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
10.06.2013

**FOOD SAFETY**

- NUTRITIVE VALUE
  - Energy
  - Macronutrients
  - Micronutrients
  - Essential Ingredients

- SENSORY VALUE
  - Taste
  - Flavour
  - Texture
  - Mouthfeel
  - Appearance

- COVENIENCE, PREFERENCE
  - Experience
  - Recommendations
  - Prize, Value for Money
  - Authenticity

**Hazards:**
- (Micro)Biological
- Chemical
- Physical
- Fraud

**Energy**

Macronutrients
Micronutrients
Essential Ingredients

**Consumer Information on Food – Amplification, Selection, Framing**

- INFORMATION about Food etc.

  - Defined structures
  - GOVERNMENTAL AUTHORITIES
  - PRIMARY PRODUCTION
  - Food Chain

  - MEDIA
    - Differing quality, advertisement
    - Various preferences

  - CITIZENS
    - Various disciplines

  - INDUSTRY
  - SCIENCE
  - OWN EXPERIENCE
  - OWN EXPERIENCE
Ranking of Important Criteria for Consumers´ Choice *)

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 *)

**Drivers**
- Socio-economic urbanization
- Trade policies
- Market liberalization
- Increased affordability
- Women in employment
- Consumer attitudes
- Ageing
- Food fear (?)

**Food consumption**
- Convergence of diets
- "westernization" = increased intake of meat, fat, processed foods, sugar and salt...

**Consequences**
- Agriculture and food production
- Loss of biodiversity
- Effects on environment
- Greenhouse gas emission
- Sustainability of wild stocks (e.g., fish)

How much of our budget do we spend on food at home?

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 prize 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

<table>
<thead>
<tr>
<th>Region</th>
<th>Meat (kg per year)</th>
<th>Milk (kg per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>24.2</td>
<td>36.4</td>
</tr>
<tr>
<td>Developing countries</td>
<td>10.2</td>
<td>25.5</td>
</tr>
<tr>
<td>Near East and North Africa</td>
<td>11.9</td>
<td>21.2</td>
</tr>
<tr>
<td>Sub-Saharan Africa*</td>
<td>9.9</td>
<td>9.4</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>31.7</td>
<td>53.8</td>
</tr>
<tr>
<td>East Asia</td>
<td>8.7</td>
<td>37.7</td>
</tr>
<tr>
<td>South Asia</td>
<td>3.9</td>
<td>5.3</td>
</tr>
<tr>
<td>Industrialized countries</td>
<td>61.5</td>
<td>88.2</td>
</tr>
<tr>
<td>Transition countries</td>
<td>42.5</td>
<td>46.2</td>
</tr>
</tbody>
</table>


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

- 4 cattle
- 4 sheep
- 12 geese
- 37 ducks
- 46 pigs
- 46 turkeys
- 945 chicken

Source: FleischAtlas 2013, Heinrich Böll-Stiftung, Berlin
Factors Contributing to Food (Un)safety (& Consumer Perception)

- Mass production
- Gobalisation
- 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

?

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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)
Challenges in Traceability Networks

Restaurants
Shop 4
Shop 3
Shop 2
Shop 1
Food retail
distribution centre
Processing Unit 2
Slaughterhouse 1
Slaughterhouse 2
Processing Unit 1
Farm 3
Farm 2
Farm 1

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, CRISSES, GAPS & NEEDS

Examples of (re-)emerging infectious diseases

Source: National Institute of Allergy and Infectious Diseases
Distribution of strong evidence **outbreaks** by food vehicle in the EU (2010)

Food poisoning cases in Europe: Where?

EFSA Journal 2012; 10(3):2597
EHEC Outbreak, Germany 2011

- Under State Secretary for Environmental Affairs Sonoda is drinking water from a Fukushima spring (fall 2011)
- Prime Minister Noda is eating rice balls (2012)
A crisis is an undesired and unscheduled process of limited duration.
Consumers’ reactions on crises

CRISIS 1

Post crisis phase

Product sales
Substitute Product sales

Product sales
Product of first crisis sales
Substitute Product sales

CRISIS 2

Long term

Consumer sensitivity
Product sales
Substitute Product sales

FOOD QUALITY vs. FOOD FRAUD
Food Fraud Database Lets Us All Play Detective
NFRI 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.


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

W. Kneifel © 2011
THANK YOU FOR YOUR ATTENTION