

# Harmonised food description – EuroFIR experiences to date

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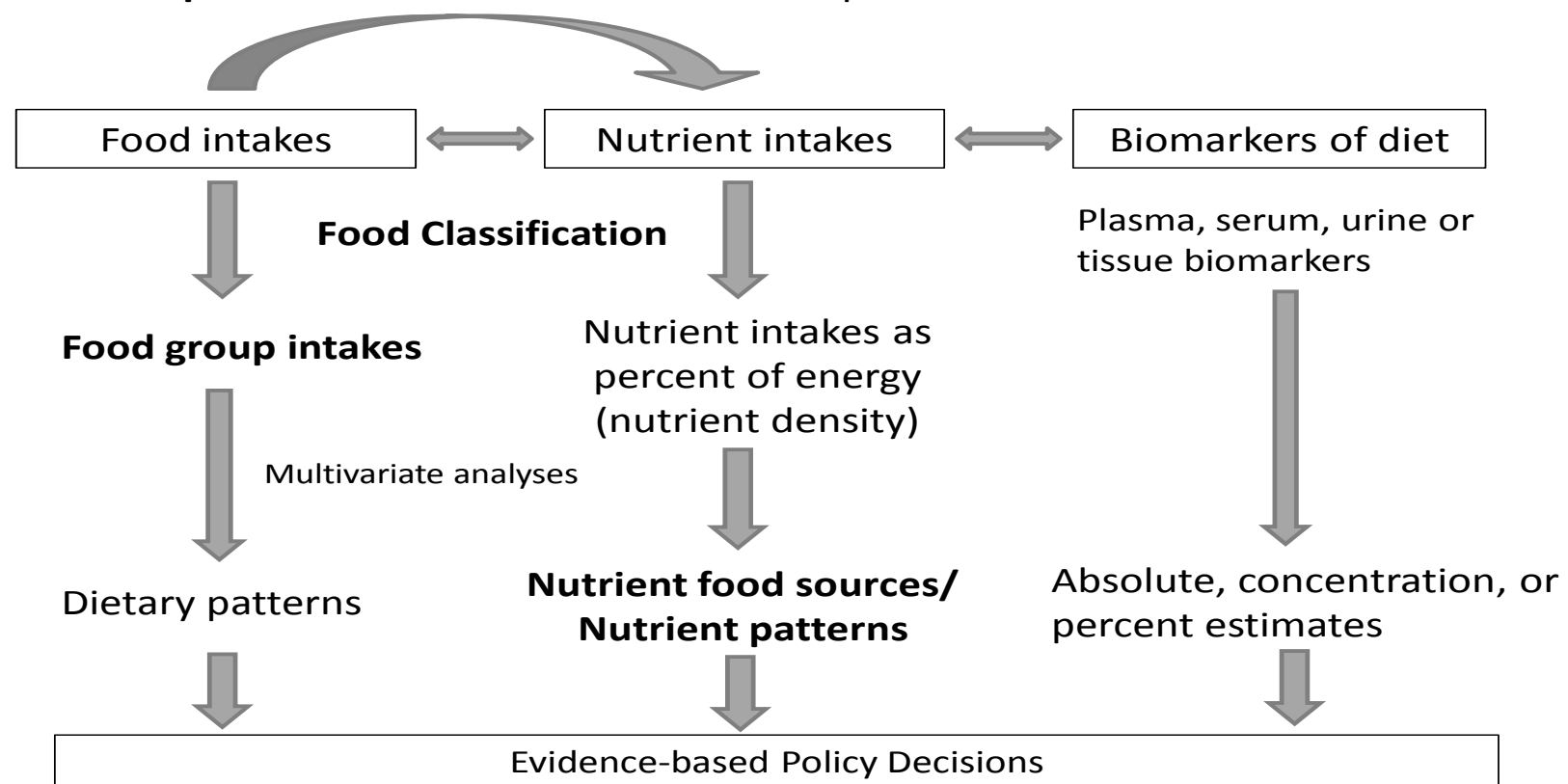
Parma, Italy



# Food composition data uses

Measurement of dietary exposures in nutritional epidemiology:  
what are food composition databases needed for?

**Food composition databases + Food consumption data**



## Importance of food nomenclature & description

- To ensure data quality & exchange of data
- To understand & compare dietary patterns and nutritional status
- Food description – standardised thesauri that are maintained & updated
- Common classification system (compatible with COST 99 & EFCOSUM)
- EuroFIR chose LanguaL (multilingual & multicultural ) for indexing foods and linking databases

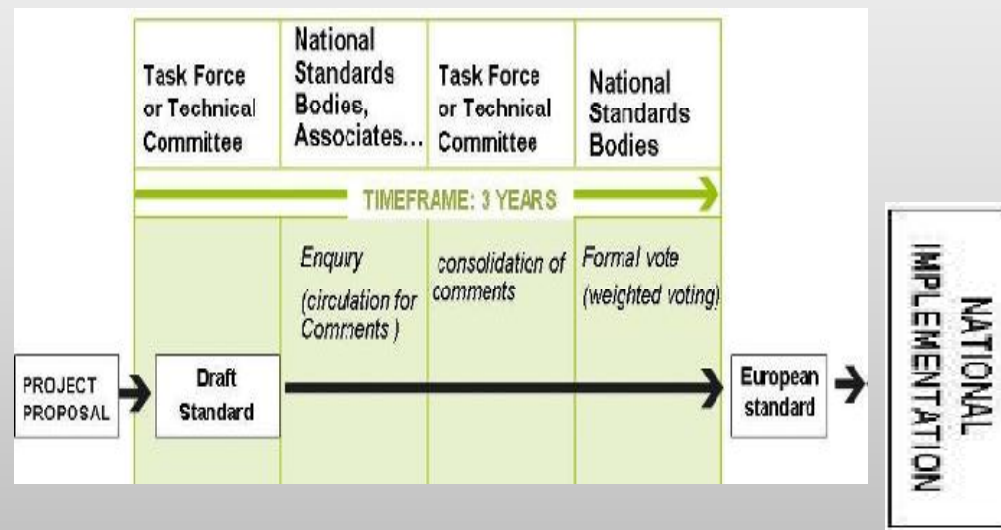


## What has EuroFIR achieved?

- Standardisation of:
  - Food description and classification
  - Nutrient definitions
  - Calculation methods for e.g. energy and other derived components
  - Nutrient retention factors
- For a variety of uses.....

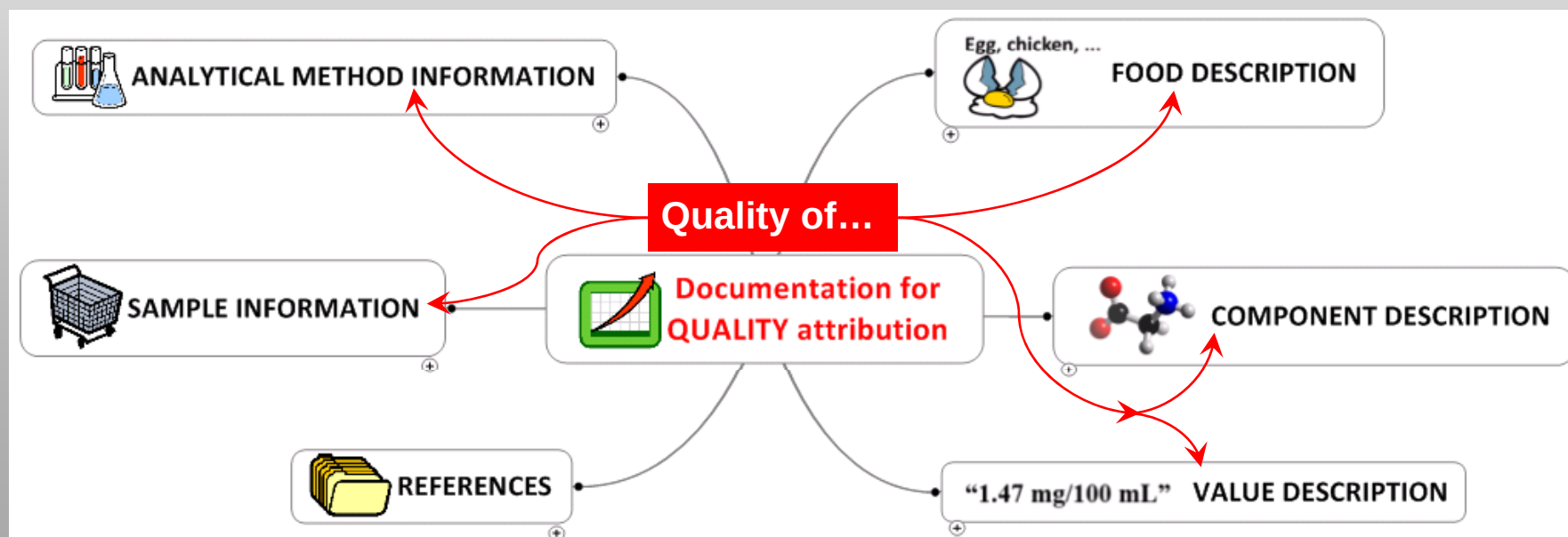


- Requirements on data structure of FCDBs and interchange of food composition data:
  - Identification, description, classification & labelling of foods and ingredients
  - Values for measurable, estimated or calculated nutrients/components
  - Method specifications
  - References to data sources
  - GS1 liaison will enhance coverage & uptake of future standard with industry

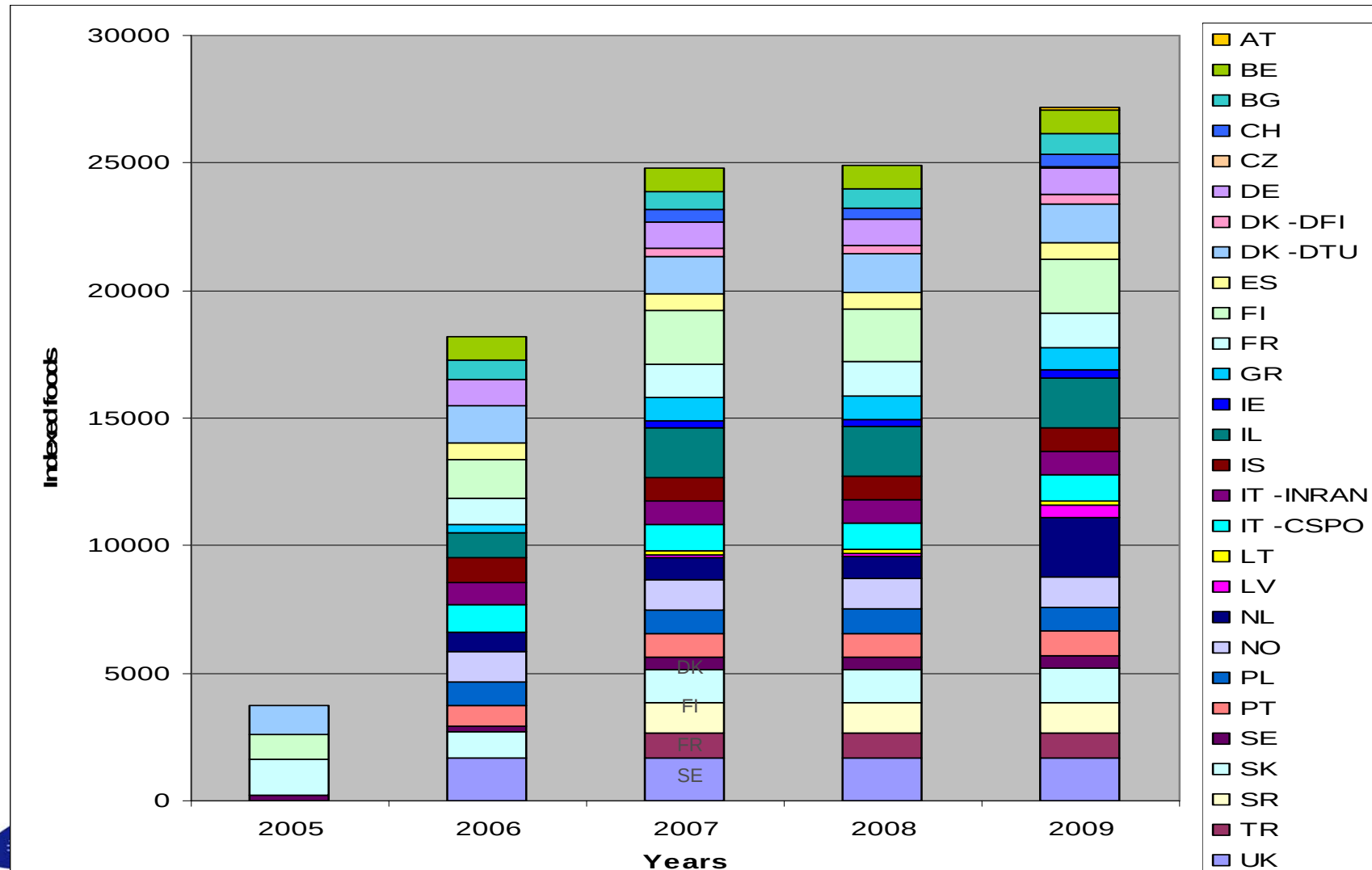


# EuroFIR Data Quality Evaluation System for Scientific literature & Analytical reports

Quality reflects completeness of documentation and its compliance with standard requirements



## Foods LanguaL indexed in EuroFIR (2005-10)



## Foods indexed by Language

- **29 indexed European data sets**
  - Over 29,000 indexed foods →
- **Other indexed data sets:**
  - **EuroFIR eBASIS**
  - **French Polyphenols database**
  - **GEMS/Foods:** WHO/FAO Global Environmental Monitoring System, using Codex CCPR classification
  - **INFORMALL (food allergens)**
  - **USDA** data sets



| Data set     | Version    | Foods indexed |
|--------------|------------|---------------|
| AU UVI       | 2010-03-21 | 501           |
| CZ UZEI      | 2009-08-13 | 77            |
| LT NNC       | 2009-08-13 | 133           |
| DK DFI_NDS   | 2007-09-19 | 339           |
| CH SwissFIR  | 2010-03-18 | 912           |
| SE NFA       | 2010-05-20 | 1476          |
| LA FVS       | 2010-03-20 | 545           |
| ES UGR       | 2010-03-18 | 458           |
| BG NCH       | 2009-08-13 | 827           |
| GR HHF       | 2010-03-18 | 214           |
| IT INRAN     | 2010-03-21 | 790           |
| PL NFNI      | 2010-03-21 | 932           |
| BE Nubel     | 2009-08-13 | 913           |
| IS ISGEM     | 2010-03-18 | 946           |
| PT INSA      | 2010-03-20 | 962           |
| TR TUBITAK   | 2010-03-21 | 337           |
| DE BLS       | 2010-05-18 | 1034          |
| IE UCC       | 2009-08-13 | 938           |
| IT ISPO      | 2010-03-21 | 935           |
| SR IMR       | 2010-03-18 | 1142          |
| NO MVT       | 2009-08-13 | 1188          |
| FR AFSSA     | 2009-08-13 | 1294          |
| SK FRI       | 2010-06-09 | 1400          |
| DK DTU_FDB   | 2010-03-20 | 1049          |
| UK IFR       | 2010-03-21 | 1702          |
| IL BGU       | 2010-05-18 | 1925          |
| HU UB        | 1995-06-17 | 2078          |
| FI FINELI    | 2010-03-20 | 2095          |
| NL RIVM-NEVO | 2009-09-04 | 1670          |



# Quality assessment of food indexing: a learning process

## Reproducibility

| EngFdNam                        | Description                                             | Comment (more precise description)                                                                          |
|---------------------------------|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Breakfast cereal with chocolate | GRAIN OR GRAIN PRODUCT (EUROFIR) [A0812]                | BREAKFAST CEREAL (EUROFIR) [A0816]                                                                          |
| Yogurt, nonfat, with apple      | MILK, MILK PRODUCT OR MILK SUBSTITUTE (EUROFIR) [A0778] | FERMENTED MILK PRODUCT (EUROFIR) [A0783]                                                                    |
| Almonds                         | NUT [B1213]                                             | ALMOND [B1272]                                                                                              |
| Honey                           | INSECT [B1220]                                          | PLANT USED AS FOOD SOURCE [B1347]                                                                           |
| Soft drink, orange              | FOOD SOURCE NOT KNOWN [B0001]                           | WATER [B1217] Water is indexed as a food source if it is the only ingredient or if product is a soft drink. |
| Yoghurt with wild berry jam     | NOT HEAT-TREATED [F0003]                                | HEAT-TREATED, MULTIPLE COMPONENTS, DIFFERENT DEGREES OF TREATMENT [F0023]                                   |

## Correctness

| EngFdNam                | Description                         | Comment                                                                                      |
|-------------------------|-------------------------------------|----------------------------------------------------------------------------------------------|
| Tomato juice            | VEGETABLE PRODUCT (EUROFIR) [A0827] | JUICE OR NECTAR (EUROFIR) [A0841]                                                            |
| Potato crisps           | POTATO DISH (EUROFIR) [A0830]       | SAVOURY SNACK (EUROFIR) [A0868]                                                              |
| Apple compote           | WATER [B1217]                       | SN: Water is food source only for non alcoholic beverages like soft drinks and mineral water |
| Baking powder           | YEAST [B1345]                       | SODIUM BICARBONATE [B1654]                                                                   |
| Halibut, greenland, raw | ATLANTIC HALIBUT [B1877]            | GREENLAND TURBOT [B1589] (synonyms: greenland halibut, reinhardtius hippoglossoides)         |
| Herring roe             | TESTIS, MILT OR SOFT ROE [C0234]    | OVARY, ROE [C0202]                                                                           |
| Cinnamon                | POD OR SEED [C0158]                 | cinnamon spice is made from its BARK [C0264]                                                 |
| Ice cream               | SOLID [E0151]                       | SEMILIQUID [E0103] at room temperature                                                       |

## Quality assessment of food indexing: a learning process

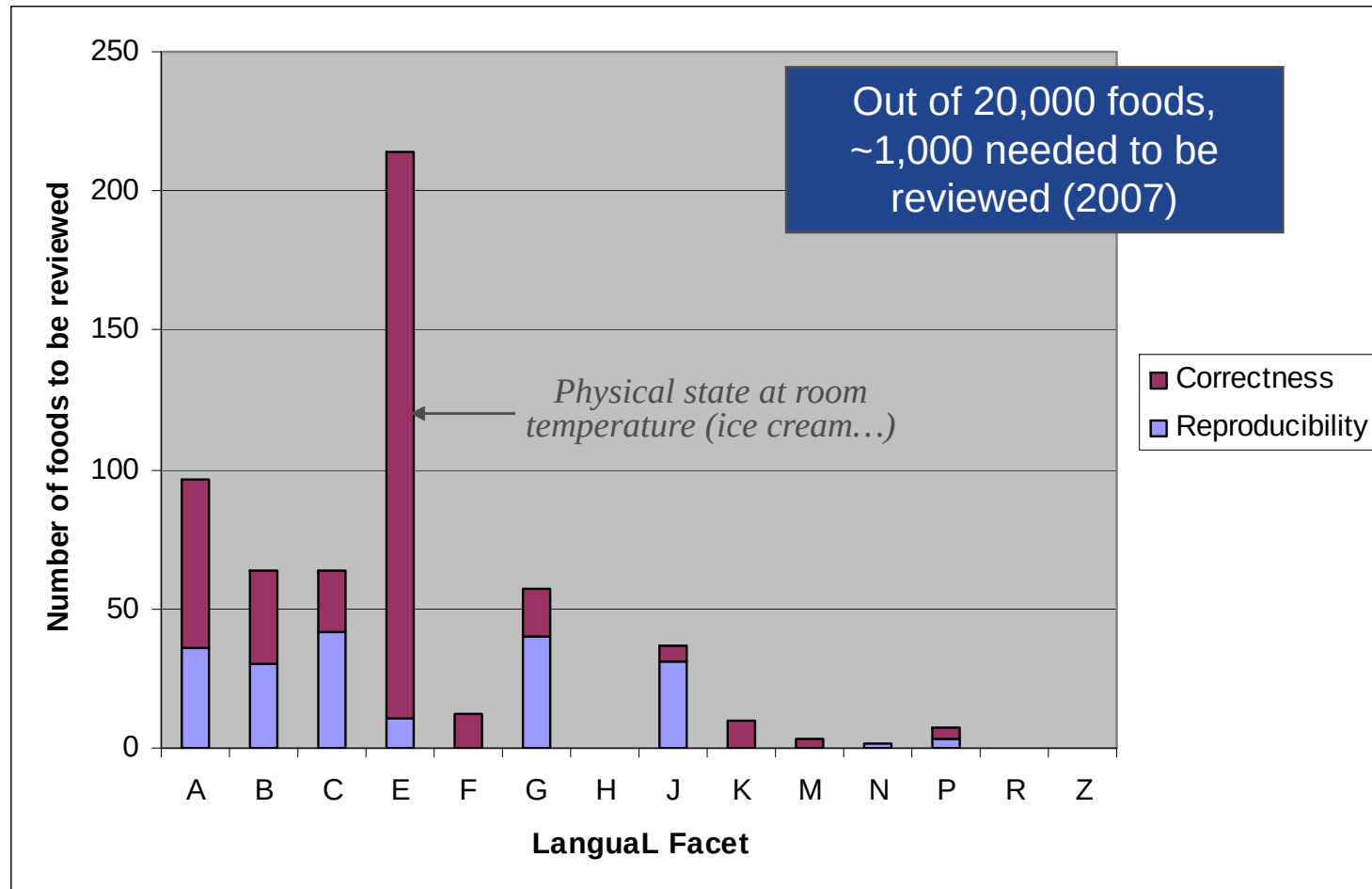
- Improved English translations of food names (when the LanguaL description was found to be more accurate) :

| English food name  | LanguaL descriptor            | Comment                              | Revised English food name |
|--------------------|-------------------------------|--------------------------------------|---------------------------|
| Salt, mineral      | REDUCED SODIUM FOOD [P0154]   | How can salt be reduced sodium food? | Reduced sodium salt       |
| Minced fish        | COW [B1201]                   | Fish?                                | Fish casserole (dish)     |
| Bream, common, raw | CUSK [B2143]<br>Brosme brosme | BREAM [B1763]<br>Abramis ballerus    | Cusk, raw                 |



- <http://www.eurofir.net/uploads/documents/D1.8.1.pdf>
  - D1.8.1: Report on food record retrieval using proposed description and classification
  - D1.8.5 update: Results of Food Indexing by EuroFIR Compilers Network

## Quality assessment of food indexing: a learning process



# Compilers feedback: more information in thesaurus

Langual 2008 - Food Product Indexer Version 3.91 [October 2008]

File Find Centre Panel Right Panel Report About

**Available food lists**

**New descriptors**

**Foods selected**

**Chosen descriptors**

**Synonyms, scientific names**

**Links to authoritative sources**

**Description**

Indexed Food Data Set [34]

TR TUBITAK 2008-02-25  
UK IFR 2007-09-18  
CZ UZEI 2009-03-31  
IT INRAN 2009-04-06  
LATINFOODS 2009-06-18  
SK FRI 2009-07-10  
LT NNC 2009-07-28

**Foods**

| FID      | Food                       | Food                             |
|----------|----------------------------|----------------------------------|
| 473      | powder                     |                                  |
| 473      | powder                     |                                  |
| 540      | powder                     |                                  |
| 445      | raciol"                    |                                  |
| 49150045 | rajciny / paradajky        | Tomatoes                         |
| 61300089 | Rajec, pramenitá voda, jem | Spring water, lightly carbonated |
| 41440045 | rak riecky                 | Crayfish                         |
| 48130115 | rakytník reľetliakovitý    | Buckthorn                        |
| 54000215 | rasca                      | Caraway seed                     |
| 46100175 | ral                        | Rye grain                        |
| 46100185 | ral, klícky                | Rye sprouts                      |
| 46220015 | ralná múka                 | Rye flour wholemeal              |
| 46220025 | ralná múka                 | Rye flour breadmaking            |

**B3453**

Descriptor  
NOBLE CRAYFISH

Related terms

Synonyms

- astacus astacus
- brood-fingered crayfish
- european crayfish

Scope No

Classification

Additional information

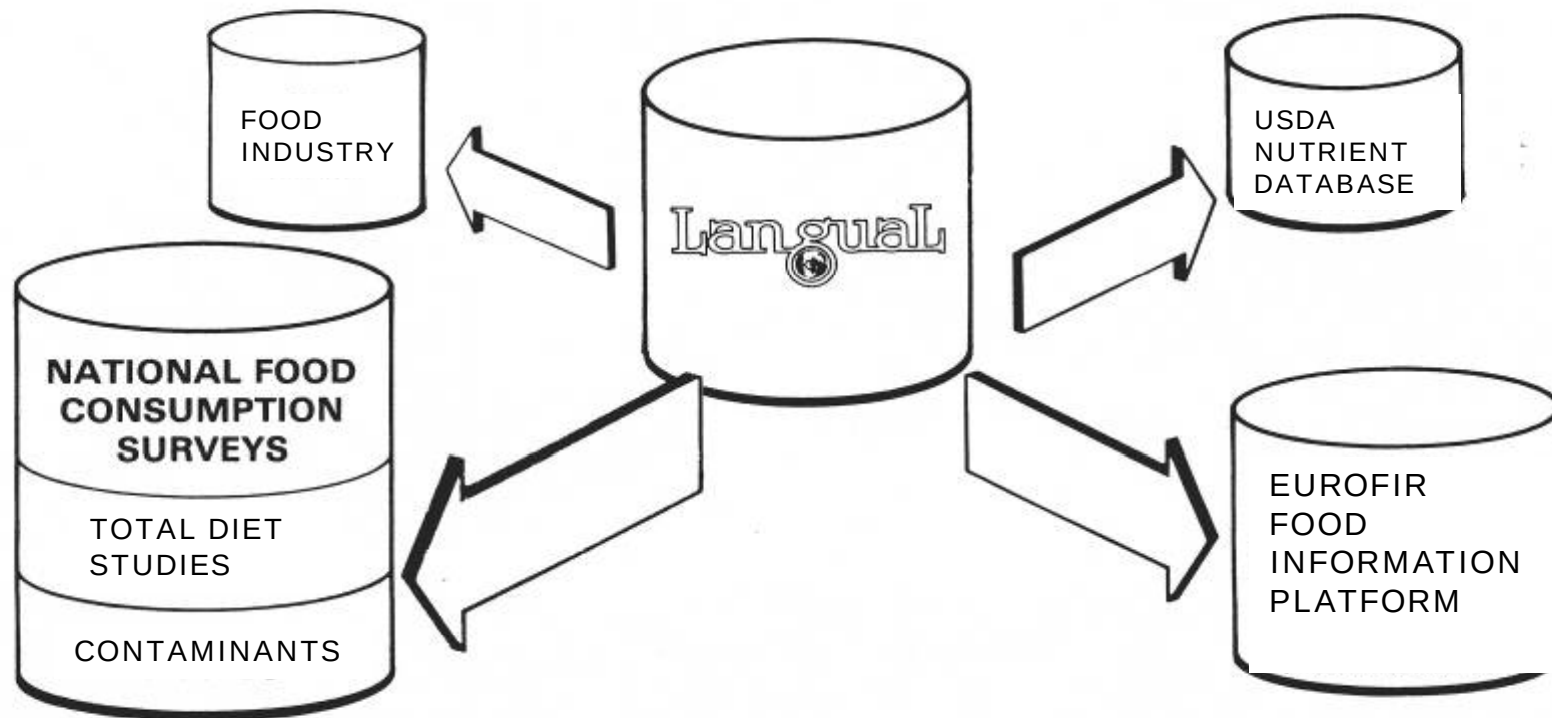
<SCIFAM>Astacidae  
<SCINAM>Astacus astacus (Linnaeus, 1758) [ITIS]  
<ITIS>37333  
<SOURCE>Astacus astacus, the European crayfish, noble crayfish or broad-fingered crayfish, is the most common species of crayfish in Europe. Like other crayfish, The European crayfish is restricted to freshwater, living only in unpolluted streams, rivers and lakes. It is found from France throughout central Europe, to the Balkan peninsula, and north as far as parts of the British Isles, Scandinavia, and the western parts of the former Soviet Union.  
Astacus astacus is susceptible to the crayfish plague carried by the invasive American species Pacifastacus leniusculus, and is therefore listed as "vulnerable" by the IUCN Red List of Threatened Species. Citation: Sket. B. 1996. Astacus astacus. In: IUCN 2006. 2006 IUCN Red List of Threatened Species. <www.iucnredlist.org>. Downloaded 2007.  
[http://en.wikipedia.org/wiki/Astacus\_astacus]

## Translations to national languages

- English (US & UK: LanguaL Steering Committee)
- Danish (DFVF, updated 2008)
- French (AFSSA, updated 2008)
- German (Max Ruber Institut & Graz University, 2008)
- Hungarian (Budapest, 1995)
- Italian (INRAN & CSPO, 2008)
- Spanish (Granada, 2008)
- Czech (Institute of Agricultural Economics and Information, ongoing)
- Portuguese (ongoing: INSA/Latinfoods)
- Dutch (proposed by RIVM)

## WHERE DOES THIS LEAD?

Direct links can be established to many analytical and consumption databases as well as bibliographic files.





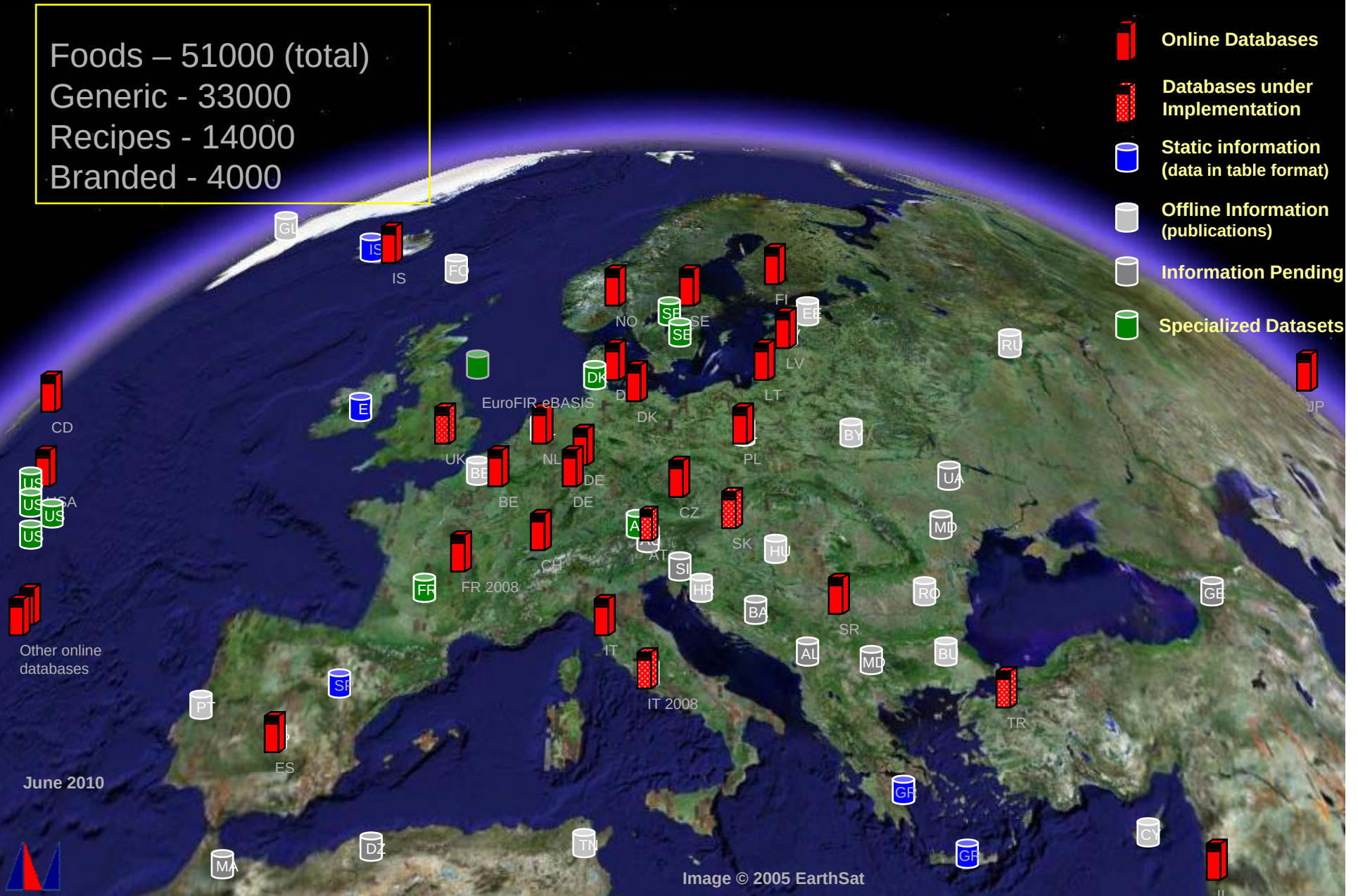


# European Food Composition Information

## European Food Composition on the Internet



Foods – 51000 (total)  
Generic - 33000  
Recipes - 14000  
Branded - 4000



The screenshot displays the EuroFIR eSearch Prototype interface. At the top, there's a search bar and navigation links. Below, a search results table is shown for the query 'vitamin C (ascorbic acid)'. The table lists various food items and their corresponding nutrient values across different databases. A blue arrow points from the 'EuroFIR eSearch Prototype' logo to the search bar. Another blue arrow points from the search bar to the search results table. A third blue arrow points from the search results table to the 'vitamin C (ascorbic acid)' section. A fourth blue arrow points from the 'vitamin C (ascorbic acid)' section to the 'CiteXplore' citation details page.

**vitamin C (ascorbic acid)**  
Component: VITC  
Excl: Close Top

| Database                                                   | English name                                               | Unit | Part | Serv | Min  | Max  | Std | Var | Qual | VType | AType | Int    | Ref                                                                                                                        | Reference                                                                                                                             | AType |
|------------------------------------------------------------|------------------------------------------------------------|------|------|------|------|------|-----|-----|------|-------|-------|--------|----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-------|
| AFSSA/QUAL French food composition table version 2008      | TOMATOES, TYPE "SAN MARZANO", RIPE, RAW                    | mg   | W    | 24   |      |      |     |     |      | BE    | X     | X      | MIR003                                                                                                                     |                                                                                                                                       |       |
| AFSSA/QUAL French food composition table version 2008      | Sandwich on panini bread, raw ham, mozzarella and tomatoes | mg   | W    |      |      |      |     |     |      | D     | N     | S      | I                                                                                                                          | MIR007                                                                                                                                |       |
| Danish Food Composition Database TEST VERSION 7.01         | Tomato, Danish, ripe, raw                                  | mg   | W    | 15   | 11.3 | 18.0 | 8   |     |      | BE    | O     | A      | M1063                                                                                                                      | Wienberg, A, Leth, T. Overvågningssystem for næringsstoffer, hugt og grøntsager, 1987                                                 | R     |
| Norwegian Food Composition Table 2008                      | Tomato, imported, raw                                      | mg   | W    | 17   |      |      |     |     |      | BE    | D     | D      | MIR003                                                                                                                     | Norwegian Food Safety Authority and Directorate for Health and Social Affairs. Analyses planned in 2001. Unpublished.                 | X     |
| Danish Food Composition Database TEST VERSION 7.01         | Tomato, imported, raw, raw                                 | mg   | W    | 18   | 12.3 | 23.1 | 9   |     |      | BE    | O     | A      | M1063                                                                                                                      | Wienberg, A, Leth, T. Overvågningssystem for næringsstoffer, hugt og grøntsager, 1987                                                 | R     |
| Norwegian Food Composition Table 2008                      | Tomato, Norwegian, raw                                     | mg   | W    | 17   |      |      |     |     |      | BE    | D     | D      | MIR003                                                                                                                     | Statens råd for ernæring og fysisk aktivitet og Statens næringsmiddelkontroll. Analyses planned in 1994. Unpublished.                 | X     |
| AFSSA/NDIS documented French dataset created for EPIC 2008 | Tomato, raw                                                | mg   | W    | 18   | 11.3 | 26.6 | 17  | B   | AV   | D     | M0001 |        | Faubert, M, Faure, J, G, Leonard, P, et al. Répertoire Général des Aliments. Table de composition. Lavoisier, Paris, 1991. | B                                                                                                                                     |       |
| AFSSA/QUAL French food composition table version 2008      | Tomato, raw                                                | mg   | W    | 20   |      |      |     |     |      | BE    | X     | X      | MIR003                                                                                                                     |                                                                                                                                       |       |
| AFSSA/QUAL French food composition table version 2008      | Tomato, raw                                                | mg   | W    | 16.7 | 12.6 | 26.6 | 12  | B   | MN   | S     | D     | MIR003 | Astier-Dumas M (1983). Valeurs nutritionnelles de quelques produits prêts à être consommés. Centre Recherche Foch, Paris.  | B                                                                                                                                     |       |
| Czech Food Composition database 2008, batch 1              | Tomato, raw                                                | mg   | W    | 18.7 |      |      |     |     |      | BE    | S     | S      | MIR003                                                                                                                     | Hodnota získaná výpočtem podle interních algoritmů ústřední. Value achieved by calculation using internal algorithms of the database. | F     |
| Danish Food Composition Database TEST VERSION 7.01         | Tomato, ripe, raw, origin unknown                          | mg   | W    | 18.7 |      |      |     |     |      | BE    | S     | CG     |                                                                                                                            | Value achieved by calculation of different analytical data. Value derived from investigation of forerunner analysis.                  | E     |

Simultaneous online search in national and specialised FCDBs



The screenshot shows the CiteXplore citation details page for the LST (Leveraging System for Nutrition) report. The page displays the title 'Overvågningssystem for næringsstoffer: Frugt og grøntsager' (Monitoring System for Nutrients: Fruit and Vegetables) and the author 'LST'. The page also includes a brief description of the system and its purpose. A blue arrow points from the search results table to the CiteXplore citation details page.

**CiteXplore - citation details**  
Title: Overvågningssystem for næringsstoffer: Frugt og grøntsager  
Author: LST  
Language: English  
Publication type: Full-text article  
URL: [LST](#)  
Abstract: As a part of the Danish food monitoring system for nutrients, fruit and vegetables have been investigated in 1994. Different sorts of berries, cauliflower, cabbage, apples, pears, courgettes and orange have been analysed for protein, fat, carbohydrates, fibre, vitamin C and vitamin E. The investigation includes imported as well as Danish produced vegetables. To great difference in the nutrient content of vegetables of the Danish grown fruits and vegetables could be found, and there is great agreement with the Danish food composition table. An exception is the content of vitamin C in the apple sort 'Golden', which contains 5 times less vitamin C than the other two apple sorts analysed here. The nutrient content of imported fruit and vegetables, especially tomatoes and apples, is often higher than given in the Danish food composition table and over the average content in the Danish products. This is probably caused by a longer growing time, which gives changing parts with a higher fibre and energy content. However, the vitamin C content is in the same level as imported and Danish grown cauliflower, and in apples the vitamin C content even lower as imported than in Danish apples. This is probably caused by the longer transportation time of imported products. The nutrient content found in this investigation concerns in fresh fruits and vegetables that are products ready for sale. However, apples, cabbage and cauliflower are often stored for some period before use and this could probably influence the content of nutrients. This issue has been investigated, and the results will be published later in 1997.  
Publisher: Statens Lægemiddelstyrelse  
Publication date: 1997/7/10  
Total pages: 42  
Series: 0901-4332: Publication, LST, Lægemiddelstyrelsen (Denmark)  
Extra report info: Publication nr. 253, ISBN 87-523-4955-1  
Editor:



## Conclusions (1)

- Both EuroFIR & individual compilers benefit from standardized food description, allowing foods to be linked and compared across borders and language barriers;
- LanguaL thesaurus has been well accepted and appreciated among compilers
- Training sessions for food indexing have been easy to understand for compilers and other experts
- LanguaL thesaurus has benefited from expertise of compilers (new descriptors, scope notes, wider languages)

## Conclusions (2)

- EuroFIR repository of nutrient retention factors includes LanguaL facets allowing linking to cooking methods/parameters & EuroFIR food groups);
- LanguaL is integrated in newly developed Food Composition Data Management System (**FoodCASE**);
- Next challenge will be to index food consumption surveys, in order to allow automatic matching of foods through food description – more accurate dietary assessment

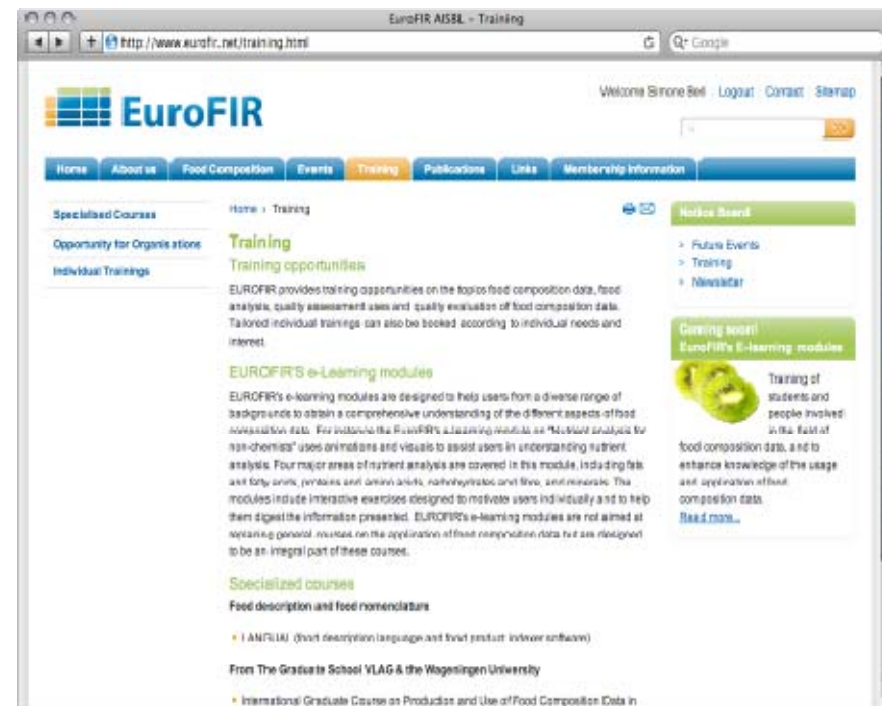
## Future – EuroFIR Nexus & AISBL

### EuroFIR Nexus:

- To further develop, implement and refine European Food Platform to support research into food, diet and health:
- Providing access to high quality and validated food composition data;
- Working with the food industry (especially SMEs) in Europe;
- Increasing understanding of the value of food data - helping consumers make healthier dietary choices.

### EuroFIR AISBL:

- Thesauri updating/support
- Systems development
- Repository updating/support
- Training



Access/dissemination/  
maintenance of EPIC-  
Soft & related facilities



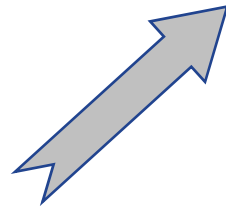
Multiple interests for  
collecting maximum  
details on food  
consumption data  
(monitoring surveys,  
risk assessment  
studies)



**EPIC-Soft Data Collection Common  
Library: Standardised and detailed  
consumption data**

**Need to implement  
the “missing link”:**

- Food Data Handling  
(search, re-order, classify,  
export...)
- Food Data Linkage  
(link, algorithm  
compilation)



-Effective management,  
updating and extending  
food composition data

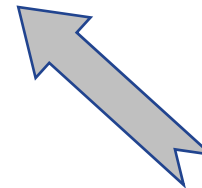
- Laboratory and data  
analysis best practices



Access >25 national European  
FCDBs d documentation  
through a virtual platform of  
inter-connected national and  
specialised databases



**EuroFIR Food Data Platform  
(standardised and documented  
composition data)**



Provide a full integrated dietary methodology in Europe for data collection  
(food consumption) and data handling (nutrient/compounds)

## Acknowledgements and Further Information

- Funding from Food Quality & Safety Priority (FP6-CT-2005-513944)
- 48 EuroFIR partners
- Visit [www.eurofir.eu](http://www.eurofir.eu)
- Contact: Paul Finglas ([paul.finglas@bbsrc.ac.uk](mailto:paul.finglas@bbsrc.ac.uk)) and Simone Bell ([sb@eurofir.eu](mailto:sb@eurofir.eu))