





FOOD-CT-2006-036337

Towards the harmonisation of analytical methods  
for monitoring food quality and safety in the food  
supply chain

[www.monika.org](http://www.monika.org)




## Food Safety Hazards

### What is next?


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- Introduction
- Emerging Issues
  - Melamine
  - Dioxin in Irish pork
  - Clenbuterol
  - Nano-tech in food
  - Swine flue
  - Other emerging issues (bottled water, deca)





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### Consumer Desires


- Good and healthy foods
- Available all year round
- Sufficient supply
- Conveniently packaged
- Sold in supermarkets
- Long shelf life
- Always fresh
- Appealing taste and appearance


### Market Challenges

- Globalisation
- New materials – GMO, nanotech
- New processing technologies
- New distribution strategies
- New challenges
- New risks





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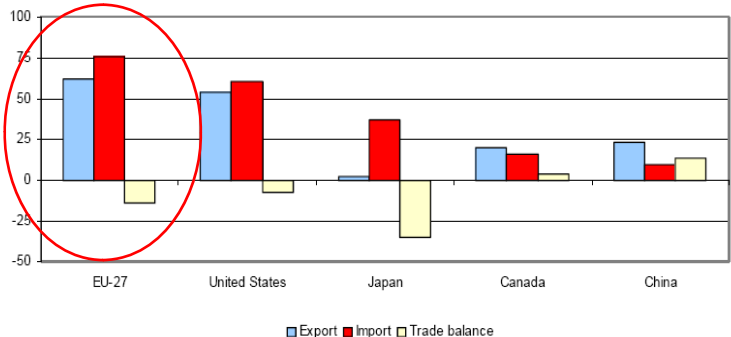




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## EU - biggest importer and exporter!



Region	Export	Import	Trade balance
EU-27	~60	~70	~-10
United States	~55	~60	~-5
Japan	~5	~40	~-35
Canada	~20	~15	~5
China	~25	~10	~15

Value in billion €  
 Source: eurostat statistics in focus 78/2009



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Table 5.12: Number of cases and incidence rates of various foodborne and waterborne diseases, 2005 (1)

	EU-25		Member States	
	Confirmed cases (units)	Incidence rate (per 100 000 inhab.)	Highest incidence rate	Incidence rate (per 100 000 inhab.)
Botulism	147	0.0	LT	0.2
Brucellosis	1 428	0.3	PT	1.4
Campylobacteriosis	197 802	45.0	CZ	296.2
Cholera (2)	34	0.0	BE	0.1
Cryptosporidiosis	7 960	2.8	IE	13.8
Echinococcosis	336	0.1	LT	0.4
Giardiasis	14 637	5.2	EE	24.3
Listeriosis	1 476	0.3	DK	0.9
Salmonellosis	180 303	39.1	CZ	322.2
Shigellosis	7 255	1.8	LT	13.4
Trichinellosis	153	0.0	LV	2.1
Tularaemia	489	0.1	SE	2.7
Variant Creutzfeldt-Jakob disease (vCJD)	14	0.0	SI	0.2
Verocytotoxinogenic Escherichia coli (VTEC)	5 199	1.2	CZ	16.7
Yersiniosis (non-pestis)	9 535	2.3	LT	14.6

(1) Some of these diseases may be transmitted from person to person, as well as through contaminated food or water; note the figures refer to the latest reference year and that these diseases are occur as outbreaks, hence, their incidence may fluctuate considerably from one year to the next.  
(2) Cases may have been imported.

Source: European Centre for Disease Prevention and Control (ECDC), The First European Communicable Disease Epidemiological Report, December 2007 ([http://ecdc.europa.eu/pdf/ECDC\\_epi\\_report\\_2007.pdf](http://ecdc.europa.eu/pdf/ECDC_epi_report_2007.pdf))

- But globalized trade in food also entails potential food safety & health hazards
- A small number of diseases which have a high incidence rate
  - Campylobacteriosis
  - Salmonellosis
- ... and a range of much less common diseases, (e.g. variant Creutzfeldt-Jakob Disease)

Source: eurostat pocketbook – from farm to fork statistics, 2008, p.166

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**MoniQA**  
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- Brings together over 120 institutions from 35 countries and 5 continents
- Able to react in a fast and comprehensive way to emerging food safety issues
- Special emerging issues working group
  - <http://www.moniqua.org/emerging>

PHIME   **MoniQA**   
 CHILL-ON   PathogenCombat for safe food

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## MoniQA Working Groups

[www.moniqa.org/wg](http://www.moniqa.org/wg)



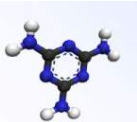
- Chemical Contaminants
- Food Allergens
- Food Authenticity
- Food Additives
- Microbiological Contaminants
- Mycotoxins/Phytotoxins
- Emerging Issues

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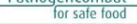
## Emerging issues: Melamine


- Organic compound (first synthesized in 1834)
- Problematic for babies and children (→ kidney stones and kidney failure)
- China: largest melamine exporter
- Illegally used to fake high protein content



**C3N6H6**



- 2007 melamine in US pet food
- Chinese babies first affected in March 2008
- September 2008: deliberate contamination of Chinese milk confirmed (to boost protein content)
- 60,000 babies are affected, 6000 seriously ill, 4 die
- Cases in Canada, Australia, New Zealand, Hong Kong and also Europe (biscuits)



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## Emerging issues: Melamine

**MoniQA actions**

- Risk communication, local input at First International MoniQA Conference (October 2008, Rome, Italy)
- Topic of MoniQA Food Science Training (Nanjing, China)
- Media Interviews with MoniQA experts
- Decision support and information resources [www.monika.org/melamine](http://www.monika.org/melamine)
- Other activities: see table on the left


- Analytical method collection
- Validation level and needs
- Background information
- Hazard characterisation
- Links to RASFF and MoniQA db
- Relevant publications
- EFSA, FDA, etc...positions
- MoniQA workplan








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## Emerging issues: Dioxin in Irish pork

- Dioxins
  - Occur in industrial processes (e.g. waste incineration, metal smelting, chemical manufacturing...)
  - Are classified as “probably carcinogenic” (WHO)
  - Associated with health effects in the long term and with high exposure
- December 2008: Food Safety Authority of Ireland (FSAI) “Dioxins in animal feed and pork samples”
  - Food industry required to recall all Irish pork products
  - Consumers warned not to eat Irish pork & bacon
  - Consultations with EFSA, UK (FSA) and Belgium




















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## Emerging issues: Clenbuterol

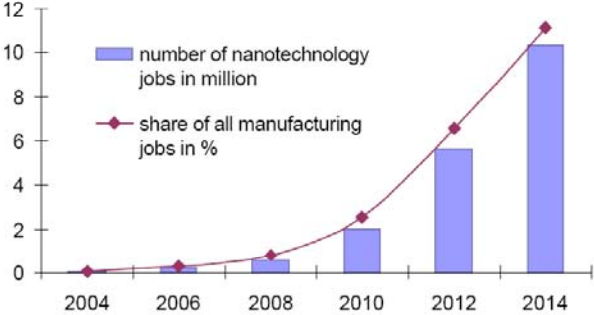
- Positive use: drug prescribed for breathing disorders
- Negative use: as a steroidal anabolic and metabolism accelerator....in animal food production
- Since 1998: At least 19 clenbuterol food poisoning cases in China – fed to pigs to keep their meat lean
  - Latest: February 2009: 70 people fell ill after eating pork products contaminated by clenbuterol (Guangdong province, China)
  - 2006: 300 people poisoned
- Some cases also in Europe 1995-2002 (Portugal, Spain, France, Italy)

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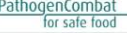
## Emerging issues: Nanotechnology



Nanotechnology key future technology and important for economy



Year	Number of nanotechnology jobs in million	Share of all manufacturing jobs in %
2004	0	0
2006	0.2	0.5
2008	0.8	1.5
2010	2.2	3.5
2012	5.8	7.5
2014	10.5	11.5

Source: Lux (2004) qtd. In Hullmann (2006) "The economic development of nanotechnology. An indicator based analysis". European Commission.









       

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## Emerging issues: Nanotechnology

### Nano-tech and food

- Management of food ingredients on a molecular level
  - Changing taste/texture, nutritional value
  - Use in food packaging
- Impact on food and feed industry
  - Risk-benefit relationship currently evaluated
- Risk assessment needed → EFSA (2009) scientific opinion
  - Case-by-case approach necessary
  - Current data limitations
  - Lack of validated test methodologies
- High degree of uncertainty

         
 for safe food


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## Emerging issues: Nanotechnology

### Key question: “Is it safe? / How safe is it?”



- European Parliament is more cautious than Commission, pushes for “no data - no market” principle (Carl Schlyter, Swedish Greens)
- EC – Public consultation on Risk Assessment of Nanotechnologies
  - Outcome of the consultation was presented at a Scientific Hearing in September see: <http://ec.europa.eu/health/dyna/nanohearing/>
  - Contradictory statements & evidence from lobby groups (consumer vs. industry)
- Expert group: Scientific Committee on Emerging and Newly-Identified Health Risks (SCENIHR)

         
 for safe food













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## Emerging issues: swine flue

### An issue of perception?



- The name swine flu comes from the fact that the influenza virus (H1N1/09) is originally derived from a strain that lived in pigs
- There is no risk of contracting the swine flue from eating cooked pork products
  - Confirmed by ECDC, EFSA, FAO, WHO
  - Still: pork prices badly hit













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## Other emerging issues

### ...”media reports”

- **“Hormones” in bottled water?**
  - Study detects estrogenic contamination (female sex hormones) in 60 percent of all samples
  - Probably from packaging material
- **“Plastic” pallets in our foods?**
  - Contain the neurotoxic flame retardant decabromodiphenyl ether (Deca)
  - Environmental Working Group: Deca pallets could contaminate food





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What do You think?

What are You scared of?

