# Technical workshop on Standards for food composition data interchange, Rome, 19-22 January 2004

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## Summary

The main objective of the workshop was to develop recommendations and agree on data elements, definitions and a format for interchange of food composition data. Part of the process included a review of existing interchange systems and formats and analysis of their compatibilities and feasibility of use.

The workshop participants noted that XML would be the most suitable way to interchange data but that technical limitations exist which make it difficult for some compilers, including those in North America and Europe, to convert their data into XML. It was therefore agreed that the next step towards the XML interchange would be a set of relational files with standardized tags and definitions which would then be converted into XML format guidelines. These files should therefore be regarded as collections of elements and their attributes that can be presented in a single file or as a set of relational files.

In the construction of the files, attempts were made to be as non-prescriptive as possible while outlining the desired levels of metadata.

The major outcome of the workshop was a set of recommendations and the set of files, elements and definitions .

## Introduction

In 1992, the INFOODS food composition data interchange handbook (1) was published proposing a structure and system of tags derived from principles of “generic markup” (e.g. SGML or similar) including the use of standardized definitions of components, the TAGNAMES (2). The primary criterion for designing the INFOODS data interchange system was that it should preserve whatever information actually is available, without forcing the data supplier to provide any more information than is known or imposing any more burden than is absolutely necessary.

The interchange model was to operate on the assumption that actual food composition tables and databases cannot be expected to conform to a single standard or format.

INFOODS guidelines give information on the concept of interchange and instructions for information interchange on sender, source of the data, foods, components, sampling information and statistics. The system was explicitly designed to be extensible, i.e. it provided for new terminology, technology, and areas of interest to be defined and added to the system without compromising existing files and programs. The INFOODS Interchange system was only rarely implemented, and served mainly as a theoretical framework.

EUROFOODS/COST99 (3) and the EPIC Nutrient Database (ENDB) (4) expanded the list of tags and included additional data fields and elements for sampling and laboratory handling, analytical methods, type of value and method, contributing foods and components. They also added standardized vocabulary/codes for many of the elements. However, they moved away from the principles of generic markup (e.g. SGML, XML) and proposed a relational file system to be interchanged as delimited ASCII text files. A modified EUROFOODS/COST 99 system was used within the ENDB project (4).

CEECFOODS developed a data interchange system, the ALIMENTA coupled Data Center System (DCS), which is based on XML. It utilizes unique tags, e.g. Food ID, Max, Min etc., and structural relationships (5). Twelve Central and Eastern European countries have access to the system, in which food composition data from five countries are stored.
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In spite of the work on international interchange, most compositional data interchange was done on an ad hoc basis in a more unsystematic way, mostly by spreadsheets or relational database files, or within specially-developed software systems.

## Objectives of interchange of compositional data

Data interchange can be defined as the systematic movement of information among computer systems, e.g. between laboratory and compiler, among compilers in different locations, and between compilers and users.

Objectives for interchange have not changed since the publication of the INFOODS Interchange Handbook, they have simply been elaborated in greater detail.

Hence, the basic criteria remain as follows:

- To preserve whatever information actually is available, without forcing the data supplier to provide any more information than is known or imposing any more burden than is absolutely necessary;
- to be "extensible", i.e. it must provide for new terminology, technology, and areas of interest to be defined and added to the system without compromising existing files and programs;

- to operate on the assumption that actual tables and databases cannot be expected to conform to a single standard or format;
- to permit interchange without loss of information;
- and to encourage improvements in data quality, data description, and data definition.

## Recommendations of the workshop

Glossary to define all terms (e.g. food name), including all files and all elements.

Finalize the interchange format.

Draft XML model using file names as tags.

Re-establish INFOODS as a participant on LanguaL Steering Committee.

INFOODS and GEMS/FOOD strive for a harmonized approach (e.g. with the development of component tags, since more food composition databases are including food additive and contaminant data).

Harmonization within FAO be established/maintained as it relates to food data systems, specifically between INFOODS and the new FAOSTAT.

INFOODS registers elements/attributes with Dublin Core and AgMes (http://www.fao.org/agris/agmes/).

Full interchange outline should be published on the INFOODS websites with relevant hyperlinks (e.g. to LanguaL thesaurus).

Data interchange principles become part of the FOODCOMP course curriculum, and implementations should begin with the planned courses planned in NEASIAFOODS (2004) and LATINFOODS (2005).

Test the two food description-related files with a mock interchange.

Consider to publish the meeting report as a FAO publication and/or publication in JFCA including the full file interchange format structure.

The INFOODS regional data centres to distribute the interchange formats and to stimulate their use.

Validate interchange format with real data.

To revise and update INFOODS component identifiers, assign components to component groups, and put the component TAGNAMES on the INFOODS webpage in an easily searchable manner, including alphabetical by component as well as by TAGNAME.

To revise and update EUROFOODS/COST 99 method headlines.

To develop interchange formats for recipe and calculation information.

To consider investigating if minimum requirement is covered by the mandatory fields of the interchange format. For the moment the mandatory fields are considered as the minimum requirements.

That INFOODS should consider writing model/demonstration data transport packages for import (to assess) and export of the proposed interchange format in e.g. JAVA or visual BASIC

## References


(1) Klensin, J.C. (1992). INFOODS: food composition data interchange handbook. Tokyo; Japan: United Nations University Press.
http://www.unu.edu/unupress/unupbooks/80774e/80774E00.htm

(2) Klensin, J.C., Feskanich, D., Lin, V. Truswell, A.S. & Southgate, D.A.T. (1989). Identification of Food Components for Data Interchange. United Nations University, Tokyo. http://www.unu.edu/unupress/unupbooks/80734e/80734E00.htm

(3) EUROFOODS/COST 99: EUROFOODS Recommendations for Food Composition Database Management and Data Interchange. European Commission, COST report EUR 19538
http://www.eurofir.org/COSTAction99/COSTAction99Publications.htm

(4) Vignat J, Ireland J, Møller A, Unwin ID, Charrondière UR: Guideline Notes for Preparing and Exporting Food Composition Data According to the Common Formats of Export Files. Proceedings of the Fourth International Food Data Conference, Bratislava, Slovakia, 24-26 August 2001

(5) Reference: http://www.florafood.com/dcs/product/index.html


## List of participants

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# Agenda for the Technical Consultation on 'Standards for Food Composition Data Interchange' in FAO Rome from 19-22 January 2004

**19 January 2004**

| | | |
|---|---|---|
| 9.00-9.30 | Opening remarks | P. Shetty |
| 9.30-9.45 | Adoption of agenda<br>Selection of Chairmen and rapporteurs | B. Burlingame |
| 9.45-10.15 | Objectives of the workshop and expected outcome | |
| 10.15-11.15 | Views and perspectives of data interchange and on compiling data for interchange | each participant |
| 11.15-11.45 | Coffee break | |
| 11.45-12.15 | Views and perspectives of data interchange and on compiling data for interchange (continued) | each participant |
| 12.15-12.45 | INFOODS interchange formats and concept | B. Burlingame |
| 12.45-14.00 | Lunch | |
| 14.00-14.30 | EUROFOODS and ENDB interchange formats and concept | J. Ireland |

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|---|---|---|
| 14.30-15.00 | ALIMENTA interchange formats and concept | R. Vargic |
| 15.00-15.30 | Short introduction to present draft interchange format | R. Charrondiere |
| 15.30-16.00 | Coffee break | |
| 16.00-16.30 | Application of the interchange format in other fields, e.g. contaminants, and their additional needs | G. Moy |
| 16.30-17.30 | Discussions on the strengths, weaknesses, convergence and divergence of the existing data interchange systems and formats | |

**Optional after 17.30:**
Demonstration of interchange software packages:

- FTI (I. Unwin)
- ALIMENTA (R. Vargic)
- OPAL (G. Moy)

**20 January 2004**

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|---|---|---|
| 9.00-11.00 | Review of documented data fields available in the different food composition reference databases as compared to draft format for data interchange and practical experiences in interchanging data (and metadata) | |
| | ASEANFOODS | P. Puwastien |
| | LATINFOODS | S. De Pablo |
| | CEECFOODS | R. Varvic, J. Pastorova |
| | ENDB/French FCDB | J. Ireland, I. Unwin |
| | USDA | D. Haytowitz |
| 11.00-11.30 | Coffee break | |
| 11.30-12.30 | morning session continued | |
| 12.30-13.00 | Practical application of XML for relational databases and data-interchange | D. Mori |
| 13.00-14.00 | Lunch | |
| 14.00-16.00 | Discussions on draft format for data interchange | |
| 16.00-16.30 | Coffee break | |
| 16.00-17.30 | Discussions on draft format for data interchange (including discussions on food and component nomenclature) | |
| | Presentation of LanguaL | J. Ireland |
| 19.30 | Dinner | |

**21 January 2004**

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|---|---|
| 9.00-11.00 | Discussions on draft format for data interchange |
| 11.00-11.30 | Coffee break |
| 11.30-13.00 | Discussions on draft format for data interchange (including discussions on glossary of terms) |
| 13.00-14.00 | Lunch |
| 14.00-16.00 | Discussions on draft format for data interchange |
| 16.00-16.30 | Coffee break |
| 16.00-17.00 | Telephone call with John Klensin |
| 17-18.00 | Discussions on draft format for data interchange |

(including discussions on set of minimal fields)

**22 January 2004**

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|---|---|
| 9.00-11.00 | Preparation of the final document with the format for data interchange for optimal scenarios |
| 11.00-11.30 | Coffee break |
| 11.30-13.00 | Preparation of the final document with the format for data interchange for optimal scenarios (continued) |
| 13.00-14.00 | Lunch |
| 14.00-16.00 | Preparation of the final document with the format for data interchange seen as the minimal required information and of executive summary for press release |
| 16.00-17.00 | Telephone call with John Klensin |
| 17.00 | Adoption of report<br>Closing remarks |