



Federatie Voedingsindustrie  
Fédération de l'Industrie Alimentaire



Confédération des industries agro-alimentaires de l'UE  
Confederation of the food and drink industries of the EU

# Databases of the professional sectors

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Scientific exploitation of databases for risk evaluation in a food safety framework

Theme 2 : Availability of databases in view of a risk evaluation

# Databases of the professional sectors

## Content

- Introduction & Context
- Some case studies
  - Acrylamide
  - Coumarin
  - Guar gum
  - Additives
    - FACET Project
- Conclusions

# Introduction & context (I)

- The risk analysis context (cfr. Reg. 178/2002)
  - a process consisting of 3 interconnected components
    - ✓ Risk assessment
      - Scientifically based process consisting of four steps : hazard identification, hazard characterization, exposure assessment and risk characterisation
    - ✓ Risk management
      - The process of weighing policy alternatives .... considering risk assessment....
    - ✓ Risk communication
      - Interactive exchange of information....

# Introduction & context (II)

- Data generated by food sector operators most frequently relate to a risk management context  
→ “compliance data”, resulting from
  - HACCP-verification at company level
  - Sectoral monitoring schemes
    - Dairy sector (“Monimilk” : o.a. dioxins & PCBs, heavy metals, antibiotics, microbiological contaminants, ...)
    - FVP-sector (o.a. residues of crop protection products, heavy metals,...)
    - Feed sector (o.a. dioxins, ....)
    - Coumarin
    - Fusarium

\*However, also some useful information for risk evaluation

# Introduction & context (III)

*==> If sector information relates to a risk evaluation context, this will concern hazard identification or – more often – contribute to exposure assessment*

- Hazard identification
  - ➔ Companies will provide available information to competent authorities
  - ➔ e.g. ITX
- Contribution to exposure assessment to facilitate risk management decisions
  - ➔ Data collection & transfer to authorities
  - ➔ e.g. acrylamide, coumarin, guar gum,...

# CIAA and data collection, principles to be fulfilled

## Acrylamide data collection

Clear data collection instructions needed, e.g.:

- Use a defined food categorisation system to classify the product samples for which data are collected (so far CIAA used the Codex system)
- If the same sample has been analysed using different methods, supply results on separate rows with the same sample number.
- Where the identical sample of a commercial product has been analysed “as sold” and “as prepared for consumption”, supply results on separate rows with the same sample number.
- Where the initial sample is from a different batch or a different sample within the batch then provide the results under a different sample number
- Minimise the risk of double entries, e.g. companies may send their analytical data directly to CIAA, but should inform the respective sectors that they have done so.
- If possible to provide relevant information about crop variety and crop year is available [e.g. for potatoes] then please provide this info
- Explain at which stage in production the samples were taken
- Explain cooking conditions as carried out by the consumer (i.e. to cover cooking referred to under “as prepared for consumption”)

# Acrylamide

- CIAA sectorial associations collected data, and submitted to JFR,
  - Data were not accepted by JFR, because collected in a different format;
  - However data are of value for food industry, helps to measure acrylamide mitigation
  - Some detailed information in 2004 Acrylamide Status report

# Example - concrete questions to investigate acryl amide mitigation in potato products

- Acrylamide levels for potato crisps for the years 2004 – 2006 giving
  - Number of samples collected
  - Average levels
  - Ranges
  - If possible grouped into dates that reflect the seasonal variation between stored and fresh potatoes
- A list of tools used to control acrylamide together with their relevant importance (1= always used, 2 = occasionally used, 3 = not available/applicable or never).
  - Selection of potato variants with low reducing sugar content
  - Potato storage temperatures (above 8°C)
  - Blanching of potato slices
  - Control of blanch water pH
  - Control of cooking temperature and time
  - Control of chip colour (light golden colour)
  - Colour sorting of fried chips
  - Forced cooling of fried chips after cooking
  - Vacuum frying
  - For formed chips – partial replacement of potato flakes
  - Other please specify



# Acrylamide mitigation results

- A summary of the reduction potential of the different mitigation strategies for the individual food categories is provided in the most recent CIAA Toolbox and in a Special Issue of the Journal *Food Additives & Contaminants* (24, Supplement 1, 2007).
  - For example, monitoring activities of the Food and Consumer Product Safety Authority (VWA) in the Netherlands showed a significant decrease of acrylamide levels of Dutch spiced cake in 2006 versus 2002 (approx. 3-fold reduction).
- In this context, the EU database on acrylamide shows a trend towards lower acrylamide levels in some foods.

# Coumarin

- CIAA and its sectorial associations contributed to the debate in Europe;
- The following information was collected in either sectorial data bases:
  1. Coumarin content of different cinnamon species
  2. Coumarin levels in typical market segments
  3. Exposure data as appropriate
  4. Market share per product category
  5. Impact assessment

# 1. Coumarin content of different cinnamon species

- Used as single ingredient
- Used in mixtures
- Name Cinnamon species
- Coumarin content in ranges in mg/kg (realistic levels)
- Issues/Potential for reduction
- Reason for the use of cinnamon

## 2. Coumarin levels in typical market segments

- Product type and countries in which it is sold
- Range of coumarin levels in mg/kg
- \* data to be specified according to the countries in which the products are sold

# 3. Exposure data as appropriate

## Product type

- Children
  - Small Consumers in g/day
  - Average Consumers in g/day
  - Big Consumers in g/day
- Adults
  - Small Consumers in g/day
  - Average Consumers in g/day
  - Big Consumers in g/day

## 4. Market share per product category

- Indicate whether your products are either eaten:
  - Seasonal
    - By: children                      adults
  - Long term
    - By: children                      adults
  - Occasionally:
    - By: children                      adults

## 5. Impact assessment (internal industry evaluation important for risk benefit analysis)

- Trials in laboratory
- Trials in industry
- Product aging
- Validation by consumers
- Global costs
- Global planning
- Difficulties/Issues of formulation changes

# Guar Gum, CIAA data collection

- Sample number

## **Manufacturer in India**

- Ingredients from India Glycols
- Other manufacturer

## **Supplier in Europe**

- Unipektin
- Other supplier: **NAME**

## **Test results to be delivered in:**

- PCP in mg/kg
- Dioxin in picogramm/g



# Additives

Tier II and III additives template

Substance, E number, ADI as appropriate

Food category according to CFCS system	Permitted use		<b>Tier 2</b>		<b>Tier 3</b>
		Population mean consumption in g	Population mean intake in mg/kg/bw/day	Usage level mg/kg	Population mean intake in mg/kg/bw/day

# Additives - general instructions for members

- Any data collection should be a reflection of 2006
- For each named food category the concerned sector should provide general use levels, if possible also highest levels with market share.
- Comments should include important information if seasonal products are concerned and the duration of its sale
- Products, which are sold according to particular geographic restrictions, should be mentioned.
- If possible, the sale in different countries could be mentioned, including the market share
- To avoid double counting need to consider the amount of surveyed additives in mixtures
- Double check the use instruction of the technical data sheet

# Additives – CIAA suggested template tier III additives

Food category according to CFCS system	Permitted use	Use levels (g/kg)	Share of total market (%)
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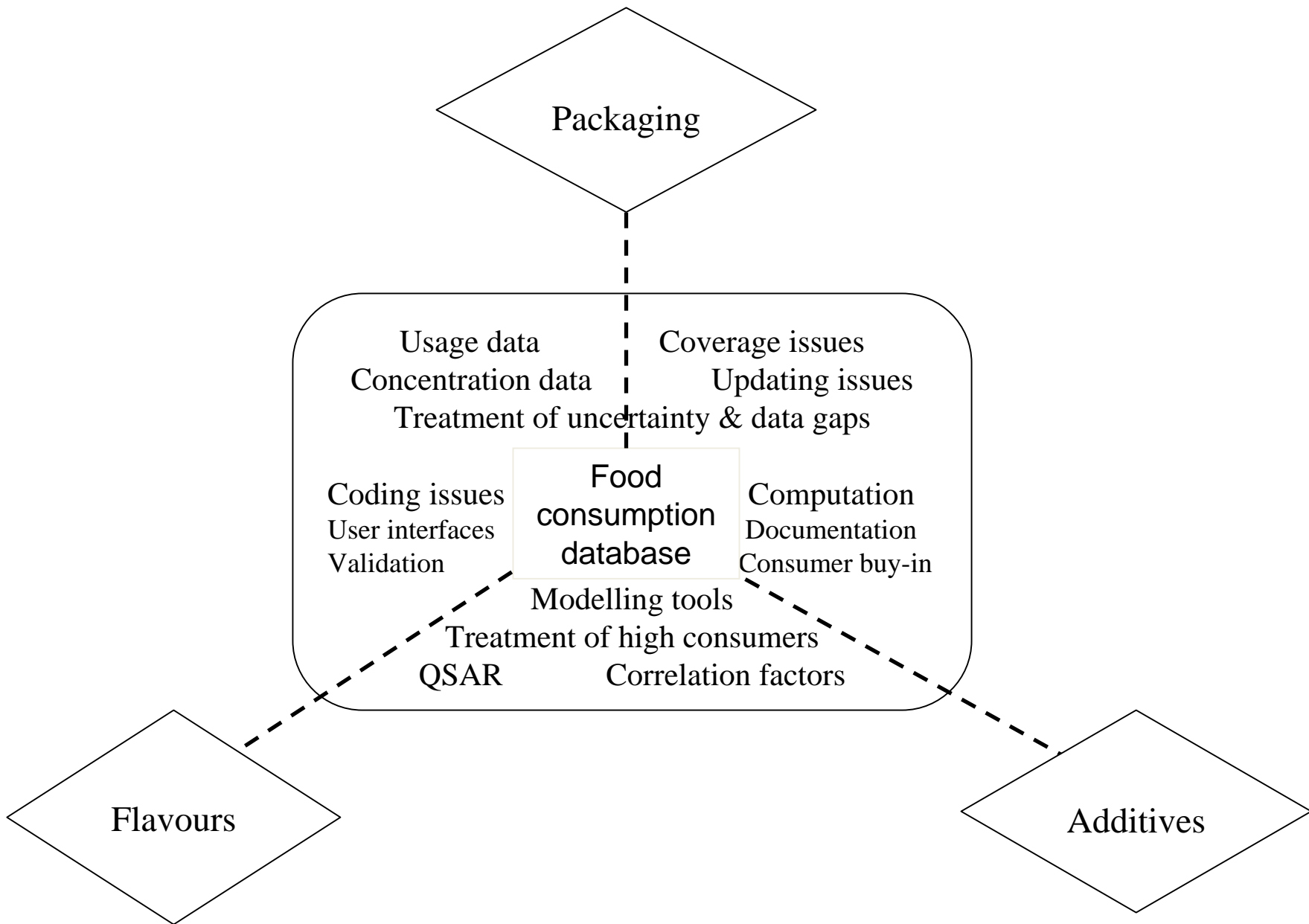
# CIAA involvement in FACET, DG Research 7<sup>th</sup> Framework Project

# What is FACET - 1?

- *KBBE-2007-2-4-01: Exposure to food additives, flavourings, and migrants coming from food contact materials – Dietary intake models.*
- The aim is to assess consumer exposure to food additives, flavourings and substances migrating from food contact materials. The use of QSAR (quantitative structure activity relationship) for the migration from food contact material shall be explored. Dietary intake models will also be developed, which take into account high consumption, special groups of consumers and different age groups. Harmonised methods will be developed for data collection and the construction of a European database.

# What is FACET - 2?

- FACET = Flavourings, Additives (food), Contact materials, Exposure Task
- Risk Manager and industry **Risk Assessment and hence Risk Management** Tool
- EU funded project ~ €5.9 Mio.



# Work Packages

WP #	Title
1	Project management
2	Flavourings
3	Additives
4	Packaging
5	Food intake
6	Chemical occurrence
7	Regional modelling
8	Databases and modelling
9	Concentration data (additives only)



# Conclusions

- Any data collection system needs to be adapted to the purpose/needs;
  - it must however be scientifically speaking robust and evidence based
- Data collection for the purpose of exposure assessment is different from any other system
- Modelling can help to create appropriate systems (FACET project of major importance)
- To measure the success of mitigation of acrylamide several additional factors need to be taken into consideration, which makes this data collection unique
- Impact assessment data collection needs to request and provide the information of those really concerned