- There is some background information about BSE on the web site of the Institute of Food Science and Technology (UK).

18.6 The crisis that was unique

The epidemic of foot and mouth disease (FMD) in the United Kingdom originated in 2001. An inquiry by the Department for Environment, Food and Rural Affairs into the origins of the outbreak described it as unique in terms of its size and geographical extent. This could have been due to a combination of facts, including

- A delay in reporting suspicion of disease in pigs at the first premises to be infected with FMD (the index case);
- Airborne infection of sheep on premises near this case;
- Movement of infected sheep through markets before the first case was diagnosed;
- The fact these events took place at a time of year when the climate favored virus survival and when large numbers of sheep were being marketed and moved around the country;
- The nature of the disease in sheep and the absence of distinctive signs, compared with other classes of livestock;
- Structural changes in the sheep industry which over a period of years had resulted in an increase in the size of the national flock coupled with a reduction in the farm labor force and greater reliance on shared or contracted labor together with the fact that up to 50% of livestock holdings had sheep on them at some time during the year;
- The fact that sheep are regularly gathered throughout the year for management purposes, creating opportunities for disease to spread; and
- The majority of the veterinarians in the United Kingdom would never have encountered the disease.

In terms of the spread of the disease, even before it was first discovered the epidemic was already the world's largest with 10 times as many cases being recorded at the start than in 1967 when Britain's last major outbreak occurred. After the initial outbreak on February 2001, the disease took just two weeks to spread across Britain.

There were widespread and desperate measures taken to halt its spread. All dairy, meat and livestock exports were suspended and in the end some 2000 animals were slaughtered. Animal movements were banned, rural footpaths closed and some national parks were closed.

At one stage more than 1200 vets and 600 military personnel were involved in the struggle to contain the outbreak. The number of vets rose from 421 during the first week of the crisis to 1269 six weeks later and the government was still appealing for more. They included 90 foreign vets—23 from other EU countries and 67 from countries outside the Union. The vets were involved in inspecting animals on farms, confirming cases, supervising the slaughter and disposal of animals, and taking samples for testing. Also, more than 600 soldiers assisted the culling operation, Army butchers assisted civilian slaughterers in one area and, in another, soldiers advised on the construction of burial pits. The Royal Air Force was also called in to help.

New Zealand has the most advanced information system in the world for handling FMD and other epidemic diseases and a four-man team from that country jetted in to provide specialist skills to help manage the outbreak.

As soon as its first case was confirmed, France immediately banned livestock exports for 15 days and stopped all livestock movements inside the country. Some 20 000 sheep imported from Britain and 30 000 French sheep that had been in contact with the British animals were culled. Spain banned livestock imports from Britain and France.

In Scandinavia, Norway imposed a two-week ban on imports of all meat and dairy products from most of Europe. Sweden banned the import of livestock, raw meat and dairy products. The government also imposed a ban on feeding pigs with leftover food containing remains or products from animals that were at risk.

The Netherlands, Belgium, Italy, Germany, Switzerland, Poland, the Czech Republic, Estonia, Latvia, the United States, Canada, the United Arab Emirates, Japan, Australia, New Zealand, South Korea, Honduras, and Argentina took various measures, ranging from various types of bans to vaccination of herds.

At some airports, visitors from Britain had to walk over mats impregnated with disinfectant. Some countries made vehicles drive through disinfectant baths at various points.

As the epidemic died down questions were raised about the need for such widespread culling compared with vaccination. It was claimed vaccinating animals against foot and mouth would have been cheaper than the slaughter policy. It was also claimed vaccination would have slowed the spread of the disease, thus allowing more time in which to get it under control. Opponents, however, said vaccination could not keep pace with the rapid spread of the disease and the issue of vaccination as opposed to slaughter still remains unresolved.

Other arguments against vaccination were that countries which had FMD or vaccinated against it could not export meat and dairy produce to major markets, that susceptible livestock have to be vaccinated regularly and that vaccinated animals can still become infected and remain carriers without showing symptoms.

Subsequently, the government ordered three separate inquiries into the lessons to be learned from the outbreak. One concluded that genetic analysis of the FMD viruses responsible for the outbreaks in the United Kingdom and an earlier one in South Africa indicates the 'most likely explanation' is that they had a common origin in the Far East. A detailed analysis of potential routes of entry into Great Britain indicated the source of the 2001 epidemic was most probably infected or contaminated meat or meat products.

These inquiries, however, failed to quench criticism of the way the government had handled the crisis. It was claimed the government should have put in place an immediate ban on the movement of animals and that compensation should have been paid to farmers not only for culled livestock but also where they were unable to send animals to market because of movement bans.

18.7 A crisis delayed by circumstances

In 1986, a man in the United States died after consuming cyanide-laced chicken noodle Cup-A-Soup marketed by Thomas J. Lipton, a Unilever subsidiary. However, the company was not notified until two days after his death and this highlights one of the problems that can occur in any instance of product tampering.

In this case, doctors initially attributed the man's death to natural causes because he had been recovering from *Salmonella* poisoning. However, an autopsy and blood tests as well as examination of the soup pack subsequently revealed the presence of cyanide.

The soup container was in the possession of the authorities. It was held as a vital piece of evidence. The company was prevented from carrying out its own investigation. This is a common experience despite the fact that many food companies and contract laboratories have the facilities to carry out tests to determine the presence of poisons or microbiological pathogens much more quickly than forensic laboratories which might well have different pressures and priorities.

However, as soon as the company was notified, it became proactive. Among its objectives was to avoid being perceived to have delayed taking any action during the two days during which it was unaware of the incident.

Its first move was to withdraw all remaining product from the vicinity of the area in which the man lived. It also kept the soup off the shelves of all stores and outlets within a 50 mile radius for two weeks to try to prevent any copycat incidents.

A total of 30 000 cartons were returned from 152 stores. The Food and Drug Administration tested some 5000 packs without finding any trace of the poison. The company ran tests on a further 3235 samples selected at random with similar results before destroying all remaining stock.

Within a few hours of learning of the incident, the company held a press conference in conjunction with the local county prosecutor's office to explain what had happened and the steps that were being taken to investigate the matter. Two days later, it was able to announce that its investigation had shown the tampering did not occur during the manufacturing process.

At the time, the company's vice president of quality control said that because the facts were given quickly in a non-sensational manner, the media coverage accurately portrayed the company's position. The company had also tried to give brief, factual answers to fit into the broadcast practice of short sound bites.

He added that, because its image was at stake, it was essential during a product tampering threat or incident to emphasize that the company was trying to act in the public interest. To get good results from crisis coverage, he said, often required that management was trained to effectively speak with reporters.

The delay Lipton experienced in being notified about a tampering threat or incident is not uncommon. However, such a delay makes it difficult for a company to investigate within 24–48 hours, perhaps creating the perception among consumers and the media that it was not acting with suitable concern. To overcome this situation, a company has to explain the assessment process and give journalists what facts it has at the time and refer other enquiries to the police. In such circumstances, it is important to ensure that such information is consistent and the company's side is not presented in a manner that could cause friction between the two parties.

In this particular case, there were a variety of reasons for the two-day delay and it is understandable that the contaminated pack had to be retained by the authorities. However, until the company became aware of the type of threat facing consumers, it was unable to offer advice on what symptoms to look out for and what actions consumers should take. Such a situation always puts the company at a disadvantage in being able to determine the extent and nature of the threat as well as the geographical area and level of product withdrawal required. Even when the results of the forensic examination of the tampered product became known, there could be valid reasons why the government agency would not immediately release the results to a company, making crisis planning and media relations difficult.

18.8 Red alert (see also Chapter 19)

In Europe in 2003 and throughout 2004, many in the food industry and enforcement authorities saw red in the form of a dye called Sudan 1. It is used for coloring solvents, oils, waxes and petrol as well as for shoe and floor polishes. It was also found to be appearing illegally in a range of imported food products.

The dye is illegal in foods because it has been shown to cause cancer in laboratory animals and may contribute to the development of cancer in people. It is classified as a carcinogen by the International Agency for Research on Cancer. Therefore, products containing any Sudan red dye is not considered to be safe to eat at any level. Nevertheless, that did not stop the substance being

found in scores of products from pesto sauce to curry powders and chicken tikka masala.

The first warning came in June 2003. France alerted the European Commission that it had found traces of Sudan 1 in chilli and chilli products like curry powders. There was a Europe-wide clampdown on food products containing the Sudan red dye and only chilli and chilli powders accompanied by analytical proof that they were free of these potentially harmful ingredients were allowed to be imported. However, that did not prevent contaminated products appearing on many supermarket shelves, including a number of relishes, chutneys, pickles, sauces and seasonings as well as palm oil.

In the United Kingdom alone, over 200 products were recalled for destruction and all member states of the EU were warned to be on the alert even though the risk to health is small if a contaminated product is eaten only occasionally. However, frequent consumption of such products would increase the risk.

In response to the EU's attempts to prevent the importation of such products, in March 2004 Reading Scientific Services Limited (RSSL) announced that it had developed a screening method to identify the banned dye.

Melindee Hastie, who works in RSSL's authenticity laboratories, said: "There is now a huge demand for all imports to be tested and cleared. We have developed a screening method that will give a reliable yes/no answer for the presence of Sudan Red I to IV, allowing importers to reject problem batches if necessary and to be confident of the imports they accept."

In a special Newsnight investigation in November 2004, one of the BBC's flagship magazine television programmes, the reporter said that the illegal traces of the cancer-causing dye had triggered one of the most protracted and complicated food recalls ever known. The programme declared that the United Kingdom food chain had become so complex that recalling contaminated products had become a slow process that could put the health and security of the nation at risk.

In a summary of the programme's contents, the BBC said that Sudan 1 dye 'entered the food chain in India where it was used to spice up lacklustre chillies'. The modern taste for spicy foods had meant that adulterated chillies had spread along the food chain 'a little like wildfire'.

It reported that at its peak some 225 chilli-based foods and 78 different brands were involved in the recall. Traceability was made more difficult because many of the products were sold by small, independent retailers who bought their goods from larger wholesalers and cash-and-carries.

Palm oils imported from Africa had also been contaminated by a related dye, Sudan 4. A product alert notice issued by the United Kingdom's Food Standards Agency (FSA) revealed that some of these oils were routinely sold 'from the back of a van'.

18.9 A lesson in protection

As experts investigated a baffling outbreak of an infectious disease on Martha's Vineyard, an island off the coast of Massachusetts, United States, they hoped the cases might offer lessons for the protection of the country from bioterrorism.

For the fifth summer in a row, people were falling ill with a rare pneumonic form of tularaemia, or 'rabbit fever', which is one of the six diseases considered to be most likely to be spread by terrorists.

Tularaemia was first identified as a disease found among rodents and other small animals in 1911. The illness is spread through bites from ticks, deerflies and other insects. It can also be caused by handling the carcasses of infected animals, consuming contaminated food and drinking infected water. The bacterium can also be inhaled but it is not known to spread from one person to another.

If not treated with antibiotics, tularaemia can be fatal but the death rate in the United States is less than 2% of victims. Symptoms can include sudden fever, chills, headache, diarrhoea, aches in muscles and pains in joints, a dry cough, an increasing feeling of weakness, ulcers of the mouth or skin as well as swollen and painful lymph glands and eyes.

Each year, about 120 cases are reported in the United States. They are usually caused by tick bites or handling dead rabbits. But apparently what is known about the disease does not explain the outbreaks on Martha's Vineyard.

In 2000, there were 15 cases, of which 11 contracted the pneumonic version. One died. Four cases occurred the following year, three of which were pneumonic. At least two similar cases were diagnosed in 2002 and four in 2003.

Most at risk were those who spend much of their time mowing lawns, cutting brush and using power blowers, especially professional landscapers and gardeners. They have been advised to check lawns and other areas for carcasses or excreta and to dispose of them properly before starting work. They have also been advised to wear respiratory protection because exposure is most likely to occur by inhaling aerosols of contaminated dust, soil or grass.

Experts are continuing to puzzle over the cause of the outbreaks. One theory is that skunks and raccoons could be responsible for spreading the pathogen to humans because the island does not support a large population of rabbits.

The Center of Infectious Disease Research & Policy (CIDRAP) at the University of Minnesota has estimated that in 1997 the total cost to society of an *F. tularensis* aerosol attack would be \$5.4 billion for every 100 000 people exposed. Two years later, in 1969, a World Health Organization expert committee estimated that dispersing 50 kg of aerosolized *F. tularensis* over a metropolitan area with 5 million residents would lead to 19 000 deaths and 250 000 incapacitating casualties.

Because of concerns about bioterrorism, tularaemia surveillance has increased throughout the United States in recent years. Now many states require cases to be reported within 24 hours. Defining the disease as a potential bioterrorism threat has led to better training to recognize the illness, said Lisa Rotz, acting director of CIDRAP's bioterrorism preparedness and response programme.

18.10 The Spanish cooking oil scandal

A 10-year scandal that affected Spanish cooking oil in the 1980s resulted in the deaths of several hundred people—estimates ranged from 350 to 600

dead—and over 25 000 were made ill. It remains one of the worst food poisoning incidents on record anywhere in the world and led to the trial of 38 Spanish oil merchants in 1987 though 27 appealed against their sentences in 1992.

Olive oil has always been part of the Spanish diet but when prices escalated at the beginning of the 1980s many found it difficult to afford to buy it. Therefore, when door-to-door salespeople began selling cheap 'olive oil' many were quick to buy it.

What they did not realize was that much of it was rape-seed oil which had been denatured with aniline, a highly poisonous coal tar dye, so it could be imported into Spain for industrial use. The import of pure rape-seed oil was forbidden to protect the home market in olive oil.

First, a young boy died in a Madrid hospital from a fever and a pneumonia-like illness. Then, during the next few months, more people died or became ill with similar symptoms.

After many theories, the cheap 'olive oil' was identified as the common link between those who died or were taken ill. It then emerged that unscrupulous businesses had been marketing such industrial oil for many years without the wave of deaths and illnesses that occurred in 1981. Doctors were baffled about the real cause of the illnesses and how to treat the unfortunate people who were still being poisoned through 1982 and 1983.

A further consequence of the scandal was that Spain's exports of genuine olive oil plunged by more than 60% for several months.

18.11 Ye powers of entry

In January 2002, the United Kingdom's Food Standards Agency (FSA) for the first time exercised its statutory powers to enter food premises to obtain information and inspect company records. It followed the recall of canned hotdog sausages. The previous month, in December 2001, canned hotdogs under various brand names and imported by Ye Olde Oak Foods Ltd had been found to have suffered spoilage and had been variously described as fizzing, exploding and foul smelling on opening.

In response, the FSA asked the two United Kingdom retailers who sold the brands to issue a recall notice—it was unclear whether the problems were a result of faulty canning or composition of the hotdogs. The Agency then became aware of a similar problem affecting one of the importer's own brand of hotdogs.

However, the FSA was not satisfied that the full picture had emerged, so used its powers of entry to authorize officials to enter the importer's premises to check records and secure further information.

Reporting its actions in *FSA News*, the FSA said: "While it is usual for the Agency to attempt to resolve issues such as this with the voluntary cooperation of industry, the Agency will, if necessary, not hesitate to use the legal powers available to it. The Agency did not foresee the need to take any further steps in this particular case."