

Certificates! or: There and Back Again

Use and Abuse of Food Safety Standards

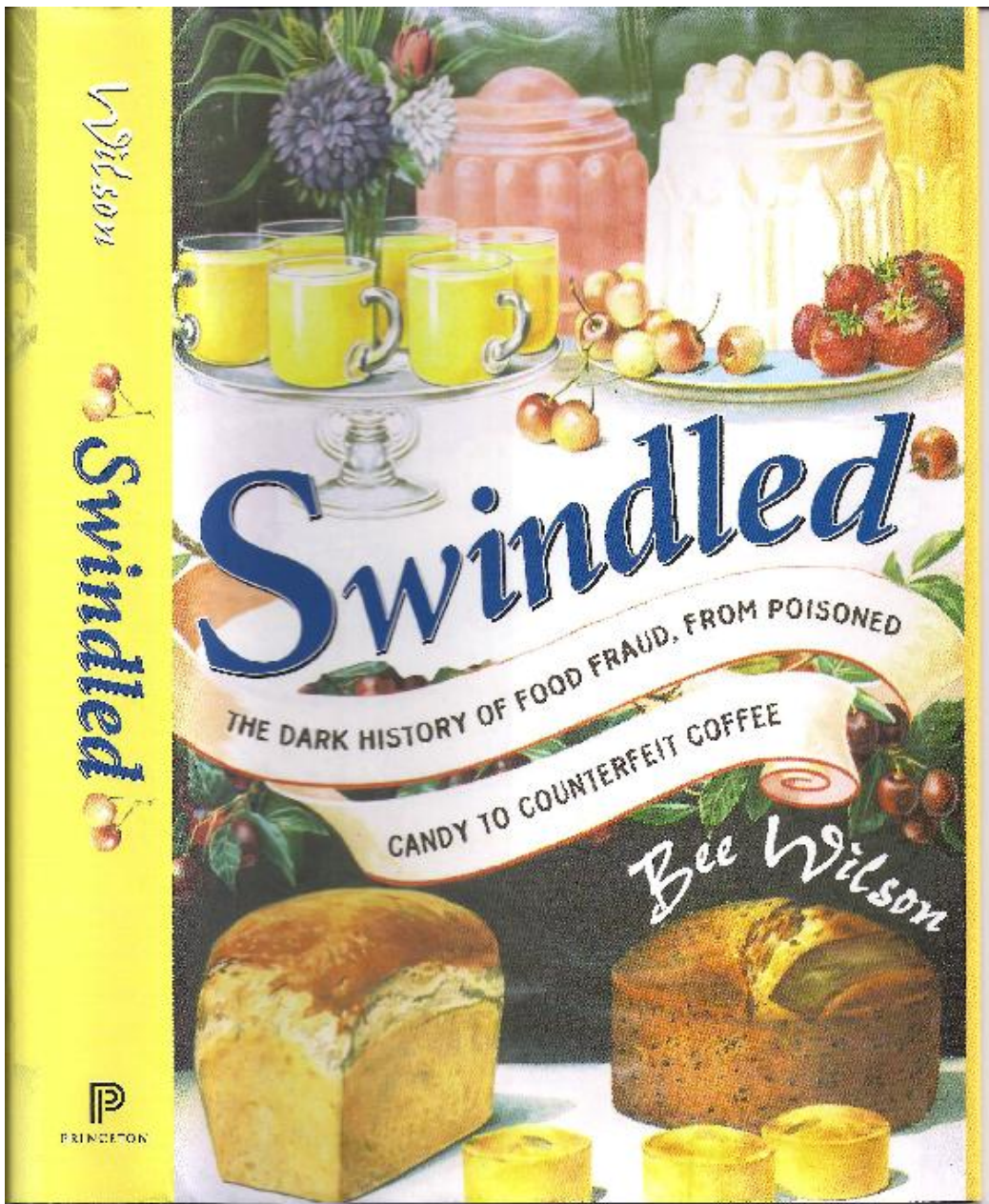
- History of food safety
- Trust?! – you must be joking!
- The reaction of retailers to "scandals"
- The results of the effort

Friedrich Christian Accum

1769 - 1838

- German chemist, living 1793 - 1821 in London
 - A fighter against food fraud
 - Making chemistry popular
 - Teachings in practical chemistry for the general public
 - Highly successful book: "There is Death in the Pot"
(2 Kings 4, 40)
"A Treatise on Adulterations of Food and Culinary poisons" 1820
- Within a month after publishing all thousand issues of the first edition were sold! In the same year a second edition was printed, and two years later a German translation was published in Leipzig.

Food poisoning due to fraud, ignorance and accidents were common!



- "We ask for bread, and we receive a stone; for coffee, and we receive chicory; for chicory, and we receive burnt carrots and powder of dried horses' liver; for oil of almonds, and we receive prussic acid, to heighten the enjoyment of the dessert by adding a little risk to it"
The Times, 3 March 1856
- "Mary had a little lamb,
And when she saw it sicken,
She shipped it off to Packingtown,
And now it's labelled chicken."
New York Evening Post (1906)
- [Upton] Sinclair depicts workers falling into vats and no one bothering to fish them out so that "all the bones of them had gone out to the world as Durham's Pure Beef Lard"; meat inspectors turning a blind eye...

Development of Official Food Control

- Most European countries and USA started to establish official food control laboratories and "official chemists" in the second half of the 19th century
- The beginning of the 20th century saw a broad development of food legislation
- Food control relied on analysis and inspections of food handling premises
- Food control agencies were highly trusted in the beginning
- However, their powers were limited and the budgets miserly, and despite many success stories, fraud and contamination continued

Trust: two fundamental factors

safe vs unsafe

- microbial spoilage, presence of pathogenic microorganisms
- residues
 - pesticides
 - vet. drugs
- contaminants
 - lead, cadmium, ...
 - industrial chemicals
 - process chemicals (acrylamide...)
 - mycotoxins
- (unlabelled) presence of allergens

genuine vs fraudulent

- clay in flour
- sand in spices
- sudan red in paprika
- methanol in wine
- diethyleneglycol in wine
- artificial eggs
- melamine in milk
- watering down milk, reducing fat-content
- aniline-denatured rapeseed oil (sold as olive oil)

The downfall of trust (if there ever was any!)

1. Salmonella in eggs

- Salmonella enteritidis in eggs , ca. 1988 - 1993. Thousands of people were **severely affected** due to a new and virulent, human-pathogenic type of S. which infected hen's ovaries without symptoms.
- In 1988 a UK junior health minister, Edwina Currie, made the statement “Most of our [UK] egg production is infected with *Salmonella*”.
- The boycott of eggs and egg products by British consumers that followed almost destroyed the British egg producing industry.
- Currie was proved to be right – after her resignation...
- Eventually, and country-by-country, new legislation was introduced to reduce the infection rate; finally this became EU law.

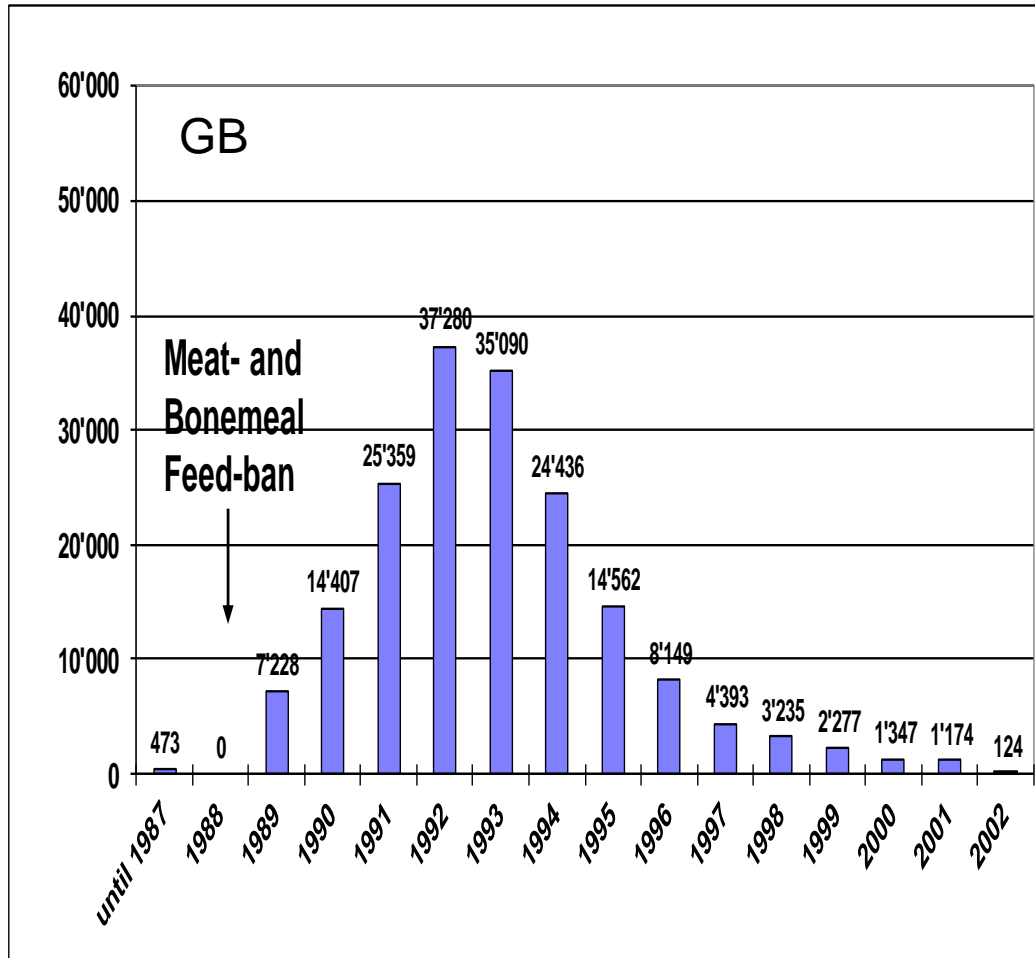
The downfall of trust (if there ever was any!)

2. BSE (mad cow disease)

- In 1986 the first case of BSE in cattle was reported in the UK
- The British Inquiry into the BSE epidemic reached the conclusion that the main cause of the disease was the **feeding of MBM (meat and bone meal)** to previously uninfected cattle. Cattle are normally herbivores, and the MBM included the remains of other cattle, which, when fed to uninfected cattle, caused the disease to spread more rapidly. The infectious agent of BSE is unusual because it remains active even at high temperatures. The rendering process (by which animal remains are made into e.g. MBM) does involve a heating process, however **in Britain the temperatures reached during rendering had been reduced, meaning that the infectious agent remained active and therefore spread more rapidly.**

BSE-cases in Great Britain and elsewhere

(Source: Swiss Vet. Office)



1989: Ireland

1990: Portugal, Switzerland

1991: France

1997: Netherlands, Belgium,
Luxemburg

1998: Liechtenstein

2000: Denmark, Spain, Germany

2001: Italy, Czech Rep., Greece,
Slovak Rep. Japan,
Slovenia, Austria, Finland

2003: USA

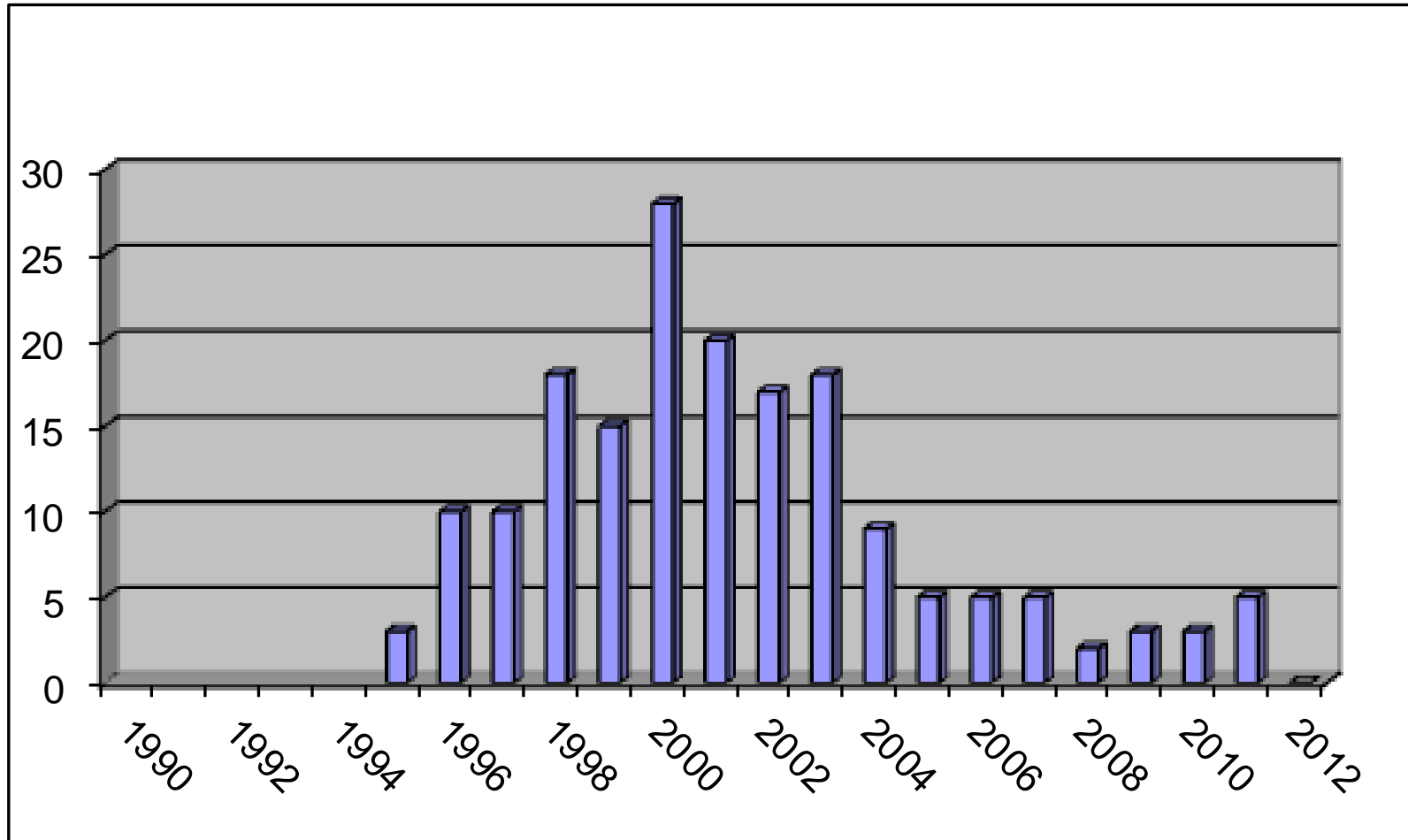
...

2012: Brazil (26th country!)

The new Threat: nV CJD

DEATHS OF DEFINITE AND PROBABLE CJD (UK)

<http://www.cjd.ed.ac.uk/documents/figs.pdf>



Credibility: EU vs USA (Science, 1999)

- EU:
 - 34 % trust WHO/UN
 - 21 % trust Scientific Committees
 - 12 % trust national authorities

- USA:
 - 90 % trust USDA
 - 84 % trust FDA



John Gummer: Beef eater

1990: John Gummer with Cordelia munching burgers for the press

Probably the most derided politician to emerge out of the BSE scandal, John Gummer will always be remembered for making great public show of feeding his four-year-old daughter Cordelia a hamburger in the midst of the "mad cow" disease scare.



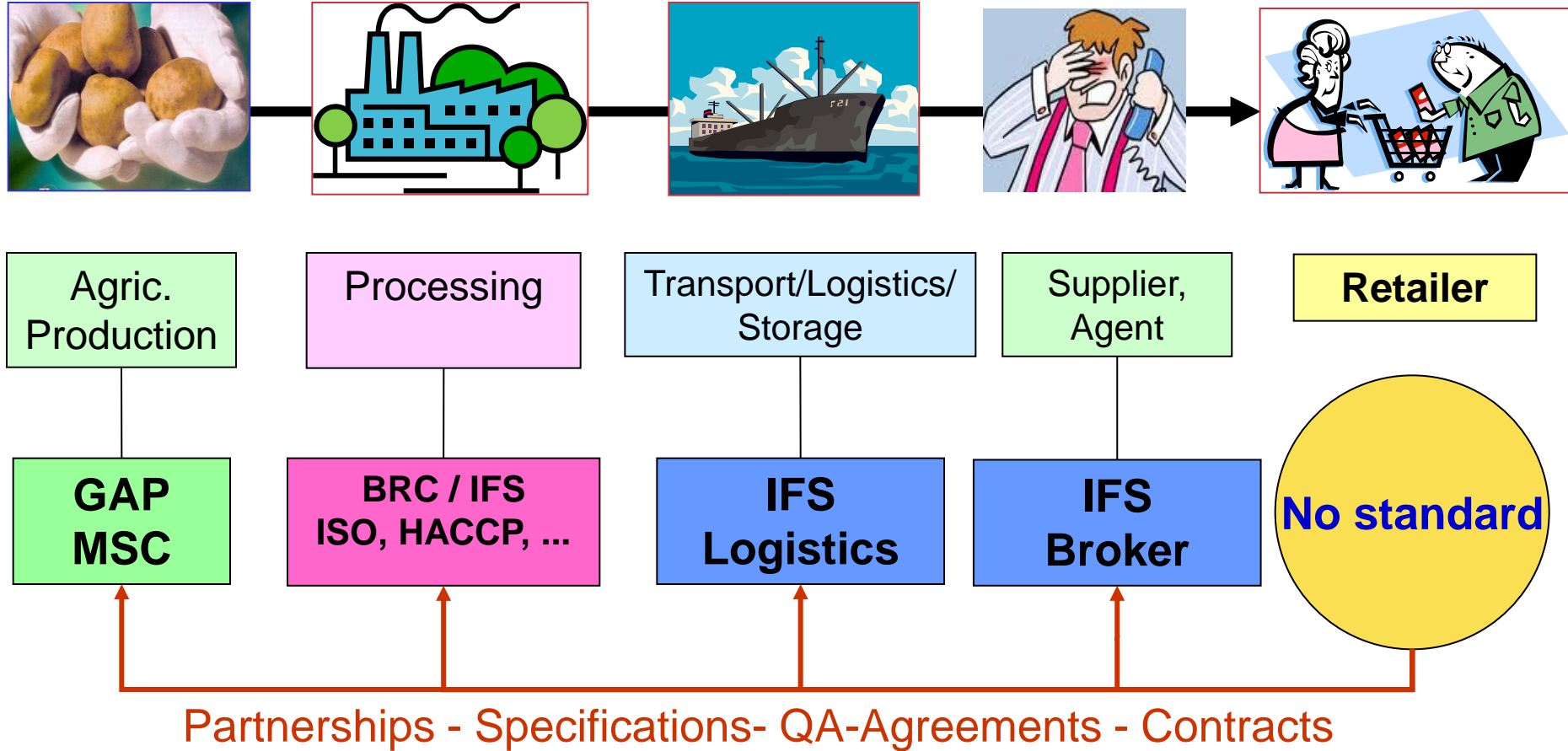
The Global Food Safety Initiative by CIES, Spring 2000 ⁽¹⁾

- CIES - The Food Forum - rebranded in 2009 "The Consumer Goods Forum", representing 400 members from 70 countries, a turnover of 2.5 trillion € and employing ca. 10 million people is the largest retailer association with members from around the world.
- A survey among CEOs had shown:
 - **Food safety is top of mind with CEOs**
 - **Consumer confidence in food supply is at an all-time low**
 - **Retailers with their own brands are held liable for food safety**
- **Re-establish consumer confidence!**
- **Retailers want to respond positively and take responsibility!**
- **Cut costs in their own quality assurance efforts!**

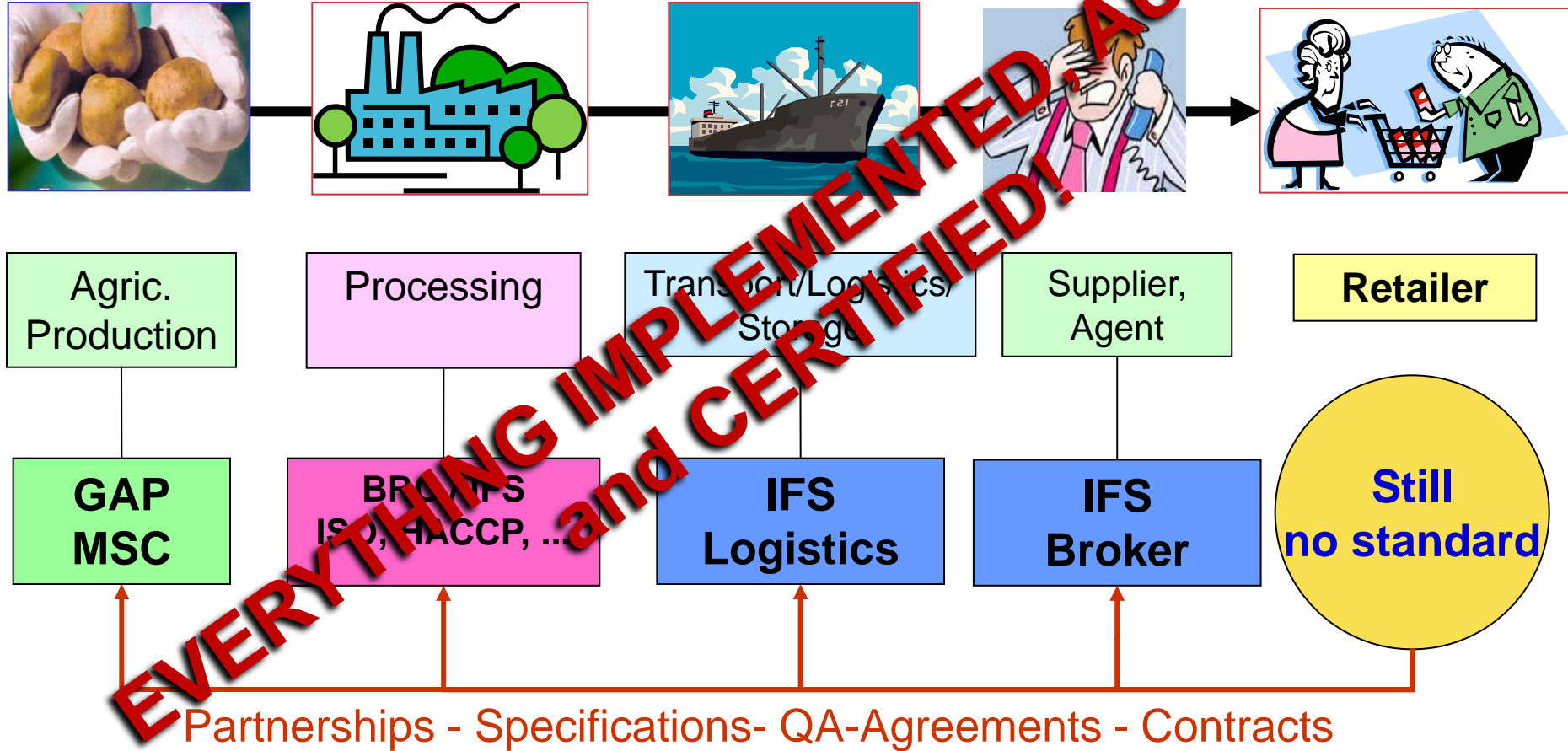
Global Food Safety Initiative

- The food safety standards are designed to be **product standards**, in contrast to e.g. ISO9000, which is a **management standard**!
- The "**Global Food Safety Initiative**" by the CIES marked the beginning of a totally new era with **product specific certification** and **control of auditor-competence by the standard owners**.
- Until today, GFSI benchmarked three food safety standards (BRC, IFS, SQF)
- *Retailers wanted*
 - *to make sure that suppliers take their responsibility. This concerned not only their own brands!*
 - *exculpate themselves in case of selling unsafe food!*

Standards for (almost) every step in the food chain



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Implementation of the GFSI-Standards in China

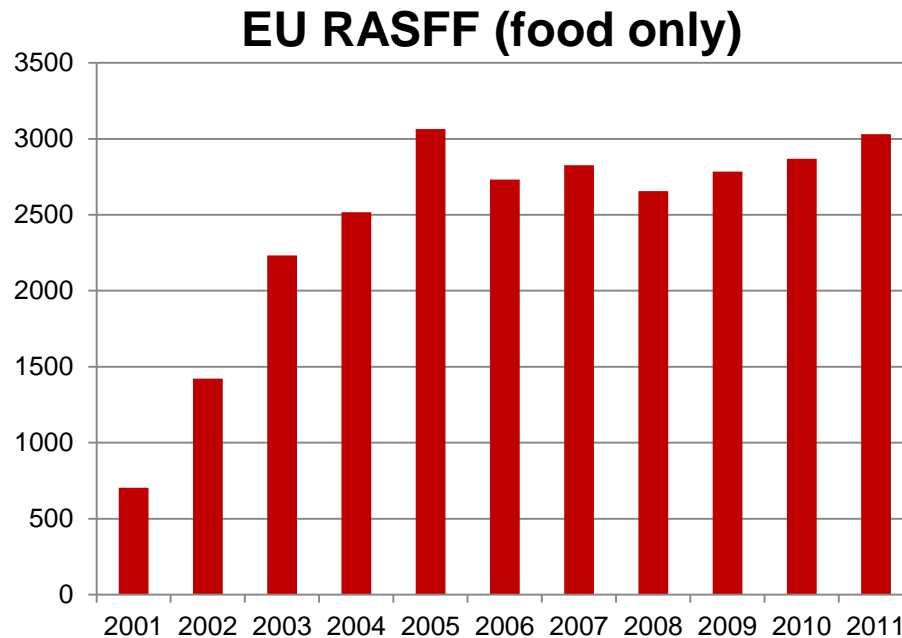
- After a carefree period of exporting to Europe until 2000, resulting in many quality complaints, the European retailers demanded the implementation of the standards from their Chinese suppliers
 - The industry was initially unaware of the problems and therefore reluctant to introduce the standards, but was forced to!
 - The consequences:
 - An immediate and very strong demand for audits
 - A reluctance to pay the price for an audit (2 to 3 days field work, reporting, scrutinizing and certification)
 - Initially, competent auditors needed to be trained or/and flown in
 - Fierce competition of the CBs led to falling prices of audits and, as a consequence, shortcomings in auditor-competence!
- ➔ Certificates on the cheap, quick-and-easy!**

The Consequence on Food Safety 2000 – 2012

- The success:
 - IFS and BRC: more than 25,000 audits in over 100 countries in 2010
 - Most factories in Asia exporting to Europe have introduced BRC and/or IFS
 - Most European factories have introduced BRC and/or IFS
 - Factories in South America and USA are also starting to introduce GFSI-standards
- The best-felt consequences are:
 - improved cleanliness of factories (less contamination)
 - less product losses through negligence and/or malfunctions
 - better control of supplies and improved complaint-handling through implementation of traceability
- The serious implementation of the standards, *where they are adhered to day-by-day*, are a major factor in improving the industrial production of safe food

Measuring food safety?

- Alerts, border rejections, notifications etc. of illegal food discovered in the EU <https://webgate.ec.europa.eu/rasff-window/portal>:



Certificated unsafe food?!

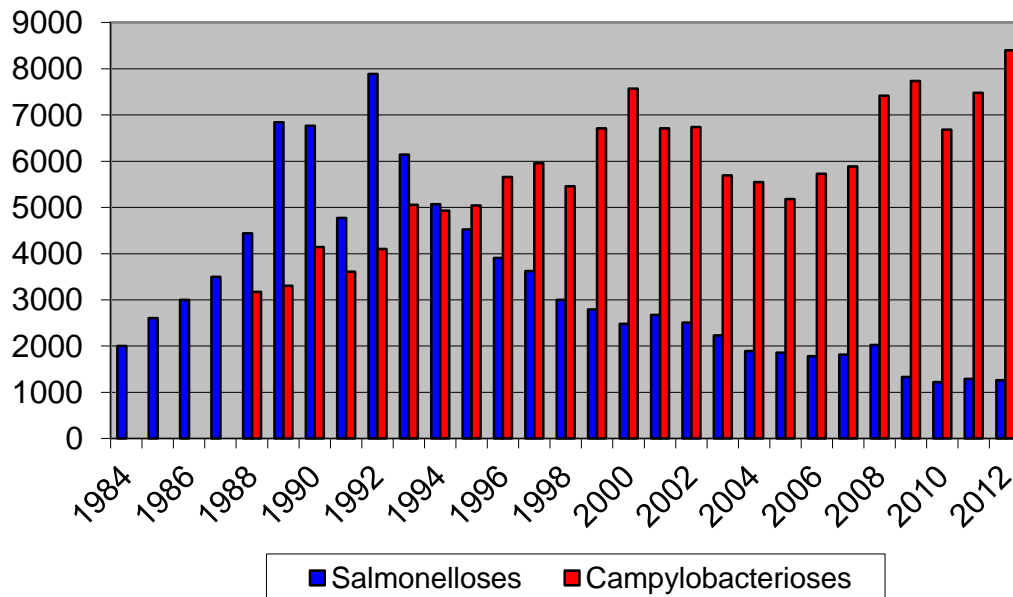
Only partly. Many items have improved; e.g. mycotoxin contaminations have decreased, while focus, numbers and intensity of controls have increased significantly.

Likewise, the stricter legislation on e.g. pesticides has significantly 'helped' to increase the number of violations!

These figures are distorting the reality, but are not likely to create trust in food safety!

Measuring food safety?

- USA: According to the CDC estimates announced December 2010, about **48 million** fall ill, **128'000** are hospitalized, and **3'000** die each year from foodborne diseases in the USA. The economic burden induced by these cases is estimated at **77.7 billion US\$** ...



Salmonellosis and Campylobacteriosis outbreaks in Switzerland (Federal Health Dept.). The situation is said to be representative for all Europe (Campylobacter overtaking Salmonella, rising figures). The causes are supposed to be unsafe handling of food in restaurants and private households!

Even if (industrial) food safety may have improved: has trust been (re-)established?

- USA: Knowingly commercialising Salmonella and/or Listeria contaminated food (peanuts, peanut butter; melons, salads...)
- Europe, China: Meat production: use of growth hormones and other animal drugs to enhance growth (Clenbuterol = "lean meat powder")
- Asia: Irresponsible use of antibiotics in shrimps, leading to residues
- Use of Sudan Red (carcinogenic) to colour peppers (Chilli) and "red palm oil"
- China: addition of melamine to milk
- 2010-12-24: SHIJIAZHUANG, Dec. 24 (Xinhua) -- China's Hebei Province shut down nearly 30 wineries... wine was only 20 percent pure, with water and chemicals, such as color additives and citric acid, added.
- 2011: a scandal involving the resale of "gutter oil" — used cooking oil ... scooped from sewers and peddled to unsuspecting customers ...
- Nov. 2012, Time-Newsfeed: ... food forgery in the world's most populous country ...fake chicken eggs... (originally discovered even before 2000!)

International impact!

- **Melamine in milk:**
 - Gossner et al. (WHO, 2009) describe a major food safety incident that caused 6 reported deaths and affected approximately 300,000 Chinese infants and young children exposed to melamine-contaminated infant formulas. Subsequently, melamine was detected in food and feed products in **47 countries**.
 - The authors discuss factors ... **complexity of international trade of food products and ingredients...**
- **Sudan Red** contamination led to thousands of food recalls all around the world (reports from USA, Europe, Africa)!
- **Salmonella**
 - A contamination at Peanut Corporation of America led to more than **1800 different contaminated products!**

Trust: USA vs. Europe

(Eurobarometer 354, 2010; Food Safety News: Marler Clark online publication)

- **EU:** Suppose a serious problem is found with food ... How much confidence would you have to obtain accurate information from

	very + fairly confident	not very + not at all
➤ Health professionals	84%	14%
➤ Consumer organisations	76%	20%
➤ Scientists	73%	23%
➤ Environmental prot. groups	71%	25%
➤ Farmers	58%	38%
➤ Media	48%	49%
➤ Natl. Govt.	47%	50%
➤ Retailers	46%	61%
➤ Food Manufacturers	35%	62%

- **USA:** Food Safety News, 28.12. 2012: The recent poll of 1,000 moms, ...found that blogs about food and blogs by other moms were ranked higher than government sources, medical sites and corporate sources for gathering information on food.

Some unsafe food will always be a fact!

- Reasons for food incidents:
 - **Negligence, sloppiness**
 - Glass in food, insects, "foreign bodies", infection with pathogens
 - **Ignorance and incompetence**
 - Animal drug and pesticide residues, contamination, spoilage
 - **Non-responsibility (or Irresponsibility!)**
 - Passing the buck up- or downstream ("not my concern – we have certificates and contracts!")
 - **No management commitment**
 - **Accidents happen – and not all food can be controlled!**
- **These types of incidences have no lasting effect. Whilst they are not likely to help confidence-building, they will not destroy trust!**

The real barriers to establishing trust are criminal energy and the financial incentives to cheat

- **China Daily Mail, November 25, 2012: China: Fast-growth, antibiotic-fed chicken for KFC, McDonalds**
Shanxi Suhai Group ... say that they will purchase as many chickens as the farmers are able to breed, as they have **KFC, McDonald's and large supermarket chains as their customers**. However, farmers have to use the chicken feed prepared by the group. It turns out that the group uses ... **antibiotics** in preparing the feed...
- **A joint Interpol-Europol operation** from 3-9 December 2012, involving 29 countries from all regions of the world, resulted in seizure of ... **more than 385'000 litres of counterfeit liquids, including vodka, wine, soy sauce and orange juice,...**
- Fake Lipton Tea, Nescafe Leak Into EU, Hurting Unilever, Nestlé (Bloomberg.com, 19 June 2007)
- REGGIO-EMILIA, Italy — ... a container of "**Parmazano Fiorentino**" produced in **Britain and labelled "dairy free"**...
- Newsweek, 7.2.2010: ... in 2008, food safety officers seized more than 10,000 cases of counterfeit extra virgin olive oil...

Conclusions

We are on the right track, but

- *'A priori' trust in the food chain is NOT justified!*
- *Certificates do not create trust!*
- *Consumers may forgive accidents, but scorn crimes!*
- *Safe food has a price we must be ready to pay!*
- *The foundations for trust are honesty, responsibility, fairness and respect – a question of ethics.*