



US, Canadian, Australian, and New Zealand datasets seen through foreign eyes


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36th National Nutrient Databank Conference, 28 March 2012





From a user's perspective

- FCDBs published with a wide range of technical solutions and layouts
 - intended use, traditions, finances
 - data in different formats
 - different levels of documentation
 - need to go to background information
 - difficult to compare values between data sets
 - difficult to import data using a standard procedure




EuroFIR Solution

- **Common description of foods and values in published food composition databases**
 - Food Description
 - Common indexing of foods (LanguaL thesaurus)
 - Value Documentation (EuroFIR thesauri)
 - Common component definitions (with cross-reference to ChEBI, CAS, INFOODS, legal definitions, etc)
 - Common analytical method description
 - Common bibliographic database (CitExplore)
 - External ISO standards (ISO3166/ISO639)
- **Web Services for Data Interchange**
 - Common XML template for data transfer (The EuroFIR Food Data Transfer Package)
 - EuroFIR Web Services



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EuroFIR Thesauri

Acquisition type not known [X]
 Authoritative Document [A]
 Food composition table [F]
 Food label, product information [L]
 Independent laboratory [D]
 Industry laboratory [I]
 In-house or affiliated laboratory [O]
 Other acquisition type [E]
 Published and peer reviewed scientific paper [P]

Thesaurus	Version	Date	Systematic display	Alpha-numerical display	Alphabetical display	XML
Acquisition Type	1.0	2007-11-04				
Component	1.0	2008-03-12				
Value Type	1.0	2007-11-04				
Unit	1.0	2007-11-04				
Matrix Unit	1.0	2007-11-04				
Method Type	1.0	2007-11-04				
Method Indicator						
Reference Type						

Alpha-numerical display:

- 13-cis retinol [RETOL13]
- 24-methylcholest-7-erol [CHOLM]
- 25-hydroxycholecalciferol [CHOCALOH]
- acesulfam-K [ACESK]
- as reported [AR]
- average [AV]
- below detection limit [BL]
- estimate [BE]
- nan [LT]
- one zero [LZ]
- one [MX]
- one [MI]
- one [MT]
- value type [E]
- [TR]
- table [UD]
- n [N]
- type not known [X]

Alphabetical display:

- alpha-tocopherol equivalent [ATE]
- beta-carotene equivalent [BCE]
- degrees Brix [BX]
- gram [g]
- Kilocalorie [kcal]
- Kilogram [kg]
- Kilojoule [kJ]
- litre [l]
- microgram [ug]
- microlitre [ul]
- milligram [mg]
- millilitre [ml]
- millimole [mmol]
- monosaccharide equivalent [MSE]
- nanogram [ng]
- niacin equivalent [NE]
- per l food volume [VL]
- per cent [PCT]
- ratio [R]

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EuroFIR 4 online English-language FCDBs



- **USDA SR24**
(<http://www.ars.usda.gov/Services/docs.htm?docid=8964>)
- **CANADIAN NUTRIENT FILE 2010**
(<http://www.hc-sc.gc.ca/fn-an/nutrition/fiche-nutri-data/index-eng.php>)
- **AUSTRALIA NUTTAB 2010**
(<http://www.foodstandards.gov.au>)
- **New Zealand FOODfiles 2010**
(www.foodcomposition.co.nz)

- Extract data to relational db format
- Transform data for EuroFIR Web service

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EuroFIR Data to EuroFIR /CEN Standard

Easy	Challenging
<ul style="list-style-type: none"> • Food identification <ul style="list-style-type: none"> • Food ID, name(s) • Component Identification <ul style="list-style-type: none"> • INFOODS Tags to EuroFIR CompIDs • Values <ul style="list-style-type: none"> • Mean value • Statistical information • Default methods at component level (pdf document) • Reference table & links to values 	<ul style="list-style-type: none"> • Language indexing <ul style="list-style-type: none"> • Indigenous foods • Component list in pdf format <ul style="list-style-type: none"> • Incoherent component IDs • 2-3 significant digits <i>Greenfield & Southgate (2003) Food composition data, production management and use, FAO, Rome</i> • Documenting methods at value level • References only in external document or free text

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• USDA SR24

- Default methods defined at component level in sr24_doc.pdf
 - Register default methods to a Method table, index and link to components
- USDA method information at value level
 - Source Code (analytical, calculated, assumed zero ...)
 - Data Derivation Code (complementary information)

➢ Correspondence table based on combinations of SRC_CD & DERIV_CD

➢ Indexing methods at VALUE level

Src_Cd	Deriv_Cd	Description	Value Type	Acquisition Type	Method Type	Method Indicator
1	-	Analytical or derived from analytical	MN (mean)	D (Independent laboratory)	A (analytical)	(default method)
1	A	Analytical data	MN (mean)	D (Independent laboratory)	A (analytical)	(default method)
1	AR	Analytical data; derived by linear regression	BE (best estimate)	S (Value created within host-system)	P (calculated on component profile)	MI0231 (Imputation of a component from one or components in the same
1	AS	Analytical data; derived by summation of components with source code 1 or 7	BE (best estimate)	D (Independent laboratory)	S (summation from constituent components)	MIR006 (Simple summa
1	DA	Concentration adjustment using factor; derived from analytical data	MN (mean)	S (Value created within host-system)	AG (analytical, generic)	



• Canada – CNF 2010

- Default methods defined at component level in CNF User Guide
 - Register default methods to a Method table, index and link to components
 - Take default analytical methods from USDA SR for other components
- Source/method information at both Food level and Value level

FD_SRC_ID	Acquisition Type	Value Type	Method Type	Method Indicator	Remarks
0 to 6 or 20 to 35 (Foods based on data from USDA)	F (Food composition table)	BE (best estimate)	X (unknown)	MIR003 (unknown)	NDB number of the food item
7 (Data supplied by an international database other than USDA)	F (Food composition table)	BE (best estimate)	X (unknown)	MIR003 (unknown)	
26 (Nutrient values supplied by manufacturers of the Canadian product)	L (product information provided by the producer)	BE (best estimate)	X (unknown)	MIR003 (unknown)	

➢ index all methods at VALUE level

NT_SRC_ID	Acquisition Type	Value Type	Method Type	Method Indicator
0 - No change from USDA	F (Food composition table)	BE (best estimate)	X (unknown)	MIR003 (unknown)
1 - Nutrient levels changed to meet the Canadian regulations	S (Value created within host-system)	BE (best estimate)	L (Estimated according to regulatory requirements)	MIR003 (unknown)
2 - Nutrient calculated from data other than USDA	S (Value created within host-system)	BE (best estimate)	CG (calculated, generic)	MIR003 (unknown)
3 - Nutrient analyzed in a Canadian government lab	O (affiliated laboratory)	MN (mean)	A (analytical)	(default)



- **Australia NUTTAB 2010**
 - Default methods defined at component level in pdf document
 - Register default methods to a Method table, index and link to components
- **Food Derivation Code**
 - Analysed, Recipe, NNS 1995, Borrowed, Label, Calculated, Imputed, Industry
 - Index methods at value level based on Derivation Code & default methods

Derivation	Signification in FOOD table	Methods in VALUE table
Analysed	Determined by laboratory analysis of foods purchased in Australia.	Default analytical methods and formulas linked to the COMPONENT table are used for values
Recipe	Examples of recipe foods include most toasted breads, prepared cordials and some home-prepared traditional foods such as Anzac biscuits	Value Type = BE (Best estimate) Acquisition Type = S (Value created within host-system) Method Type = R (Calculated as recipe) Method Indicator = MIR008 (Recipe calculation)
Borrowed	Data borrowed from food composition tables: United States (USDA, 2003-2008), the United Kingdom (Food Standards Agency, 2002), New Zealand (Athar et al, 2003; Lesperance, 2009), Denmark (Møller et al, 2005), and Singapore (Ministry of Health, 2000). Data have also been included from the Tables of Composition of Australian Aboriginal Foods (Brand Miller et al, 1993).	Value Type = X (unknown) Acquisition Type = F (Food composition table) Method Type = X (unknown) Method Indicator = MIR003 (method unknown)



- **Australia NUTTAB 2010**
 - Additional information on methods for individual nutrient values registered at FOOD level

Food ID	Name	Derivation	Sampling details
01A10064	Beer, ale	Analysed	The majority of nutrients were derived from a composite sample of 4 brands of Australian bottled/canned beer labelled as being ale purchased in Adelaide and Canberra in 1990. Folate borrowed from British miscellaneous foods book, 1994 food 209. Heavy metals were derived from composite samples of beer purchased in all Australian states (except NT and ACT) in 1998 (19th ATDS). I, Se, Cr, Ni and Se were derived from 6 samples of full strength and light beer purchased in NSW, NT and Qld in November 2004 (22nd ATDS). Fatty acid totals were prepared for 1995 NNS. Starch imputed zero.
01A20106	Wine, white, sweet dessert style	Industry	The majority of nutrient values were borrowed from USDA, record 14057 or imputed from medium sweet white wine. Sugar, acidity and alcohol values were supplied by Australian industry in 2004.

- *Better to include method information at VALUE level*



- **New Zealand FOODFiles 2010**

- Default methods defined at component level in user manual
 - Register default methods to a Method table, index and link to components
- Source codes at value level (1,371 different combinations):
 - References (a, b, d, f, h, s, j, m, n, o, q, u, t, v, y, z)
 - Method types (c, g, p, r)
 - Value types (l, p)
 - Quality evaluation (w, x)
- Indexing values according to Source Codes:

SrcCode	Signification	Methods in VALUE table
c	calculated	default calculation methods linked to the COMPONENT table
z	New Zealand analytical data	default analytical methods linked to the COMPONENT table
m	Manufacturers supplied data	Acquisition Type "L" (Food label, product information) Method = unknown
...

- Challenges
 - Interpretation of multiple method codes
 - Source Code "p" (presumed zero)



- **USDA SR24**

- Reference sources
DATA_SCR
 - Citation field for eSearch
 - Indexed with *Publication Type, Acquisition Type, & Language.*
 - Links to CiteXplore
(<http://www.ebi.ac.uk/citexplore>)

DATA_SRC	Description
DataSrc_ID	number identifying the reference/source
Authors	List of authors for a journal article or name of sponsoring organization for other documents
Title	Title of article or name of document, such as a report from a company or trade association
Year	Year article or document was published
Journal	Name of the journal in which the article was published
Vol_City	Volume number for journal articles, books, or reports; city where sponsoring organization is located
Issue_State	Issue number for journal article; State where the sponsoring organization is located
Start_Page	Starting page number of article/document
End_Page	Ending page number of article/document

- Data Sources Link table
(DATSRCLN)

DATSRCLN	Description
NDB_No	5-digit Nutrient Databank number
Nutr_No	Unique 3-digit identifier code for a nutrient
DataSrc_ID	Unique ID identifying the reference/source



• Canada – CNF 2010

- No list of bibliographic references
- Nutrient Source codes
- Creation of a Reference table based on NT_SRC
- Linked RefIDs to values

NT_SRC_ID	NT_SRC_NME	RefID	Acq Typ	Ref Typ	Citation
0	No change from USDA	1	F	WW	U.S. Department of Agriculture, Agricultural Research Service. 2009. USDA National Nutrient Database for Standard Reference, Release 22. Nutrient Data Laboratory Home Page, http://www.ars.usda.gov/ba/bhnrc/ndl
3	Nutrient analyzed in a Canadian government lab	3	O	X	Laboratory report, Canadian government lab
6	Nutrient from Canadian industry. Documentation incomplete.	6	L	X	Report from Canadian industry.
7	Nutrient analyzed in Canadian product (non-government lab). Documentation complete.	7	D	R	Laboratory report, private laboratory.
9	Nutrient from the label declaration	9	L	L	Label declaration
81	International database - Puerto Rico USDA	81	F	B	Puerto Rico Food composition database.
82	Danish Food Composition Databank (revision 5.0) Danish Institute for Food and Veterinary Research (revision 5)	82	F	WW	Danish Food Composition Databank (revision 5.0) Danish Institute for Food and Veterinary Research (revision 5). http://www.foodcomp.dk/
83	Fineli, Finnish food composition database. National Public Health Institute.	83	F	WW	Fineli, Finnish food composition database. National Public Health Institute. http://www.fineli.fi/



• Australia NUTTAB 2010

- List of 174 bibliographic references in pdf document, without codes
 - Copy list into Access database, add default reference IDs & EuroFIR indexes
- No nutrient values are linked to References in the NUTTAB database
 - Creation of some links from description in the pdf document
 - Indigenous Foods data from Brand Miller et al (1993)
 - Amino Acids data from Fox et al (1988) and Victorian Department of Agriculture (2001)

Refid	AcqType	Ref Type	Citation
1	C	AJ	Anonymous. (2005) A Good Spread. Choice: January/February
2	D	R	Arctot, J. (1999) Research report on the nutrient analysis of selected Lean Cuisine products and Japanese restaurant foods. Report submitted to Australian New Zealand Food Authority.
3	D	R	Arctot, J. (2006) Nutrient analysis of Selected Sauces, Bush Foods and Snack Bars. Report submitted to Food Standards Australia New Zealand.
4	P	AJ	Ashton, J.F. (2003) The Chromium content of some Australian foods. Food Australia 55(5):201-204.
5	F	B	Alhar, N., McLaughlin, J. and Taylor, G. (2003) The concise New Zealand Food Composition Tables. 6th edition. Palmerston North: New Zealand Institute for Crop and Food Research.
6	F	R	Australia New Zealand Food Authority. (1984) The Australian Market Basket Survey, Canberra, Australian New Zealand Food Authority.



• NZ FOODFiles 2010

- List of 102 bibliographic references in pdf document, without codes
 - Copy list into Access database, add default reference IDs & EuroFIR indexes
- Links to values according to Source Codes
- Challenge: codes pointing to multiple sources

RefID	CiteXplore	AcqType	RefType	Citation
1	3429506	P	AJ	Bannon CD, Craske JD, Felder DL, Garland LJ, Norman LM 1987. Analysis of fatty-acid methyl esters with high-accuracy and reliability. 6. Rapid analysis by split injection capillary gas-liquid chromatography. <i>Journal of Chromatography</i> 407: 231-241.
10	15759720	P	AJ	DeVries JW, Rader JI, Keagy PM, Hudson CA 2005. Microbiological assay-trienzyme procedure for total folates in cereals and cereal foods: Collaborative study. <i>Journal of AOAC International</i> 88(1): 5-15.
100	6501500	P	AJ	Woolard DC 1984. New ion-pair reagent for the high-performance liquid-chromatographic separation of B-group vitamins in pharmaceuticals. <i>Journal of Chromatography</i> 301(2): 470-476.
101		F	B	Wu Leung WT 1968. Food composition table for use in Africa. Rome. Food and Agriculture Organization of the United Nations.

Code	Reference	Ref ID
a	Food Standards Australia New Zealand 2006	30
b	Food Standards Agency 2002a; Holland et al. 1991	27
d	Food and Agriculture Organisation of the United Nations and the World Health Organisation 2003; Greenfield & Southgate 2003; Food Standards Agency 2002b	26; 32; 28
f	Manufactured Food Database 2009	73
h, s, j	Bradbury & Holloway 1988; Dignan et al. 2004; English et al. 1996	4; 11; 15
n	Wills et al. 1983	98
o	Health Canada 2010; Technical University of Denmark 2010; National Institute for Health and Welfare 2010; Gnagnarella & Salvini 2008; Sugiyama Jogjakuen University 2004; Health Promotion Board 2003; The Swedish National Food Administration 2010	33; 94; 85; 31; 92; 34; 83
q	Federal Research Centre for Nutrition and Food (BFEL) 2005	25
t	Wu Leung et al. 1972	102
u	US Department of Agriculture, Agricultural Research Service 2010	96
v	Wu Leung 1968	101
y	Miller et al. 1993	80



EuroFIR eSearch Prototype

Please select the dataset you want to search. When you are done please click on the search button.

<input type="checkbox"/> Australian Food Composition Database 2006 <input checked="" type="checkbox"/> Australian National Tables (NT) 2010 <input type="checkbox"/> Australian Food Composition Database 2009 <input type="checkbox"/> Belgium Food Composition Database 2009 <input type="checkbox"/> Canadian National File (CNF) 2010 <input checked="" type="checkbox"/> Danish Food Composition Database 2009 <input type="checkbox"/> Danish Food Composition Database version 7.01 2008 <input type="checkbox"/> Food - French Food Composition Database 2008 <input type="checkbox"/> Food composition database for pharmaceutical studies 2007 2008 <input type="checkbox"/> German Food Composition Database 1447 2008 <input type="checkbox"/> Icelandic EGEN database 2008 <input type="checkbox"/> Irish Food Composition Database LCC 2008 <input type="checkbox"/> Italian food composition database (IRFH) 2008 <input type="checkbox"/> Lithuan National Food Composition Data Base 2008	<input type="checkbox"/> Lithuanian Food Composition Database 2008 <input type="checkbox"/> Mexico & Venezuela's Composition of Foods Integrated Dataset (M&V-CF) 2008 <input type="checkbox"/> NEVO Database (Nutrient Values) 2007-2008 <input type="checkbox"/> New Zealand Food Database 2008 <input type="checkbox"/> Norwegian Food Composition Table 2008 <input type="checkbox"/> Polish Food Composition Database, 3rd Edition 2008 <input type="checkbox"/> Portuguese food composition database 2008 2008 <input type="checkbox"/> Serbian Food Composition Database 2008 <input type="checkbox"/> Swedish food composition database 2008 <input type="checkbox"/> Swedish Food Composition Database (SFOCA) 1.0 <input type="checkbox"/> Swedish Food Composition Database 2010-05-19 <input type="checkbox"/> Swiss Food Composition Database 03.91 <input type="checkbox"/> TUMTHC Food Composition Data 2010 <input checked="" type="checkbox"/> USDA National Nutrient Database for Standard Reference, Release 24 (incl. October 20, 2011 update)
<input type="checkbox"/> EuroFIR eSearch Food Plans ¹ <input type="checkbox"/> GAIN Global 2008-09-08 2007-2008	<input type="checkbox"/> Icelandic Food List 2008 ² <input type="checkbox"/> Prox3 Express Version 1.0
<input type="checkbox"/> Danish Food Composition Database - version 8.00 2008 <input type="checkbox"/> UK OX National dataset prepared for ENFC in 2008 <input type="checkbox"/> FR of NS-national dataset prepared for ENFC in 2008 <input type="checkbox"/> US FDA National dataset prepared for ENFC in 2008	<input type="checkbox"/> USDA National Nutrient Database for Standard Reference, Release 23 <input type="checkbox"/> USDA National Nutrient Database for Standard Reference, Release 21 <input type="checkbox"/> USDA National Nutrient Database for Standard Reference, Release 22 <input type="checkbox"/> USDA National Nutrient Database for Standard Reference, Release 20
<input type="checkbox"/> Serbian National Food Composition Database 2010	<input type="checkbox"/> Swiss Food Composition Database 2007

Data sets in eSearch

Data sets in eSearch

Item ID	Name	Energy	Protein	Fat	Carbohydrate	Fibre	Sugar	Alcohol	Other
14-227	100g CAP - 2010	1.8g	8.30g	18.5g	1.9g	0.2g	0.2g	0.0g	0.0g
14-228	100g CAP - 2010	3.1g	8.34g	16.2g	4.9g	0.2g	0.2g	0.0g	0.0g
14-229	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-230	100g CAP - 2010	1.8g	8.26g	18.1g	1.9g	0.2g	0.2g	0.0g	0.0g
14-231	100g CAP - 2010	2g	8.33g	21.0g	0.2g	0.2g	0.2g	0.0g	0.0g
14-232	100g CAP - 2010	1.8g	8.27g	18.0g	1.9g	0.2g	0.2g	0.0g	0.0g
14-233	100g CAP - 2010	1.8g	8.32g	18.1g	1.9g	0.2g	0.2g	0.0g	0.0g
14-234	100g CAP - 2010	2g	8.35g	24.2g	0.2g	0.2g	0.2g	0.0g	0.0g
14-235	100g CAP - 2010	2g	8.27g	18.1g	1.9g	0.2g	0.2g	0.0g	0.0g
14-236	100g CAP - 2010	1.8g	8.27g	18.1g	1.9g	0.2g	0.2g	0.0g	0.0g
14-237	100g CAP - 2010	1.8g	8.27g	18.1g	1.9g	0.2g	0.2g	0.0g	0.0g
14-238	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-239	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-240	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-241	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-242	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-243	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-244	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-245	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-246	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-247	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-248	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-249	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-250	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-251	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-252	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-253	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-254	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-255	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-256	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-257	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-258	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-259	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-260	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-261	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-262	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-263	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-264	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-265	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-266	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-267	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-268	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-269	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g
14-270	100g CAP - 2010	2.0g	8.32g	25.4g	0.2g	0.2g	0.2g	0.0g	0.0g



- Standardized data documentation allows foods to be linked and compared across borders, with little loss of information
- Conversion allows data to be used in compatible systems (e.g. EuroFIR eSearch), but it is not automatic, due to
 - extremely different data formats, need for human interface
 - overlapping classifications
 - poor documentation (e.g. lack of scope notes)
 - documentation limited to external documents/free text
- It is hoped that this exercise in data documentation will
 - open international discussions for clarification and standardization of terms
 - encourage standardized data documentation in published FCDBs



Acknowledgements

- EuroFIR Nexus Beneficiaries and 3rd Parties especially FCDB compiler organisations
- This work is funded under the European Community's Seventh Framework Programme (KBBE.2010.4.01) under grant agreement No. 265967.

