

**International Conference on Organic Food Quality and Health Research**

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Warsaw, Poland



# **Food Quality, Versatility, Needs and Expectations**

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## **CONTENT**

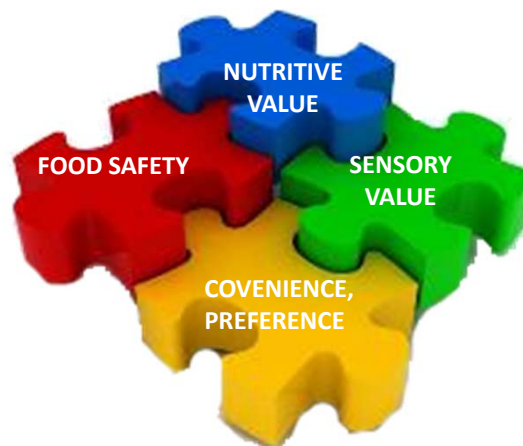
- **Food quality: definitions, trends, drivers, consumer attitudes**
- **Food quality & safety, crises, outbreaks, gaps & needs**
- **Food quality vs. food fraud**
- **Food quality & safety: lessons and examples we can learn from**

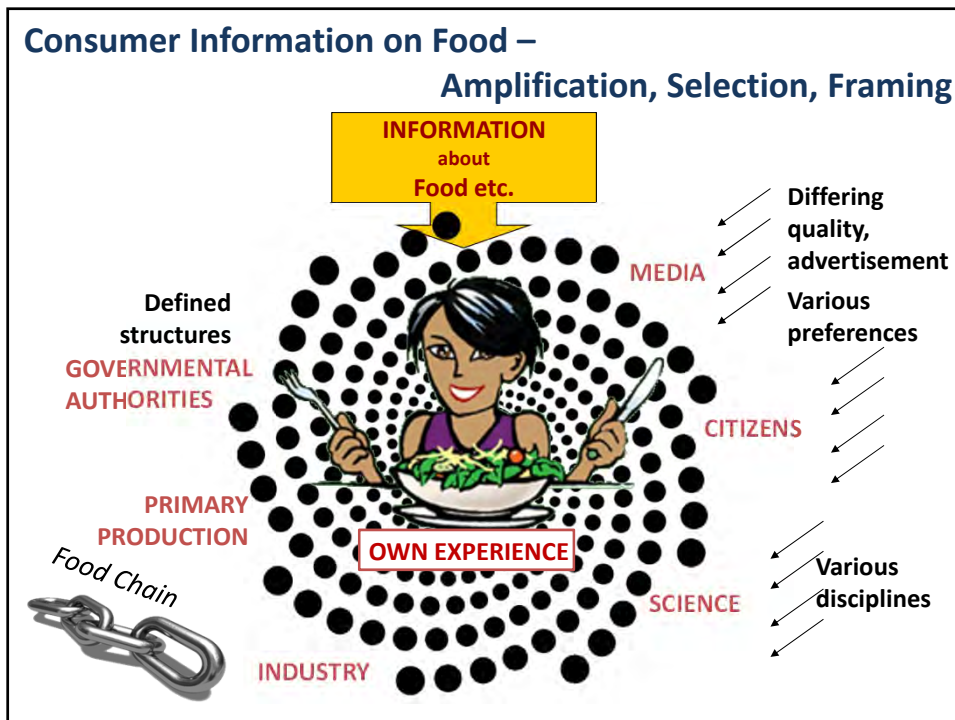
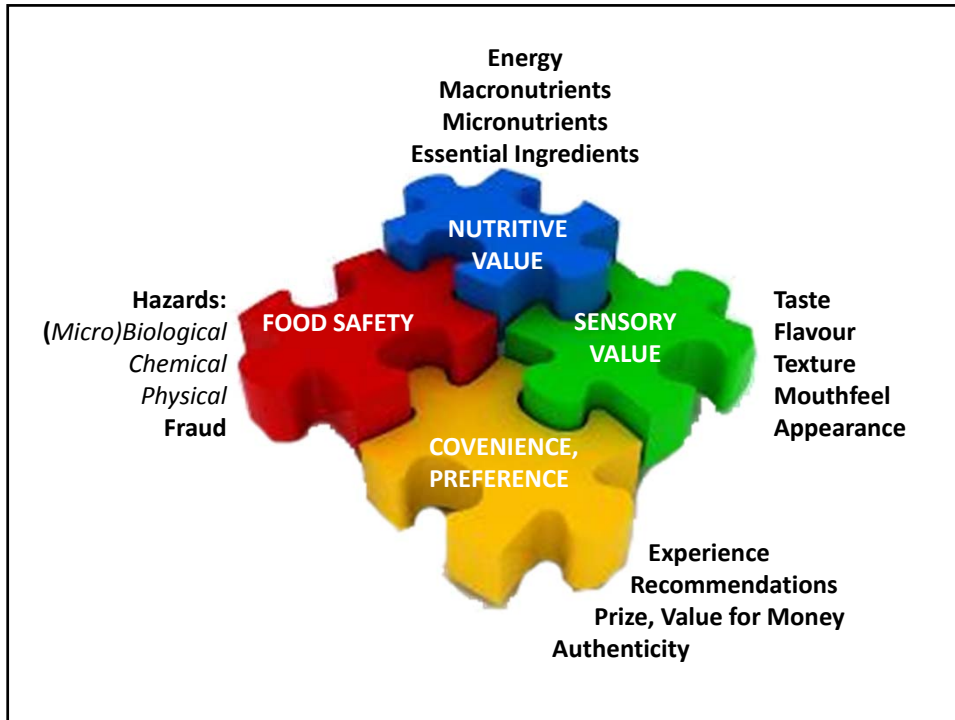
**...During our life we, on average, have more than 75.000 meals  
- small wonder that many problems occur „after eating“ ...?**

Dean O. Cliver,  
Food Microbiologist,  
1990

## **Food Quality**

**...the sum of properties contributing to the ability meeting all necessary and/or expected requirements**





### Ranking of Important Criteria for Consumers' Choice \*)

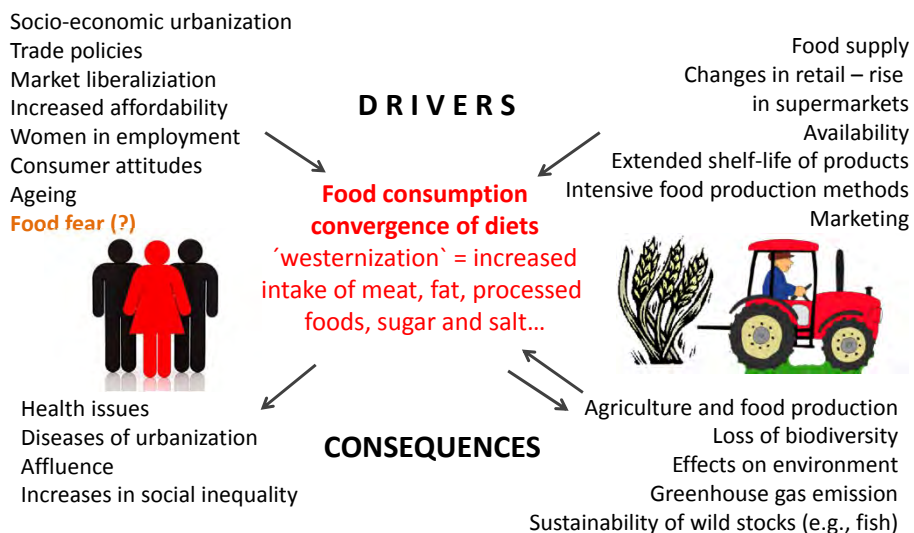
„TOP FIVE“

1. Like the taste
2. Natural, non-GMO
3. Healthy
4. Family likes it
5. Regional origin
6. Ingredients of high quality
7. Rich in vitamins
8. Organic, biological
9. Fat-reduced
10. Easy to prepare
11. Well-known
12. Affordable price
13. Calory-reduced
14. Fast to prepare

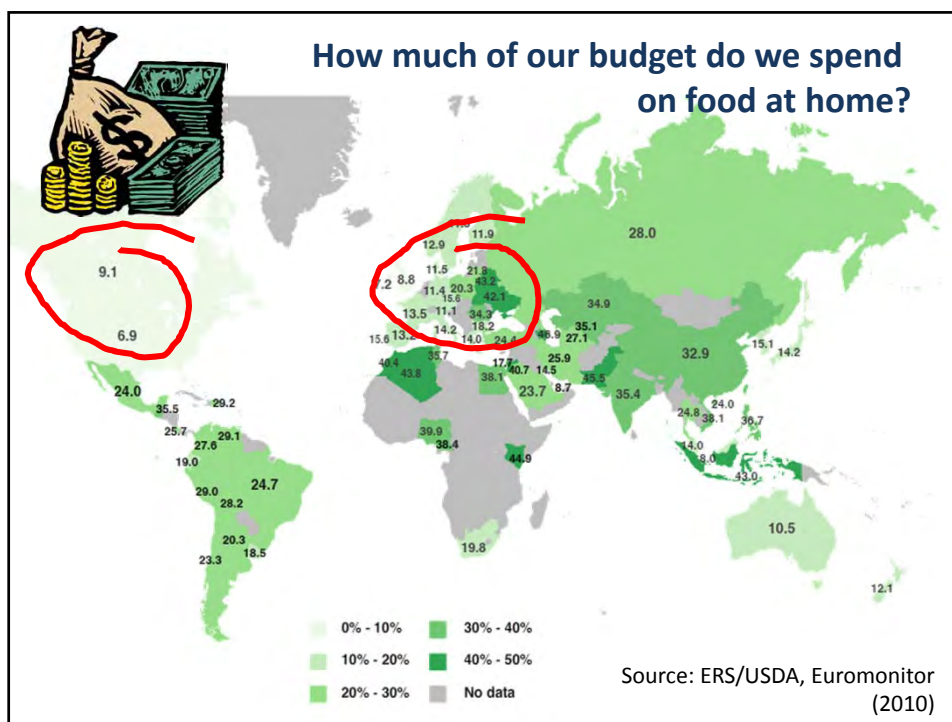


\*) Source: CATI Food Study, AC Nielsen (2007)

### Drivers and Consequences of Food Consumption Changes with Economic Development \*)



\*) Source: J. Kearny: Phil. Trans. R. Soc.B. (2010) 365:2793



### Selected Food Related Issues EU Citizens are Concerned about \*)



- **76%** are concerned that sufficient food is produced to meet the needs of world's population
- **81%** agree that more food has to be produced to reduce the dependence on imports and to meet the rising demands
- **96%** say that quality is important when buying food
- **91%** say that the price is important when buying food
- **60%** of citizens aged 15-24 see quality as very important
- **62%** of the NMS12 countries state that brands are notably more important
- **67%** check foods for quality labels
- **24%** are aware of the EU's Organic farming logo

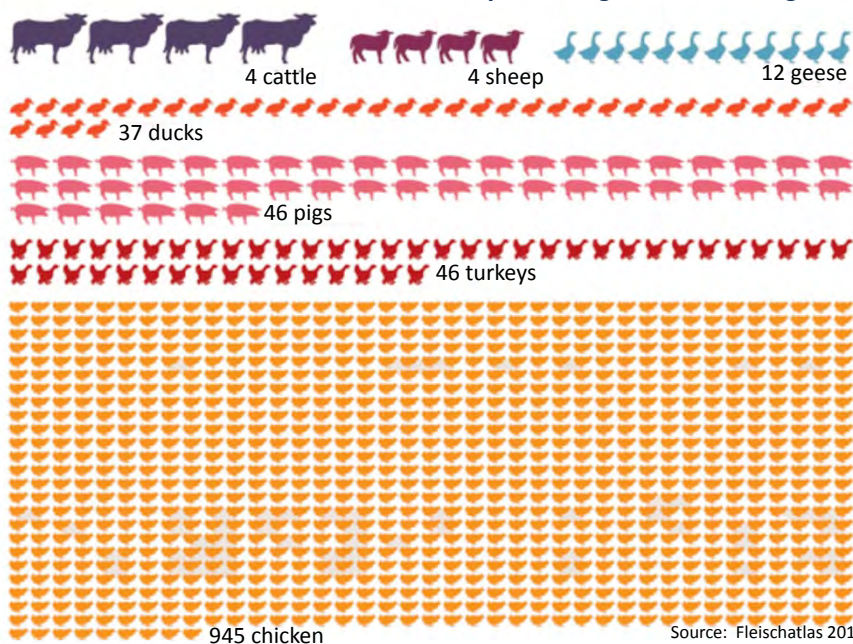
\*) Source: Special Eurobarometer 389

### Trends: Per capita Consumption of Livestock Products\*

Region	Meat (kg per year)			Milk (kg per year)		
	1964 - 1966	1997 - 1999	2030	1964 - 1966	1997 - 1999	2030
World	24.2	36.4	45.3	73.9	78.1	89.5
Developing countries	10.2	25.5	36.7	28.0	44.6	65.8
Near East and North Africa	11.9	21.2	35.0	68.6	72.3	89.9
Sub-Saharan Africa <sup>a</sup>	9.9	9.4	13.4	28.5	29.1	33.8
Latin America and the Caribbean	31.7	53.8	76.6	80.1	110.2	139.8
East Asia	8.7	37.7	58.5	3.6	10.0	17.8
South Asia	3.9	5.3	11.7	37.0	67.5	106.9
Industrialized countries	61.5	88.2	100.1	185.5	212.2	221.0
Transition countries	42.5	46.2	60.7	156.6	159.1	178.7

\*) FAO Corporate Document Repository:  
WHO Techn. Report Series 916 (2003)

### Number of livestock animals consumed by an average German during life



Source: Fleischatlas 2013,  
Heinrich Böll-Stiftung, Berlin

## FOOD SAFETY



### Factors Contributing to Food (Un)safety (& Consumer Perception)

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- Mass production
- Globalisation
- Lifestyle trends
- Residues (...„analytics unlimited“)
- „New“ plagues (?)
- Public Media
- Missing knowledge
- etc.



➔ **Globalisation (Example)**



.....**did you know**

that this product may

contain **35** products or ingredients

from **60** countries

and **5** continents




**So, how can we find out, which control button (relating to an ingredient or to a supplier) is to be pressed in case of emergency**





**Traceability**

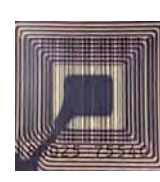
is  
the  
key  
to  
effective  
food crisis  
prevention & management

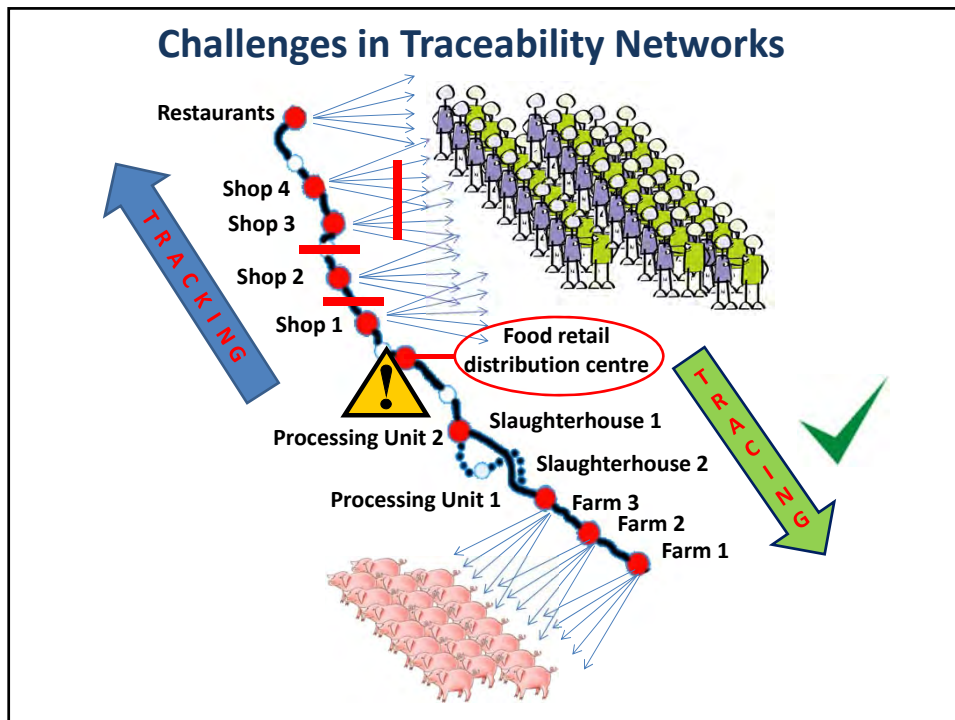


**Technologies for Traceability**

 **Barcode**

 **Matrix code**

 **Radio frequency technology  
(incl. transponder technology)**



### *Polemical statement*

*(related to public health)*



**„...advances in modern medicine have led to the fact that there is no one healthy person among us, as for many individuals some parameters of clinical investigations may not be within the given normal range.....“  
(although they are of good health)**

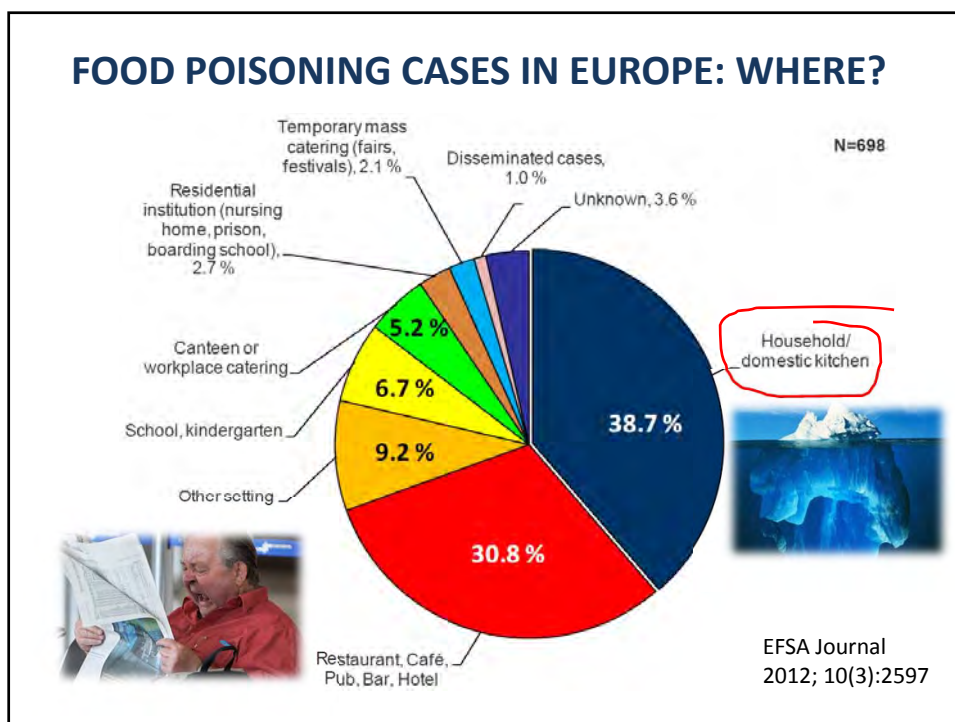
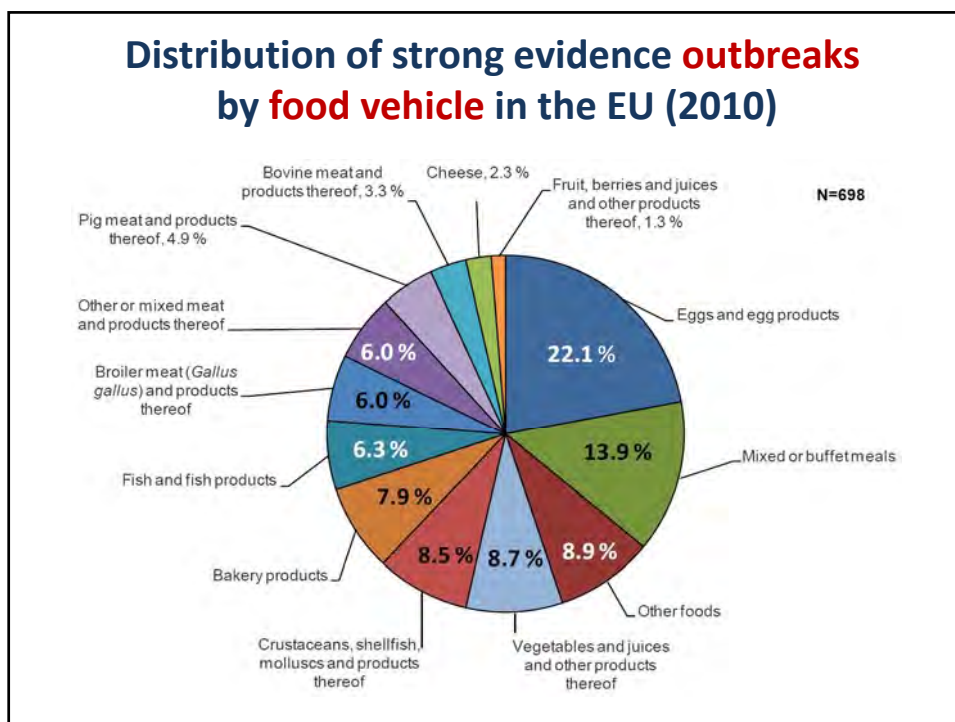
## FOOD QUALITY & SAFETY: OUTBREAKS, CRISES, GAPS & NEEDS

### Examples of (re-)emerging infectious diseases



ENDEMIC - EPIDEMIC - PANDEMIC

Source: National Institute of Allergy and Infectious Diseases





## Cantaloupe Outbreak: Some Retailers Identified, Others Not

*Wal Mart, Schnucks, Meijer and Marsh remove cantaloupes from shelves.*

BY JOHN J. GUZEWICH | AUGUST 25, 2012

This article was updated on Sept. 4, 2012 to include additional information provided by a Wal Mart spokeswoman.

One week following the announcement of the Salmonella outbreak tied to cantaloupes grown by Chamberlain Farms in southwestern Indiana, some consumers are still expressing confusion over whether or not their local supermarkets carried — or are still carrying — the affected melons.

Several retailers have stepped forward to comment on the outbreak, though the U.S. Food and Drug Administration has not yet provided any retailer-specific information about Chamberlain's supply chain. In all likelihood, more retailers who sold contaminated cantaloupes have not yet been identified, said microbiologist and eFoodAlert author Phyllis Entis.

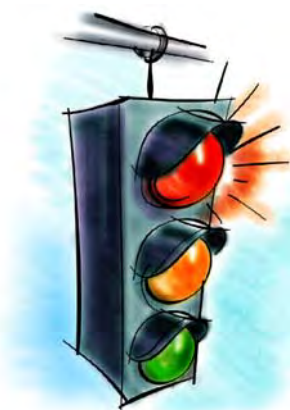
On Thursday, Midwest grocer Schnucks announced that they had been selling Indiana cantaloupes — including cantaloupes from Chamberlain Farms — until August 16, when public health officials gave them warning to pull their cantaloupes grown in southwestern Indiana.

Earlier, grocers Meijer and Marsh announced that they had removed Indiana-grown cantaloupes from shelves following the news of the outbreak. Whether or not they specifically sold Chamberlain Farms cantaloupes remains unclear.

At least three victims are known to have purchased cantaloupes from Wal Mart stores in Michigan and Mississippi, though the source of those cantaloupes has not been specified.



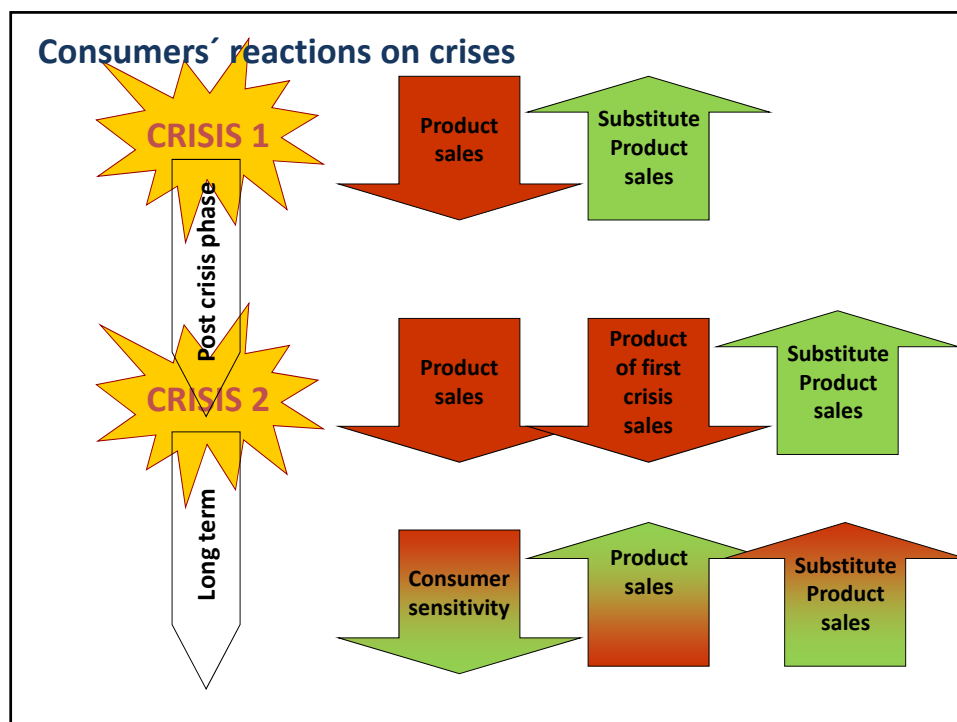
A **crisis** is an undesired and unscheduled process of limited duration



**State of emergency**

**Critical situation**

**Normal situation**




**Tag: USP Food Fraud Database**

### Food Fraud Database Lets Us All Play Detective

NPR Food | March 26, 2013 | 0 Comments

Spices colored with carcinogens? Milk that “never saw a cow?” A free global database opens the door on the many ways that people adulterate or fake food.





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[Home](#) [Search](#) [Report Fraud](#)






#### Welcome to the USP Food Fraud Database

Food fraud is gaining interest as an emerging risk given the increasingly global and complex nature of food supply chains. While numerous scholarly and media articles on the subject have been published, no systematic compilation of these reports exists. In an effort to help identify problematic food ingredients and catalog detection methods, USP has developed this database as a repository for ingredient fraud reports.

**RELATED RESOURCES**

- FCC Online
- FCC Forum



Example search: „milk adulteration“

Home   Search   Report Fraud

### Search

Enter a search item below (e.g., an adulterant or an ingredient)


Ingredient Category	Ingredient	Adulterant	Reported Detection Method	Author/Year
Dairy products and milk derivatives	Milk ingredient	Melamine	Review of methods: MIR and NIR with chemometrics	Ozen and Tokatli 2012
Milk	Milk (powder)	Soybean oil	MALDI-MS on hexane extract of milk	Garcia and others 2012
Milk	Milk (powder)	Palm oil	MALDI-MS on hexane extract of milk	Garcia and others 2012
Milk	Milk (powder)	Hydrogenated soybean oil	MALDI-MS on hexane extract of milk	Garcia and others 2012
Milk	Milk (powder)	Cow tallow	MALDI-MS on hexane extract of milk	Garcia and others 2012
Milk	Milk (powder)	Pork lard	MALDI-MS on hexane extract of milk	Garcia and others 2012
Milk	Milk (fluid)	Water	Constant phase angle based impedance sensor to measure ionic properties	Das and others 2011
Milk	Milk (fluid)	Urea	Constant phase angle based impedance sensor to measure ionic properties	Das and others 2011

## FOOD SAFETY


### Lessons to learn from...

**From (bad) experience →**  
**...“something (bad) has to happen first, before something (...a reaction) will happen...”**

Many corrections and improvements are consequences to a breakdown



BSE crisis  
Dioxin problem  
*Salmonella* eggs  
Melamine crisis  
Plasticiser  
monomers  
Mycotoxins  
*Listeria salmonis*  
etc.



W. Kneifel © 2011

**THANK YOU FOR YOUR ATTENTION**