Explanatory Notes

for use with *NUTTAB 2010*

Released March 2011

Disclaimer

FSANZ makes *NUTTAB 2010* available for the benefit of the public and on the understanding that you will exercise your own skill, care and judgment with respect to its use and you will carefully evaluate the accuracy, currency, completeness and relevance of the material for your purposes.

NUTTAB 2010 is made available only for the purposes of providing nutrient data and ancillary material to users. FSANZ has taken great care to ensure the material provided in *NUTTAB 2010* is as correct and accurate as possible. However, FSANZ makes no warranty that the material contained in *NUTTAB 2010* will be free from error, or if used will ensure compliance with the relevant requirements of the *Australia New Zealand Food Standards Code*. FSANZ recommends that users viewing this publication for dietary purposes consult a heath care practitioner for a comprehensive dietary assessment.

By using the material in *NUTTAB 2010*, you acknowledge that in no event shall FSANZ be liable for any incidental or consequential damages resulting from use of the data.

FSANZ also advises you that any reference to a brand name product contained in *NUTTAB 2010* is not to be taken as an authoritative statement of the composition of that product, due to changes in formulation that may have occurred since the FSANZ data were generated. It is also not to be taken as a statement that a particular product complies, or does not comply, with any labelling declarations that might have been made for it or with any regulatory requirements. If you require current data on a specific branded product you should contact the manufacturer of that product.

Limitations of food composition data

There are limitations associated with food composition databases. Nutrient data published in *NUTTAB 2010* may represent an average of the nutrient content of a particular sample of foods and ingredients, determined at a particular time. The nutrient composition of foods and ingredients can vary substantially between batches and brands because of a number of factors, including changes in season, changes in formulation, processing practices and ingredient source.

While most of the data contained in *NUTTAB 2010* are generated from analysed values, some of the data are borrowed from overseas food composition tables; supplied by the food industry; taken from food labels; imputed from similar foods; or calculated using a recipe approach.

While FSANZ has made considerable effort to ensure the quality of data in *NUTTAB 2010*, FSANZ makes no warranty that the information contained in *NUTTAB 2010* will be free from error, or if used will ensure compliance with the relevant requirements of the *Australia New Zealand Food Standards Code.*

ISBN number: 978-0-642-34572-1

Acknowledgements

FSANZ acknowledges the contribution of nutrient composition data from:

- Professor Heather Greenfield and co-workers at the University of New South Wales;
- Associate Professor Jayashree Arcot and others at the University of New South Wales;
- *'Tables of composition of Australian Aboriginal Foods'* by J Brand-Miller, KW James and PMA Maggiore;
- McCance and Widdowson *The Composition of Foods* and its supplements, United Kingdom Food Standards Agency;
- the US Department of Agriculture's National Nutrient Database for Standard Reference;
- the Concise New Zealand Food Composition Tables, 6th and 8th Editions, New Zealand Institute of Plant & Food Research and The New Zealand Ministry of Health;
- the Danish Food Composition Databank, Revision 6;
- Australian journal articles; and
- the Australian food industry.

FSANZ would also like to thank the following organisations and individuals who have contributed to the production of this publication. In particular we wish to thank Mr Charles Wannop and, more recently, Mr Jonathan Rumbold for programming assistance, food analysts from government and private agencies who provided analytical services, government regulatory agencies such as the New Zealand Institute for Plant and Food Research and the New Zealand Food Safety Authority, the Omega-3 Centre, and members of FSANZ's food composition advisory group. Many food companies have also generously provided data and assistance that has aided in the compilation of *NUTTAB 2010.*

CONTENTS

WHAT IS NUTTAB?

NUTTAB (abbreviation for '**NUT**rient **TAB**les') is a reference database that contains data on the nutrient content of Australian foods. NUTTAB is referred to as a reference database because it contains mostly analysed data. Only a small proportion of data in NUTTAB comes from other sources such as recipe calculations, food labels, imputing from similar foods or by borrowing from other countries.

The first NUTTAB database was released by the Australian Commonwealth Department of Community Services and Health (1989), with updated databases published by this Department (1990), the National Food Authority (1991), Australia New Zealand Food Authority (1995) and Food Standards Australia New Zealand (2006), as new or revised analytical data became available. Early databases were published using computer floppy disks, with the most recent database, *NUTTAB 2006,* published in multiple formats including electronic database files, online searchable databases and concise food composition tables presented in PDF.

The range of foods published in NUTTAB does not cover all the foods available in Australia. Foods included in NUTTAB tend to be those that are staple foods in our diet or commonly used ingredients in other foods. Complete representation of nutrients is not an objective of NUTTAB. The range of nutrients presented for each food varies depending on the analytical data available. If a food does not have a value for a nutrient of interest, this does not mean that the nutrient is not present in the food, rather that analytical data for that nutrient in the food is not currently available. FSANZ tries to focus nutrient analysis on foods that are either a rich source of a nutrient or an important contributor to nutrient intakes.

NUTTAB 2010

NUTTAB 2010 is FSANZ's most recent reference database. It is published as an online searchable database and as electronic database files. Additional, separate data files are provided for Indigenous foods, vitamin D, amino acids, and trans fatty acids. Both *NUTTAB 2010* formats are available free of charge from the FSANZ website http://www.foodstandards.gov.au.

What's new in *NUTTAB 2010*?

- New data from nutrient analysis undertaken in 2006 and 2008 for a range of foods and nutrients
- New iodine, sodium, fat and fatty acid data from nutrient analysis undertaken in 2009
- New beef, lamb, mutton and veal data provided by Meat and Livestock Australia
- New pork data provided by Australian Pork Limited
- New game meat data (i.e. buffalo, venison, emu, rabbit, ostrich etc) provided by the Rural Industries Research and Development Corporation
- New data on liquids reported on a per 100 mL basis
- Separate files for Indigenous foods, vitamin D and amino acids – but note that tryptophan is also included in the main nutrient data files
- Trans fatty acid data, reported for the first time in NUTTAB and published as a separate file
- Different fat factors to calculate fatty acids in some seafoods and
- Data for commercial food additives and infant foods have been removed.

How many foods and nutrients?

The complete NUTTAB database (including the separate data files mentioned above) contains food composition data for 2668 foods and includes nutrient data for up to 245 nutrients.

Where do the data come from?

The majority of nutrient data published in *NUTTAB 2010* are analysed data. A small proportion of data come from overseas food composition tables, the food industry, recipe calculations, food label information and imputing from similar foods.

Each food and beverage published in *NUTTAB 2010* is assigned a derivation code which indicates how most of the nutrient data for each food and beverage were derived. The derivation codes used for *NUTTAB 2010* are:

- *Analysed* – most of the nutrient values are Australian analytical data (1984 records)
- *Recipe* – nutrient values are calculated using a typical Australian recipe (492 records)
- *NNS 1995* – most of the nutrient values are from data published in *AUSNUT 1999*[1] (67 records)

[1] *AUSNUT 1999* is a survey specific nutrient database developed for estimating nutrient intakes from foods and beverages consumed as part of the 1995 National Nutrition Survey.

- *Borrowed* – most nutrient values from nutrient data published in international food composition tables and electronic databases (52 records)
- *Label* – food label information (such as nutrition information panel data) is the main source of nutrient data, where the data are representative of a range of similar products, or where a particular brand could be identified (28 records)
- *Calculated* – for a small number of foods and beverages where nutrient values have been calculated by FSANZ using techniques similar to the recipe approach described above, but without generation of a formal recipe (28 records)
- *Imputed* – most of the nutrient values are imputed from nutrient data from a similar food or beverage (10 records) and
- *Industry* – most of the nutrient values are from data provided by the food industry (7 records).

Even though each food and beverage in *NUTTAB 2010* is assigned an overall derivation code, individual nutrient values for some foods may have been derived using a different technique. For example, a food described as being *Analysed* may have a small number of nutrient values that were imputed from similar foods. Although the derivation for each individual nutrient value is not systematically presented, the Sampling Details field often contains this information using the same terms as above to describe the data origin.

How is the data reported?

In the *NUTTAB 2010* online searchable database, nutrient values are reported per 100 g edible portion for solid foods and per 100 mL edible portion for beverages and other liquid foods such as salad dressings. For each record, units are clearly indicated, to avoid confusion.

In the electronic database files, nutrient data are reported in three separate files:

- *Nutrient file (per 100 g)* – all foods and beverages are reported per 100 g edible portion
- *Nutrient file (per 100 g/ 100 mL)* – all solid foods are reported per 100 g edible portion. Beverages and other liquid foods are reported per 100 mL edible portion, and the basis on which values are reported are clearly indicated and
- *Nutrient file (per 100 mL)* – beverages and other liquid foods **only**, reported per 100 mL edible portion.

See Attachment 1 for further details regarding the food data and Attachment 2 for further details regarding the nutrient data.

NUTTAB 2010 ONLINE SEARCHABLE DATABASE

The online searchable database was developed to allow people with internet access to search or browse for information on specific foods and nutrients.

The online searchable database is available from the FSANZ website at http://www.foodstandards.gov.au.

It does not contain nutrient data for vitamin D, trans fatty acids and amino acids (except tryptophan), due to the limited data available for these nutrients and, for vitamin D, concerns around the currently available analytical methods and results. People looking for data for these nutrients should refer to the separate vitamin D, trans fatty acid and amino acid data files, provided on the FSANZ website. Likewise, people looking for data on Indigenous foods should refer to the separate indigenous food data file, also provided on the FSANZ website.

Searching for a food

People can search or browse for nutrient data on specific foods by:

- individual food name, with an option to further refine the search by food group, by selecting *'Search for a food'*
- alphabetical listing by selecting *'Alphabetical list of foods'* and
- food group by selecting *'Browse by food groups'*.

A summary of the information retrieved by searching or browsing the database is in Table 1.

Table 1: Summary of information reported in the online searchable database

Field	Description of field
Food ID	Food identification code used to identify each food.
Name	Name commonly used to describe the food.
Optional Name	Other names used to describe the food.
Scientific Name	Scientific name of the plant or animal food (if applicable).
Description	Detailed information about the food, including its appearance, texture, production and preparation.
Group	A broad category used to describe similar products. For example Cereal and Cereal Products is a broad category used to group a range of products such as Grains, Breads, and Breakfast Cereals etc.
Sub Group	A specific food category under the broad group heading. For example Breads is a sub-group under the group heading Cereal and Cereal Products. (Provided where relevant).
Derivation	Indicates whether data for the particular food was analysed, calculated, borrowed or taken from labels etc.
Sampling Details	Includes information on where the nutrient data were obtained, such as the number of samples purchased for analysis, the date and place of purchase, whether the data were imputed or borrowed etc.
Reference	Reference details that were used when researching food and nutrient data.
Edible Portion	Portion of the food that is typically consumed.
Inedible Portion	Portion of the food that is typically not consumed.
Fat Factor	Used to calculate mass of fatty acids, together with other data. Note that all foods with a derivation of *recipe* have been allocated a fat factor of 0 by default, as individual fat factors have been applied at the ingredient level.
Nitrogen Factor	Used to calculate protein content. Note that all foods with a derivation of *recipe* have been allocated a nitrogen factor of 0 by default, as individual nitrogen factors have been applied at the ingredient level.
Specific Gravity	Density of a substance relative to that of water (grams per millilitre); provided for liquid foods. Note that all solid foods have been allocated a specific gravity of 0 by default.
Nutrient	Full nutrient name e.g. 'Protein'.
Value per 100 g (or 100 mL)	Value of the nutrient reported and units in which the nutrient is presented e.g. grams.

Searching for a nutrient

You can search for data for a specific nutrient by selecting the '*Browse nutrient list'*. This provides a list of all the nutrients published in *NUTTAB 2010.*

When a specific nutrient is selected from the nutrient list, all foods published in *NUTTAB 2010* containing a value for that nutrient will be displayed, together with that value. At the top of this page, details regarding the nutrient definition, methods of analysis, and other relevant information are displayed. You can then select individual foods to find out where the data came from and to view all of the other nutrient data for that food, as summarised in Table 1. Please note that although all *NUTTAB 2010* foods containing a particular nutrient

will be displayed, *NUTTAB 2010* does not include the complete list of foods that might contain the nutrient in question.

SUPPORTING DOCUMENTATION AND FILES

In addition to these Explanatory Notes, FSANZ has developed a number of documents to help people using *NUTTAB 2010*. These are available from the website and include:

- *NUTTAB 2010 – NUTTAB 2006* Matching File
- Reference list and
- Frequently Asked Questions.

NUTTAB 2010 ELECTRONIC DATABASE FILES

The electronic database files are provided in *.txt* and *.tab* formats, and are developed for people wanting to load the information into their own software and manipulate it for different purposes.

The electronic database files are available from the FSANZ website at http://www.foodstandards.gov.au.

The complete electronic database comprises six core files:

- Food File (.tab) – containing background information relating to each food such as the food description, derivation, optional name and scientific name
- Nutrient Files (.txt) – three separate files containing the nutrient data available for each food, with the nutrient data provided in three different formats as described on page 14 below.
- Recipe File (.tab) – containing information on the ingredients used to derive recipe foods, and
- Retention Factor File (.tab) – a file containing information regarding nutrient retention factors for foods that have been processed by heating, cooking etc.

The information reported in each of these files is outlined below.

Information reported in the Food File

The Food File contains non-nutrient information about the foods reported in *NUTTAB 2010*, as set out in Table 2.

Table 2: Summary of information included in the 'Food File'

Field	Description of field
Food ID	Food identification code used to identify each food.
Name	Name commonly used to describe the food .
Optional Name	Other names used to describe the food.
Description	Detailed information about the food, including its appearance, texture, production and preparation.
Scientific Name	Scientific name of the plant or animal food (if applicable).
Derivation	Indicates whether data for the particular product was analysed, calculated, borrowed or from labels etc.
Nitrogen Factor	Used to calculate protein content. Note that all foods with a derivation of *recipe* have been allocated a nitrogen factor of 0 by default, as individual nitrogen factors have been applied at the ingredient level.
Fat Factor	Used to calculate mass of fatty acids, together with other data. Note that all foods with a derivation of *recipe* have been allocated a fat factor of 0 by default, as individual fat factors have been applied at the ingredient level.
Specific Gravity	Density of a substance relative to that of water (grams per millilitre); provided for liquid foods. Note that all solid foods have been allocated a specific gravity of 0 by default.
Sampling Details	Includes information on where the nutrient data were obtained, such as the number of samples purchased for analysis, the date and place of purchase, whether the data were imputed or borrowed etc.
Inedible Portion	Portion of the food that is typically not consumed.
Edible Portion	Portion of the food that is typically consumed.
Group	A broad category used to describe similar products. For example Cereal and Cereal Products is a broad category used to group a range of products such as Grains, Breads, and Breakfast Cereals etc.
Sub Group	A specific food category under the broad group heading. For example Breads is a sub-group under the group heading Cereal and Cereal Products. (Provided where relevant).
Sort Order	The order in which the product will appear from 1 onwards.

Information reported in the Nutrient Files

There are three Nutrient Files containing information specific to the food nutrients, presented in three different formats, as follows:

- *Nutrient file(per 100 g)* – all foods and beverages are reported per 100 g edible portion
- *Nutrient file (per 100 g/ 100 mL)* – all solid foods are reported per 100 g edible portion. Beverages and other liquid foods are reported per 100 mL edible portion and

- *Nutrient file (per 100 mL)* – beverages and other liquid foods **only**, reported per 100 mL edible portion.

A summary of the information recorded in the *NUTTAB 2010* Nutrient Files is in Table 3.

Table 3: Summary of information included in the 'Nutrient Files'

Field	Description of field
Food ID	Food identification code used to identify each food.
Nutrient ID	Nutrient identification code (shorthand way of presenting the nutrient e.g. Protein is 'PROT').
Description	Full nutrient name e.g. 'Protein'.
Scale	Units in which the nutrient is presented e.g. grams.
Value	Value of the nutrient reported.
Category	Nutrient category the nutrient belongs to e.g. Calcium belongs to the 'MNS' category.

Information reported in the Recipe File

This file contains information about the ingredients used in foods derived using a recipe.

A summary of the information recorded in the *NUTTAB 2010* Recipe File is in Table 4.

Table 4: Summary of information included in the 'Recipe File'

Field	Description of field
Recipe Food ID	Food identification code used to identify each recipe.
Recipe Food Name	Name commonly used to describe the food.
Recipe Weight Change (%)	Weight change on a % basis after the food has been cooked.
Ingredient ID	Ingredient identification code.
Ingredient Name	Name commonly used to describe the ingredient.
Ingredient Weight (g)	Weight of the ingredient in grams.
Ingredient Retention Factor	Retention factor identification code. Note: more detailed information on the retention factors used in the recipe can be found in the *'Retention Factor'* file.

Information reported in the Retention Factor File

This file contains information relating to nutrient retention factors (see Table 5 for more details).

Retention factors are used to take into account the effect of processing factors such as light, heat, oxidants and leaching on the levels of nutrients in foods. These factors are particularly relevant for alcohol, minerals and vitamins. Retention factors will vary depending on the food and on the method of processing.

The nutrient retention factors used in *NUTTAB 2010* have been derived largely from USDA (2003).

Table 5: Summary of information included in the 'Retention Factor File'

Field	Description of field
Retention Factor ID	Retention factor identification code.
Name	Name commonly used to describe the food.
Nutrient ID	Nutrient identification code (shorthand way of presenting the nutrient e.g. Protein is 'PROT').
Nutrient Description	Full nutrient name e.g. 'Protein'.
Nutrient Scale	Units in which the nutrient is presented e.g. grams.
Retention Factor	Value of retention factor reported.

We have also generated some additional data files (in *Microsoft Excel*™) for specific foods and nutrients, available from the FSANZ website at http://www.foodstandards.gov.au. Nutrient data files for vitamin D, amino acids (including some original tryptophan values) and trans fatty acids have been provided separately due to the limited data available for these nutrients and, for vitamin D, concerns around the currently available analytical methods and results. Likewise, data on Indigenous foods have been provided in a separate Indigenous foods data file.

SUPPORTING DOCUMENTATION AND FILES

In addition to these Explanatory Notes, FSANZ has developed a number of documents to help people using *NUTTAB 2010*. These are available from the website and include:

- *NUTTAB 2010 – NUTTAB 2006* Matching File
- Reference list and
- Frequently Asked Questions.

REFERENCES

Athar N, McLaughlin J and Taylor G. (2003) The Concise New Zealand Food Composition Tables. 6th edition. Palmerston North: New Zealand Institute of Plant and Food Research and The New Zealand Ministry of Health.

Australia New Zealand Food Authority. (1999) AUSNUT - Australian Food and Nutrient Database 1999 [compact disc]. Canberra: Australia New Zealand Food Authority.

Australia New Zealand Food Authority. (2001) The 19th Australian Total Diet Survey. Canberra: Australia New Zealand Food Authority.

Beilken S, Eustace I and Tume R. (2007) Composition of New Meats: Analysis and Nutrient Composition of Innovative Meat Industries. Rural Industries and Development Corporation.

Beilken S and Tume R. (2008) Nutritional Composition of Kangaroo Meat: Fat Content and Lipid Composition. Rural Industries and Development Corporation.

Brand Miller J, James KW and Maggiore P. (1993) Tables of Composition of Australian Aboriginal Foods. Canberra: Aboriginal Studies Press.

Cashel K and Lewis J. (1989) NUTTAB89 – Nutrient Data Table for Use in Australia [floppy disc]. Canberra: Department of Community Services and Health.

Cobiac L, Droulez V, Leppard P and Lewis J. (2003) Use of External Fat Width to Describe Beef and Lamb Cuts in Food Composition Tables. Journal of Food Composition and Analysis 16(2):133-145.

Food Standards Agency. (2002) McCance and Widdowson's The Composition of Foods, 6th Summary Edition. Cambridge: Royal Society of Chemistry.

Food Standards Australia New Zealand. (2008) AUSNUT 2007 – Australian Food, Supplement and Nutrient Database for Estimation of Population Nutrient Intakes. Canberra: Food Standards Australia New Zealand.

Food Standards Australia New Zealand. (2007) NUTTAB 2006 – Australian Food Composition Tables. Canberra: Food Standards Australia New Zealand.

Food Standards Australia New Zealand. (2003) The 20th Australian Total Diet Survey. Canberra: Food Standards Australia New Zealand.

Food Standards Australia New Zealand. (2008) The 22nd Australian Total Diet Study. Canberra: Food Standards Australia New Zealand.

Greenfield H and Southgate DAT. (2003) Food Composition Data. 2nd edition. Rome: Food and Agriculture Organisation of the United Nations.

Greenfield H, Arcot J, Barnes JA, Cunningham J, Adorno P, Stobaus T, Tume RK, Beilken SL and Muller WJ. (2009) Nutrient Composition of Australian Retail Pork Cuts 2005/2006 Food Chemistry. 117: 721–730.

Lewis J and English R. (1990) NUTTAB90 – Nutrient Data Table for Use in Australia [floppy disc]. Canberra: Department of Community Services and Health.

Lewis J and Holt R. (1991) NUTTAB91-92 – Nutrient Data Table for Use in Australia [floppy disc]. Canberra: National Food Authority.

Lewis J, Milligan G and Hunt A. (1995) NUTTAB95 – Nutrient Data Table for Use in Australia [compact disc].Canberra: Australia New Zealand Food Authority.

McLaughlin J and Mishra S. (2006) Nutritional Content of Retail Venison Meat Cuts. Palmerston North: New Zealand Plant and Food Research.

Ministry of Health Department of Nutrition. (2000) The Composition of Foods Commonly Eaten in Singapore. Singapore: Institute of Health.

Møller A, Saxholt E, Christensen AT, Hartkopp HB and Hess Ygil K. (2005) Danish Food Composition Databank, revision 6.0. Food Informatics, Dept Nutrition, Danish Institute for Food and Veterinary Research. www.foodcomp.dk

Mooney B D, Nichols PD and Elliott NG. (2002) Seafood the Good Food II. Oil Profiles for Further Australian Seafoods, and Influencing Factors. FRDC Project 99/331. Guide prepared for the Fisheries Research and Development Corporation.

National Food Authority. (1989-95) Composition of Foods, Australia, volumes 1-7. Canberra: Australian Government Publishing Service.

New Zealand Institute of Plant and Food Research (2009) The Concise New Zealand Food Composition Tables. 8th edition. Palmerston North: New Zealand Institute of Plant and Food Research and The New Zealand Ministry of Health, http://www.plantandfoo.co.nz.

Nichols PD, Virtue P, Mooney BD, Elliott NG and Yearsley GK. (1998) Seafood the Good Food. The Oil Content and Composition of Australian Commercial Fishes, Shellfishes and Crustaceans. FRDC Project 95/122. Guide prepared for the Fisheries Research and Development Corporation.

Nichols PD, Mooney B, Virtue P and Elliott N. (1998) Nutritional Value of Australian Fish: Oil, Fatty Acid and Cholesterol of Edible Species. Final report, August 1998. FRDC Project 95/122. Report prepared for the Fisheries Research and Development Corporation.

Nichols PD, Mooney BD and Elliott NG. (2002) Nutritional Value of Australian Seafood II. Factors Affecting Oil Composition of Edible Species. Final Report FRDC Project 99/331. Prepared for the Fisheries Research and Development Corporation.

Sinclair AJ, Barone S, Stobaus T, Tume R, Beilken S, Müller W, Cunningham J, Barnes J and Greenfield H. (2010) Lipid Composition of Australian Pork Cuts 2005/2006 Food Chemistry. 121: 672–681.

United States Department of Agriculture National Nutrient Databank for Standard Reference. (2006) Release 19. www.nal.usda.gov/fnic/foodcomp/search

United States Department of Agriculture National Nutrient Databank for Standard Reference. (2010) Release 23. www.nal.usda.gov/fnic/foodcomp/search

United States Department of Agriculture Composition of Foods Raw, Processed, Prepared. USDA National Nutrient Database for Standard Reference, Release 23 (2010) Release 23. www.ars.usda.gov/SP2UserFiles/Place/12354500/Data/SR23/sr23_doc.pdf

United States Department of Agriculture Table of Nutrient Retention Factors. (2003) Release 5. www.nal.usda.gov/fnic/foodcomp/Data/index.html#retention

Williams P, Droulez V, Levy G and Stobaus T. (2006) Composition of Australian Red Meat 2002. 1. Gross Composition. Food Australia 58(4): 173 – 181.

Williams P, Droulez V, Levy G and Stobaus T. (2007) Composition of Australian Red Meat 2002. 3. Nutrient Profile. Food Australia 59(7): 331 – 341.

NUTTAB 2010 ADDITIONAL INFORMATION REGARDNG THE FOOD DATA

IDENTIFICATION OF FOODS

Food ID

Each food published in *NUTTAB 2010* is assigned a unique 8-character alpha-numeric identification code, typically based on the identification system initiated in the series *Composition of Foods, Australia (COFA)*. The code consists of a 4-character food group code followed by a 4-digit number.

Please note that foods published in *NUTTAB 2010*, which were previously also published in *NUTTAB 2006*, will not have the same identification code. To assist users incorporate these new food codes, FSANZ has developed a file cross-linking the food identification codes from *NUTTAB 2010* with *NUTTAB 2006*. This file is called *NUTTAB 2010 – NUTTAB 2006 Matching File* and is available from the FSANZ website www.foodstandards.gov.au.

Food Name

Foods published in *NUTTAB 2010* are assigned a common name which is used to describe the product. The food name aims to provide a detailed description of the food and captures the most commonly available form of a food and, where relevant, the exceptions to the commonly available form of the food and preparation. For example, sugar-sweetened soft drinks are simply referred to as 'soft drinks' whereas the intense-sweetened versions are referred to as 'soft drink, intense sweetened'. In situations where the common form of availability is not obvious, nutritionally relevant information is included; for example, boiled white rice is referred to as either 'boiled, with added salt' if salt is included, or 'boiled, no added salt' if no salt has been included.

Where vitamins and/or minerals are added to a food for fortification purposes, this is generally identified in the food name, by either identifying the specific nutrient or, in certain cases where multiple nutrients are added, referring in general to the addition of nutrients, with further detail on the exact nutrients provided in the food description field. Where a food is always supplied in a fortified form, such as bread-making flour with the mandatory addition of thiamin, folic acid and iodine, this information is not included in the food name but is included in the description.

Very few foods are named with reference to a specific brand and the use of brand names has been avoided wherever possible. This is because the formulation of specific products changes over time and nutrient levels at the time of analysis may not reflect those in a particular brand some years later. In the few cases where a specific brand is mentioned, this is generally intended to provide guidance for the user in situations where there are a number of products available with similar appearance but with differing nutrient composition. The values reported should be regarded as reflecting the average composition of that class of food. If you require information on the nutrients in a specific product as currently available, you should check the product's nutrition information panel or consult

the manufacturer. Very few foods are analysed as a single brand only. The exceptions include *Vegemite™* and *Milo™* and some breakfast cereals.

Scientific Name
Scientific names of foods of plant or animal origin have been provided, where known. The scientific name generally comprises two parts, the genus name and the species name, and is provided to assist in clarity and avoid confusion. Common names may vary across different countries and even within different parts of the same country. In contrast, the scientific name remains the same all over the world and in all languages, avoiding confusion and difficulties of translation.

Food Description
The food description provides more detail about the product, including its appearance, texture, production and preparation. For processed foods, the major ingredients and food additives used are provided, where known.

DERIVATION CODES

Each food and beverage published *in NUTTAB 2010* is assigned a derivation code which indicates how the majority of nutrient data for each food and beverage were derived. Further details regarding each of the derivation codes used for *NUTTAB 2010* are provided below.

Analytical data (Analysed)
The majority of nutrient values presented in *NUTTAB 2010* have been determined by laboratory analysis of foods purchased in Australia. Most of the older analytical data are derived from foods which have been purchased in one or more capital cities, generally Sydney, Melbourne or Adelaide. However, for more recent analytical programs, samples have been purchased nationally. For packaged foods, four to eight separate purchases are usual, chosen to reflect the market composition at the time of analysis. For unpackaged foods, generally six to 12 purchases are made. In nearly all cases, the purchased items are mixed together to form a single analytical sample (or 'composite') that reflects the average composition of that type of product at the time the sample was prepared. This method does not provide information on the variation of nutrient levels between samples. In the case of samples purchased for the 2006 and 2008 Key Foods Programs and the 19th, 20th and 22nd Australian Total Diet Studies, values are means of sub-samples purchased nationally, with the sub-samples analysed separately.

For some foods, particularly major foods such as breads, a number of analytical programs may have been conducted over time. The results presented in *NUTTAB 2010* usually reflect the average results of these programs. However, where changes have occurred to the formulation, processing or growing conditions of a product, or where an improved analytical method is now available, only newer data are reported.

A small number of nutrient values in records with a derivation code of *Analysed* may have been determined by other techniques, such as imputation or borrowing, where analytical data for these nutrients were not available.

Recipe data (Recipe)

A number of foods reported in *NUTTAB 2010* are 'recipe' foods. For these foods, an average recipe for the food, as commonly prepared in Australia, is developed and the overall nutrient profile for that food is calculated from the nutrient data for the individual recipe ingredients. The recipe also takes into account, where necessary, loss or gain of moisture and nutrients during processing. Examples of recipe foods include most toasted breads, prepared cordials and some home-prepared traditional foods such as Anzac biscuits.

Information on the recipes used in *NUTTAB 2010* including weight changes[2] and nutrient retention factors[3] are available in the *Recipe File* and *Retention Factor File* of the *Electronic Database files*. The generation of a recipe requires assumptions about weight change and nutrient change during processing.

National Nutrition Survey data (NNS 1995)

Nutrient data were generated specifically for the 1995 National Nutrition Survey and subsequently included in *AUSNUT 1999*. Much of these data have been calculated, as described above, and for most of these foods the basis for data generation has not been fully recorded. Some of these records were generated by a documented recipe approach and where the information on recipe composition is available it is included in the *Recipe File* of the *Electronic Database files***.** Approximately 70 NNS food records remain in *NUTTAB 2010.* As with calculated records, NNS records have been retained where FSANZ considered there was a need for the data but suitable analytical data could not be identified. NNS records have a more limited range of nutrient values and do not include individual sugars, fatty acids or amino acids.

Borrowed data (Borrowed)

Small amounts of data have been borrowed from food composition tables published by the governments of the 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). In a small number of records, individual nutrient values in an analysed or NNS food (see below) may have been obtained by borrowing. In general, nutrient data are only borrowed from overseas food tables where the food is imported into Australia or where it was considered there was a need for the nutrient data but suitable Australian data could not be identified.

Label data (Label)

A small number of records contain nutrient data derived from label information. Label information has been included where:

- no analytical or other appropriate data were available for that food
- the food was considered significant in the diet for all or some of the population and
- there have been known changes to fortification practices since the original data were generated.

[2] Weight change factor – accounts for change in moisture content as a result of cooking.

[3] Retention factor – take into account the effect of processing factors such as light, heat, oxidants and leaching on the levels of nutrients in foods.

Values presented are, wherever possible, averaged over a number of brands and taken from the nutrition information panels for these products. Because nutrition information panels are only required to report nutrient data for a small number of nutrients, some values in these records may have been derived by other techniques such as imputation.

Calculated data (Calculated)
Some older records, particularly for some beverages, have been calculated by FSANZ using techniques similar to the recipe approach described above, but without generation of a formal recipe. These records have been retained where FSANZ considered there is a need for the data but suitable analytical data could not be identified.

Imputed data (Imputed)
Imputation is the process of assuming that a nutrient value in one food can represent that in another similar food. For example, in the case of a salmon canned in water with no added salt, nutrient values other than sodium and chloride will be imputed from those for salmon canned in brine. Imputation also includes the process of assuming that some foods contain none of a particular nutrient, based on knowledge of the composition of that food. Imputation has only been used where FSANZ has had confidence in the validity of the assumptions made. It is more commonly used for particular nutrients in a food rather than for a food as a whole. For example for soft drinks, vitamin E has been imputed as zero as soft drinks contain no fat (vitamin E is a fat soluble nutrient) and are not labelled as containing added vitamin E.

Industry data (Industry)
For a small number of foods, Australian food companies have provided FSANZ with nutrient data for their products. These data may have been generated by analysis or by other means. Industry data form only a small proportion of data in *NUTTAB 2010*. As noted earlier, if you require information on the nutrients in a specific product, you should check the product's nutrition information panel or contact the manufacturer.

SAMPLING DETAILS

Further information about where the nutrient data comes from, such as the number of samples purchased for analysis, the date and place of purchase, whether the data were imputed or borrowed etc, can be found in the sampling details field. This field may also highlight any specific issues with particular nutrient values, such as analytical problems and areas of uncertainty.

FOOD GROUPS

Each food in *NUTTAB 2010* is assigned to a food group. The food group is a broad category used to describe similar products. For example Cereal and Cereal Products is a broad category used to group a range of products such as Grains, Breads, and Breakfast Cereals etc. Many foods will also be assigned a food sub group. The food sub group is used to describe a specific food category under the broad group heading. For example Bread and Bread Products is a sub-group under the group heading Cereal and Cereal Products. The

food groups and food sub groups used in *NUTTAB 2010* are outlined in Appendix 1 of this Attachment.

This section outlines the major food groups used in *NUTTAB 2010*.

Additives and food ingredients
This includes information on: herbs, seasonings, spices and common home ingredients such as vanilla, yeast etc. Commercial food additives are not included. Most of the data relating to individual herbs and spices has been borrowed from either the USDA or published literature.

Beverages
This includes information on: alcoholic beverages, non alcoholic beverages and powdered drinks.

The majority of beverages in this category are derived by nutrient analysis or by a simple recipe to account for water and/or milk addition to coffee, tea, cordials and beverage bases. Nutrient values for the remaining beverages are derived mainly from industry and/or are calculated, borrowed or are NNS data. Data from these sources were retained where FSANZ could not identify analytical data for these foods but considered it was important to retain the data taking into account the significance of the product in the diet. Data for apple and orange juice, cordials, *Milo™* and energy drinks and soft drinks have been substantially updated from analytical programs conducted mainly in 2006 and 2008. Reference to brand names in some descriptions is not intended to imply that these values represent nutrient values in these products at all times, as formulations may change over time and as levels of some nutrients may vary from batch to batch. For these reasons, nutrient values reported in these tables may not be identical to those reported on food labels.

For beers, a significant proportion of the reported available carbohydrate content is in the form of dextrins and, to a lesser extent, the sugar maltotriose.

Cereals and cereal products
This includes information on: biscuits, breads and bread products, breakfast cereals, cakes, slices, pastries, pies and tarts, flours, grains and starches, hamburgers, pizza and other takeaway cereal-based products, noodles and pasta, and pastry.

The majority of values presented in this category are derived by nutrient analysis, or using single-ingredient recipes based on analysed foods, such as toasted breads from fresh breads. A small amount of data are borrowed from the US for cereal products that are not produced in any significant amount in Australia, including couscous, wild rice, corn based pasta and buckwheat groats.

For many cereal products, particularly low-moisture baked products such as biscuits and breakfast cereals, the sum of proximates (the sum of moisture, protein, fat, sugars, starch, fibre, ash, alcohol and organic acids) is below generally acceptable levels for food composition tables (less than 97 g/100 g). This is likely to reflect problems with the analysis

of starch and/or dietary fibre in these foods. Where this has occurred, the sampling details field will note that the sum of proximates is low and data should be used with caution.

Condiments
This includes information on: dressings, pastes, sauces and spreads, including peanut butter.

The values for many foods in this category are derived by nutrient analysis. Where analytical data are not available, values have been borrowed, imputed or are NNS data, or simple recipes have been used to determine the nutrient content of homemade sauces such as white sauce and cheese sauce.

Dairy
This includes information on: butter, cheese, cream, ice cream and edible ice products, milk, yoghurt and dairy desserts.

Data for many milks have been substantially updated and extended in recent years. For example, FSANZ has updated data from analytical programs conducted in 2006 and 2008. Data have also been updated for cheddar cheese (regular and reduced fat, natural and processed varieties), reduced fat custard and some ice creams. However, there have been few updates to data for creams, some ice creams and yoghurts, and the foods included will not cover the full range of products now available in these categories. Where some new foods have been included, such as extra light sour cream, much of these data will be derived from label information or by estimation or imputation.

Dairy and meat alternatives
This includes soy beverages and soy products such as tofu.

The majority of data for soy beverages has been updated. New data are included for some soy based milks and rice milk. Data on soy beverages are based on analytical data from programs conducted in 2008 and 2010. Updates to soy beverage data on fortificants (particularly for flavoured varieties) are also based on label information and represent aggregated data from a range of similar products with similar fortification patterns. Data for specific products can often be obtained from company websites.

Edible fats and oils
This includes information on: margarine spreads and fats and oils used in cooking.

Much of the data for edible oil spreads have been substantially updated to reflect significant changes in this product category in recent years, particularly reductions in fat and sodium content. However there are a number of types of spreads now available for which data are not included in *NUTTAB 2010*. Data for vitamin D in edible oil spreads is an average of analytical data obtained from analytical programs conducted in 2006 and 2008.

Eggs
This includes information on eggs and egg dishes.

Data for many egg records have been substantially updated and extended in recent years, including the inclusion of data for modified eggs.

Fruit
This includes fresh and processed fruit products (including dried and canned products). The majority of data were included in *NUTTAB 2006*. There have been some updates to the nutrient data for apples and banana from analyses conducted by FSANZ in 2006 and 2008.

Indigenous foods
This includes information on: animals, insects and insect products and plant foods, provided in a separate data file. The majority of data for indigenous foods is reproduced from Brand-Miller et al (1993). The range of data for these wild-harvested foods is narrow and there are many data gaps. However, the data are the most comprehensive available for this significant category of foods. In addition, it should be noted that some of the nutrient values for these foods are questionable, most notably the very high iron values reported for many foods. This has been noted in the record's sampling details field, where applicable. This may reflect difficulties in grinding hard foods during sample preparation.

There are a small number of commercial indigenous foods for which nutrient data have been generated by FSANZ; a broader range of nutrients are included for these foods. Totaling six, these have been included as part of the main database.

Legumes
This includes data for dried and canned beans (including baked beans) and lentils. There have been few updates to these data.

Meat and meat products
This includes data for raw and cooked beef, veal, lamb, mutton, pork, poultry and game meat, as well as offal and a range of processed meat products.

All beef, veal, lamb and mutton data have been replaced since the *NUTTAB 2006* publication and are based on data generated from research by Meat and Livestock Australia (MLA) (Cobiac et al. (2003), Williams et al. (2006), Williams et al. (2007)). All pork data have also been replaced since *NUTTAB 2006* and are based on data generated by Australian Pork Limited (Greenfield et al. (2009), Sinclair et al. (2010)). Considerable updates have also been made to the game meat records, based on data generated for the Rural Industries Research and Development Corporation by Beilken et al (2007) and Beilken & Tume (2008) and on research on venison in New Zealand (McLaughlin & Mishra (2006))

There have been few updates to data for poultry meat and processed meats, other than the addition of data for lean grilled and stir fried chicken breast and chicken nuggets.

Nuts and seeds
This includes data for raw and roasted nuts and seeds and products produced from them, such as tahini (but not peanut butter, which is categorised under condiments).

Restaurant foods
This includes foods purchased ready-to-eat from Asian and Mediterranean style restaurants.

There have been no updates to these data. Users should be aware that there may have been some changes to production practices since these records were developed, for example changes in oil types or salt usage.

Seafood and seafood products
This includes raw, cooked and processed finfish and shellfish products, including canned fish. While there was a considerable amount of newer data for seafoods, including common aqua-cultured fish and sashimi style fish included in *NUTTAB 2006*, no major updates have occurred since that time. This is with the exception of some updates to fatty acid data, which were made for processed fish products from analyses conducted by FSANZ in 2008.

Fatty acid data from the 1990s should be interpreted with caution as there were difficulties in separating and identifying some long chain fatty acids.

Snack foods
This includes information on crisps, fruit bars, muffin bars and cereal bars, popcorn, fruit based snacks and other cereal based snacks.

A small number of new food records for potato crisps, cereal bars and *Grain Waves™* have been added to the *NUTTAB 2010* publication.

Soups
This includes home-prepared, dry mix and canned soups. Soups purchased from restaurants and takeaway outlets are categorised under restaurant foods.

A large proportion of the data for dry mix soups were generated from nutrient analysis in 2002. Please be aware that many of these soup powder records have a low sum of proximates, which is likely to reflect the use of oligosaccharides that are not completely recovered during analysis, as well as difficulties in analysis of the high salt, dry matrix.

Sugar, confectionery and sweet spreads
This includes information on: chocolate-based and sugar-based confectionery, sweet spreads and toppings, and sugars and sweeteners. Little of these data are recent.

Vegetables
This includes raw and cooked vegetables and processed vegetable products such as canned and frozen vegetables and potato chips/ fries.

The majority of data published for this food group are derived from analytical data published from the 1980s onwards or are single-ingredient recipes based on analysed foods

(e.g. boiled carrot from raw carrot). Some newer data have been included since *NUTTAB 2006*, such as microwaved broccoli, potatoes (including potato chips/ fries), carrot and some additional mineral and vitamin data included with existing records.

APPENDIX 1 – Guide to the food classification system used in *NUTTAB 2010*

Food group	Food sub-groups	Includes codes beginning with:
Additives and food ingredients	Herbs, seasonings and spices	10E1, 10F4, 10F6
	Home ingredients	10F3, 10F6, 13B2, 14B1
Beverages	Alcoholic	01A1, 01A2, 01A3
	Non-alcoholic	01A2, 01B1, 01B2, 01B3
Cereals & cereal products	Breakfast cereals	02A1, 02D1, 02D2
	Flours, grains and starches	02A1, 02A2, 02F4, 10F6, 13A2
	Bread and bread products	02B1, 02B2, 02E2, 02F3, 02F4
	Biscuits	02C1, 02C2
	Cakes, slices and other battered products	02E1, 02E2, 02E3, 02E5
	Pastries, pies and tarts	02E4, 02E5, 02E6
	Hamburgers, pizza and other takeaway products	02E6, 02F1, 02F3
	Noodles and pasta	02A1, 02F4, 10A1
Condiments	Dressings, pastes and sauces	10A1, 10E1, 10F2
	Spreads	10F4, 11B1
Dairy	Milk	09A1, 09A2, 09A3
	Cream	09A5
	Cheese	09B1, 09B2, 09B3
	Yoghurts and dairy desserts	09C1, 09C2, 09D1, 09D2
	Ice cream and edible ice products	09D1, 12D1
Dairy and meat alternatives	Nil	08G1, 09A1, 13B2
Edible fats & oils	Edible oil spreads	04A1, 04B1, 04B2
	Fats and oils	04C1, 04D1
Eggs	Nil	03A1 (eggs), 03A2 (egg

Food group	Food sub-groups	Includes codes beginning with:
		substitutes), 03B1 (egg dishes)
Fruit	Nil	06A (berries), 06B (citrus), 06C (stone fruit), 06D (other fruit), 06E (mixed fruit products), 12B1
Indigenous Foods	Plant foods	15A1
	Animals, insects and insect products	15A2, 15A4
Legumes	Nil	13A2, 13B2
Meat and meat products	Beef	08A1
	Lamb	08A2
	Mutton	08A2
	Pork	08A3
	Veal	08A4
	Game and other meat	08B1, 08C2
	Poultry	08C1, 08C2, 08E1
	Offal	08D1
	Processed meats	08E2, 08E3, 08E4, 08F1, 13B1
Nuts and seeds	Nil	11A1, 11B1
Restaurant foods	Asian foods	02E6, 02F4, 03B1, 05A1, 05D1, 05D2, 08F1, 10C1, 13B1, 13B2
	Mediterranean foods	02E6, 02F4, 03B1, 08E2, 08F1, 13B1, 13B2
Seafood and seafood products	Fish	05A1
	Crustacea & molluscs	05C1
	Processed fish, crustacea and molluscs	05A1, 05C1, 05D1, 05D2
Snack foods	Nil	02A1, 10D1, 12C1
Soups	Nil	10C1
Sugar, confectionery and sweet spreads	Sugars and sweeteners	12A1, 14A1

Food group	Food sub-groups	Includes codes beginning with:
	Spreads and toppings	10A1, 10B1, 12B1
	Chocolate based	12C1
	Sugar based	02E5, 11B1, 12C1, 12D1
Vegetables	Nil	10B1, 13A1, 13B1

NUTTAB 2010 ADDITIONAL INFORMATION REGARDING THE NUTRIENT DATA

What nutrients are reported?

NUTTAB 2010 reports up to 245 nutrients and food components per food. For a complete list of nutrients reported in *NUTTAB 2010,* including the INFOODS Tag Name, refer to Appendix 1 of this Attachment.

We have also generated some additional data files (in *Microsoft Excel*™) for specific foods and nutrients. Nutrient data files for vitamin D, amino acids (including some original tryptophan values) and trans fatty acids have been provided separately due to the limited data available for these nutrients and, for vitamin D, concerns around the currently available analytical methods and results. Likewise, data on Indigenous foods have been provided in a separate Indigenous foods data file.

Where did the nutrient data come from?

The majority of nutrient data published in *NUTTAB 2010* are analysed data. A small proportion of data come from overseas food composition tables, the food industry, recipe calculations, food label information and imputing from similar foods.

Each food and beverage published in *NUTTAB 2010* is assigned a derivation code which indicates how most of nutrient data were derived. More detailed information on the derivation of each individual nutrient published for each food and beverage is provided in the sampling details section where available. For further details regarding the derivation codes used, see Attachment 1 of the Explanatory Notes.

Methods of nutrient analysis

In general, the analytical techniques used are widely-accepted methods conducted by experienced laboratories with NATA[4] accreditation. However, because nutrient data reported in *NUTTAB 2010* have been generated over approximately 30 years, the techniques used for nutrient analysis may have changed over this time. Therefore, the following information provides a summary of major methods of analysis used for nutrients reported in *NUTTAB 2010*. Further information on the methods of analysis, including limits of detection and reporting may be available on request from FSANZ.

Values reported as 'trace' or 'less than the limit of reporting (LOR)' have been assigned a numerical value of zero in *NUTTAB 2010*. Summary information on the limits of detection and reporting are presented in Appendix 2 of this Attachment.

Proximates

The sum of proximates (moisture, fat, protein, ash, sugars, starch and organic acids) usually falls within the range of 97-103 g per 100 g edible portion. A margin of plus or minus 3% is considered

[4] NATA is the National Association of Testing Authorities

acceptable, given that components may be determined at different intervals by different means. For some records, the sum of proximates falls outside this range. This will have been noted in the *Sampling Details* field, where applicable. The reasons for this include the presence of other constituents other than the major proximates listed above, such as miscellaneous organic components (e.g. resistant starch and oligosaccharides) and analytical difficulties.

Moisture
Water (moisture) in foods has been determined by drying a food in an oven at a temperature of approximately 102 °C until the food reaches a constant weight. Higher temperatures may have been used for cereal foods and vacuum drying between 70°C and 100°C may have been used for high sugar foods.

Protein
In *NUTTAB 2010*, protein content is estimated from the measurement of the nitrogen content of foods. Nitrogen content has generally been measured by a Kjeldhal technique with protein content then estimated by the application of a conversion factor. The conversion factors used in this publication are based primarily on those specified in Greenfield and Southgate (2003) and by the USDA (2010), with the factor selected being determined by a consideration of major protein sources in the food. For example, in a whole wheat crispbread, where no other significant protein sources are present, the factor for whole wheat is applied. However in a crispbread where protein is derived from both wheat and maize, an average factor is applied. In foods where there are more than two protein sources present, the general factor of 6.25 is used. Information on the conversion factors (or nitrogen factors) used for each food is provided as part of the food file.

Fat
For analysed foods, fat has generally been determined by one of two gravimetric methods: acid hydrolysis followed by ether and petroleum ether extraction (the Mojonnier method), or Soxhlet extraction using chloroform and methanol, or diethyl and/or petroleum ether.

Ash
Ash comprises the inorganic mineral elements of foods. Ash has been determined by slow burning in a muffle furnace until all organic matter is destroyed and weighing the residue.

Dietary fibre
Dietary fibre refers to that fraction of the edible part of plants or their extracts, or synthetic analogues that is resistant to the digestion and absorption in the small intestine, usually with complete or partial fermentation in the large intestine; and that promote one or more of the following beneficial physiological effects – laxation, reduction in blood cholesterol or modulation of blood glucose. It includes polysaccharides, oligosaccharides (degree of polymerisation > 2) and lignins.

Dietary fibre values reported in *NUTTAB 2010* have largely been determined, in analysed foods, by the total dietary fibre method (Section 985.29 of the AOAC, 18th Edition (2005)) or equivalent

method in older records. If another method of analysis has been used, this is identified in the sampling details section.

Ethanol

Ethanol values reported in *NUTTAB 2010* have been determined by distillation of the de-gassed beverage and determination of the volume of the distillate by pycnometer, to determine the specific gravity.

Sugars, individual

Sugars values reported in analysed foods have generally been determined by high performance liquid chromatographic (HPLC) analysis of an aqueous extract of the food using refractive index detection.

Starch and other available polysaccharides

Starch content is generally determined by the removal of sugars followed by digestion of the remaining food with an enzyme (usually amyloglucosidase) that breaks starch into component glucose molecules, which are then analysed by HPLC. In older records, the liberated glucose may have been measured colourimetrically.

In beers, levels of dextrins are reported. In a small number of meats (primarily organ meats including liver, and some seafood including mussels and scallops), glycogen is reported. These are determined using similar methods to that for starch.

Oligosaccharides

A small number of values are reported for undifferentiated oligosaccharides in cereal bars only. This generally occurs in processed foods where substances such as maltodextrins or fructooligosaccharides are known to be added. These values have generally been imputed or borrowed. In some records, the maltodextrin content has been calculated based on the label information for carbohydrates and sugars, where the difference between the two values could not be attributed to starch, and where maltodextrin is known to be added as an ingredient. Examples of such foods are intense sweeteners, breakfast bars, cereal bars and mint lollies. In beers, maltotriose has been analysed and is reported as such, not as undifferentiated oligosaccharides. For some dried soups, analysed inulin values are presented.

Sugar alcohols

Sugar alcohols reported in *NUTTAB 2010* include sorbitol, mannitol and glycerol, analysed in a small range of foods including some fruit and vegetables, snack bars and confectionery. They have generally been determined using a similar method to that for sugars, using a different HPLC column.

Organic acids

Organic acids reported in *NUTTAB 2010* include acetic acid, citric acid, fumaric acid, lactic acid, malic acid, oxalic acid, propionic acid, quinic acid, shikimic acid, succinic acid and tartaric acid in a small range of foods including some fruits, vegetables, beverages, dairy (including cheese and

milk), legumes, soups and fermented foods such as yoghurt. They have generally been determined by chromatography.

Minerals

Trace element scan

From around the mid 1990s onwards, minerals other than selenium have been determined largely by inductively coupled plasma atomic emission spectroscopy (ICP-AES) (for sodium, potassium, calcium, magnesium, phosphorus and sulphur) or by inductively coupled plasma mass spectrometry (ICPMS) (for aluminium, chromium, cobalt, copper, iodine, iron, manganese, molybdenum, nickel, tin and zinc). Selenium and arsenic have generally been analysed by hydride generation. Data derived from the Australian Total Diet Studies (ATDS) for antimony, arsenic, cadmium, copper, lead, mercury, selenium, tin and zinc have been generated using ICPMS. Older samples have generally been analysed using atomic absorption spectroscopy.

Analysed antimony, arsenic, tin and mercury levels found in many foods are close to, or below, the limit of reporting and may be associated with a significant measurement uncertainty. Values below this limit are reported as zero in *NUTTAB 2010*.

Many sodium values have been updated since the time of analysis to reflect reductions in salt use in some categories of processed foods.

Fluoride and iodine

Fluoride is determined using a specific ion electrode and chloride by back titration of excess silver nitrate using standardised sodium thiocyanate. The majority of iodine values were determined using ICPMS with a limit of reporting of 1-2 µg/100g. A few older values have been determined using a colourimetric method and have a limit of reporting of 10 µg/ 100g.

Vitamins

Retinol and carotenes

More recent retinol and carotene values reported for analysed foods have been determined using HPLC with ultraviolet absorbance detection. Older analyses (from the 1980s) are likely to have used column chromatography.

Thiamin and riboflavin (B1 and B2)

Both these vitamins are generally determined by HPLC using fluorescence detection.

Niacin (B3)

HPLC techniques are now usual for analysis of preformed niacin, replacing older techniques that required reaction with cyanogen bromide.

Pantothenic acid (B5)

Vitamin B5 has been determined using acid hydrolysis followed by gas liquid chromatography (GLC). A microbiological method using *Lactobacillus plantarum* based on the AOAC method for

pantothenate in vitamin preparations may have been used in older analyses. This older method measures free pantothenates and does not include bound pantothenate. Recent food analytical programs have employed acid hydrolysis and analysis by gas liquid chromatography (GLC), with enzyme hydrolysis to liberate bound pantothenate.

Pyridoxine (B6)

Vitamin B6 is measured by reducing all forms of pyridoxine and measuring levels of pyridoxine hydrochloride using reverse phase HPLC with fluorescence detection.

Biotin (B7)

Vitamin B7 values have not been updated for a number of years. Analyses have been conducted by microbiological assay using *Lactobacillus plantarum*.

Cobalamin (B12)

Vitamin B12 is determined using a microbiological technique (using *Euglena gracilis*) developed for the assay of serum cobalamin levels.

Total folates and free folates

More recent analytical values are determined using the triple enzyme microbiological method (conjugase, protease and amylase). Older values were generally determined using a single enzyme (human plasma conjugase) microbiological assay using *Lactobacillus casei* var. *rhamnosis*.

Reported folic acid levels are either analysed (based on a microbiological assay that does not use enzyme pre-digestion), imputed from analysed values or from label data, or assumed zero if the product is unfortified.

Vitamin C

In analyses from approximately 1990 onwards, vitamin C has been determined using HPLC, whereas in studies from the 1980s, a microfluorimetric method may have been used. Both types of techniques measure both L-Ascorbic acid and dehydroascorbic acid, both of which have vitamin C activity.

Vitamin D

Vitamin D3 (cholecalciferol), 25-hydroxy vitamin D3, vitamin D2 (ergocalciferol) and 25-hydroxy vitamin D2 were determined by normal phase HPLC, with ultraviolet detection, of an extract from saponified sample. Levels of these substances are often below the LOR for most foods, except for fortified foods and a small number of other foods.

Vitamin D data are provided in a separate vitamin D file.

Vitamin E

Tocopherols and tocotrienols have been determined by HPLC using fluorescence detection. Alpha-tocopherol only was determined in some older analyses whereas from the late 1990s

onwards, beta-, gamma- and, in some cases, delta-tocopherol have also been analysed. Alpha-tocopherol has not been separated into specific stereoisomers.

Fatty Acids

Saturated, monounsaturated and polyunsaturated fatty acids

Individual fatty acids are determined by gas chromatography as a percentage of total fatty acids and conversion factors are used to estimate the levels of individual fatty acids present in the food on a mass basis, as follows using the example of oleic acid:

Oleic acid (g/100 g food) = oleic acid (% of total acids)/100*fat content*conversion factor

The conversion factors used in this publication are based on those specified by Greenfield and Southgate (2003), Mooney et al. (2002), Nichols, Virtue et al. (1998), Nichols, Mooney et al. (1998), Nichols et al. (2002) and, where otherwise unavailable, FSANZ. The factor selected is determined by a consideration of the major fat source in the food. For example, in pastry made with wheat flour and butter, almost all fat will come from added butter rather than from the wheat flour and therefore the fat factor for butter would be used.

Information on the conversion factors (or fat factors) used for each food is provided as part of the food file.

Polyunsaturated fatty acids include all *cis*-isomers of these acids (including omega-3 and omega-6 forms). With the analyses undertaken to date, it is not possible to quantify levels of fatty acids present at less than 0.1% of total fatty acids. In some of the older analyses used in NUTTAB, there may be misidentification of some long chain polyunsaturates.

A small selection of recent samples have also been analysed for trans fatty acids (including conjugated linoleic acid), and data for these samples are provided in a separate trans fatty acid file.

Amino Acids

Amino acids were determined in analytical programs conducted in the late 1980s and early 1990s by the then State Chemistry Laboratory of Victoria. Samples were hydrolysed and amino acids, other than tryptophan, measured using HPLC with an ion exchange column. Tryptophan was determined using a separate HPLC procedure or a colorimetric procedure. Some tryptophan values have been updated in recent analytical programs, but not values for other amino acids.

The majority of amino acid data are provided in a separate amino acid file.

Other

Caffeine

Caffeine levels were determined by the then State Chemistry Laboratory of Victoria in 2002, using reversed phase HPLC with diode array detection.

Cholesterol

Cholesterol has been determined by gas chromatography using potassium hydroxide in ethanolic solution. Plant sterols have not been determined.

Equated Data

Proximates

Energy

Energy is expressed in kilojoules (kJ) in *NUTTAB 2010*. One Calorie is equal to 4.18 kilojoules. Values are calculated from energy producing food components using the following formula, which is based on separate energy factors for each nutrient:

> Energy (kJ) = protein (g)*17 + sugars (g)*16 + other available carbohydrates (starch + dextrin + maltodextrin + raffinose + stachyose + other undifferentiated oligosaccharides + glycogen) (g)*17 + fat (g)*37 + dietary fibre (g)*8 + alcohol (g)*29 + sorbitol/mannitol /glycerol (g)*16 + citric/malic/quinic acids (g)*10 + lactic/acetic acids (g)*15.

Please note the energy factors used in this equation are not consistent with those specified for the calculation of energy in *Standard 1.2.8 – Nutrition Information Requirements* of the Australia New Zealand Food Standards Code ('the Code'), and therefore *NUTTAB 2010* energy values are not appropriate for use in nutrition labelling.

Standard 1.2.8 is available from the FSANZ website at the following link:

http://www.foodstandards.gov.au/foodstandards/foodstandardscode/standard128nutrition4235.cfm

Sugars, total

The total sugars value is determined by the following equation:

> Total sugars (g) = (fructose + glucose + sucrose + maltose + lactose + galactose) (g)

Carbohydrate

Available carbohydrate has been reported in two ways: both with and without sugar alcohols, using the following equations:

> Available carbohydrate *(excluding sugar alcohols)* (g) = (fructose + glucose + sucrose + lactose + maltose + galactose + maltotriose + starch + glycogen + raffinose + stachyose + other undifferentiated oligosaccharides + maltodextrin + dextrins) (g)

The equation above does not include sugar alcohols and is consistent with the definition of available carbohydrate in *Standard 1.2.8* of the Code.

Available carbohydrate *(including sugar alcohols)* (g) = (fructose + glucose + sucrose + lactose + maltose + galactose + maltotriose + starch + glycogen + raffinose + stachyose + other undifferentiated oligosaccharides + maltodextrin + dextrins + **sorbitol + mannitol + glycerol**) (g)

For foods derived using label information, the reported carbohydrate content may refer to either the available carbohydrate content or the carbohydrate content by difference. Likewise, for indigenous foods reported in the separate *NUTTAB 2010* file, the reported carbohydrate content refers to carbohydrate by difference, which is determined as follows:

Carbohydrate by difference (g) = 100 – (water + protein + fat + dietary fibre + ash) (g)

Vitamins

Vitamin A

Vitamin A values are expressed as Retinol Equivalents and are calculated from measured levels of retinol and carotenes, as follows:

Retinol Equivalents (μg) = (retinol + beta-carotene/6 + alpha-carotene/12 + cryptoxanthin/12) (μg)

Niacin equivalents

Niacin equivalents are calculated using the following equation, which includes preformed niacin (B3) and potential niacin derived from tryptophan:

Niacin equivalents (mg) = (B3 + niacin derived from tryptophan) (mg)

Niacin derived from tryptophan

The amount of niacin able to be formed in the body from the amino acid tryptophan is estimated as:

Niacin derived from tryptophan (mg) = tryptophan*0.017

Where a tryptophan value is not available, the niacin derived from tryptophan component is estimated instead from the protein content of the food:

Niacin derived from tryptophan (mg) = protein (g)*0.167

This component is added to preformed niacin to obtain niacin equivalents.
Use of protein instead of tryptophan appears to yield similar values for derived niacin, other than for fish.

Folates

Folate activity in a food may result from naturally occurring folates and from added folic acid. The total folate activity can be reported in two ways*:* as total folates and dietary folate equivalents.

Total folates

Total folate values are calculated from measured levels of naturally occurring folate and synthetic folic acid as added to fortified foods, as follows:

Total folates (µg) = (folate + folic acid) (µg)

Dietary folate equivalents

Dietary folate equivalent values are also calculated from measured levels of naturally occurring folate and synthetic folic acid, but also take into account the reported higher bioavailability of folic acid, as follows:

Dietary folate equivalents (µg) = (folate + folic acid*1.67) (µg)

Vitamin D

NUTTAB 2010 reports vitamin D values in a separate data file, both with and without a factor that takes into account the potentially higher bioavailability of the 25-hydroxy forms of vitamin D3 and D2:

Vitamin D3 with factors (µg) = cholecalciferol + ergocalciferol + (25-hydroxy cholecalciferol + 25-hydroxy ergocalciferol)*5 (µg)

Vitamin D3 without factors (µg) = cholecalciferol + ergocalciferol + 25-hydroxy cholecalciferol + 25-hydroxy ergocalciferol (µg)

Vitamin E

Vitamin E is calculated using the following equation:

Vitamin E (mg) = (alpha tocopherol + beta-tocopherol/2 + gamma- tocopherol/10) (mg)

Fatty Acids

Note: Fatty acid totals (particularly long chain omega 3's) published in *NUTTAB 2010* may be different to the totals calculated by NUTTAB users using the individual fatty acid values presented for each food in the database. This is because FSANZ calculated totals may include additional fatty acids not published in the final *NUTTAB 2010* database.

Total saturated fatty acids

The total saturated fatty acid value is the sum of the individual saturated fatty acids, which is expressed as both a percentage of the total fatty acid content and as g/100 g of food. Whether in grams or percentage, the total saturated fatty acids are determined by the following equation:

> Total saturated fatty acids = C4 + C6 + C8 + C10 + C11 + C12 + C13 + C14 + C15 + C16 + C17 + C18 + C19 + C20 + C21 + C22 + C23 + C24

Total monounsaturated fatty acids

The total monounsaturated fatty acid value is the sum of the individual monounsaturated fatty acids, which is expressed as both a percentage of the total fatty acid content and as g/ 100 g of food; it does not include trans-monounsaturated fatty acids. Whether in grams or percentage, the total monounsaturated fatty acids are determined by the following equation:

> Total monounsaturated fatty acids = C10:1 + C14:1 + C15:1 +C16:1 + C17:1 + C18:1 (or C18: 1ω7) +C20:1 + C20:1ω11+ C22:1 (or C22:1ω11) + C24:1 + undifferentiated fatty acids

Total polyunsaturated fatty acids

The total polyunsaturated fatty acid value is the sum of the individual polyunsaturated fatty acids, which is expressed as both a percentage of the total fatty acid content and as g/ 100 g of food; it does not include conjugated or trans-polyunsaturated fatty acids. Whether in grams or percentage, the total polyunsaturated fatty acids are determined by the following equation:

> Total polyunsaturated fatty acids = C18:2ω6 + C18:3ω3 + C18:3ω6 + C18:4ω3 + C20:2ω6 + C20:3ω3 + C20:3ω6 + C20:4ω3 + C20:4ω6 + C20:5ω3 + C22:2ω6 + C22:4ω6 + C22:5ω3 + C22:6ω3

Total long chain omega 3 polyunsaturated fatty acids

The total long chain omega three polyunsaturated fatty acid value is expressed as both a percentage of the total fatty acid content and as g/ 100 g of food. Whether in grams or percentage, the total long chain fatty acids are determined by the following equation:

> Total long chain omega 3 fatty acids = C20:5ω3 + C22:5ω3 + C22:6ω3

Total trans fatty acids

Trans fatty acid values are provided in a separate data file. The total trans fatty acid values are expressed as a percentage of the total fatty acid content. Values for total mono trans fatty acids and total poly trans fatty acids are also expressed as a percentage of the total fatty acid content, as well as mg/100 g of food. Whether in grams or percentage, the trans fatty acids are determined by the following equations. Note that the component names used in these equations come from different analytical laboratories, with the same component potentially being reported in slightly different ways:

Total mono trans fatty acids = C16:1T6 + C18:1T + C18:1T9 + C18:1T7

Total poly trans fatty acids = C18:2T + C18:2T9T12 + C18:2Tω6 + C18:3T + C18:3T9T12T15 + C18:2CLA

Total trans fatty acids = Total mono trans fatty acids + Total poly trans fatty acids

APPENDIX 1 – List of nutrients reported in *NUTTAB 2010,* including standard component name and INFOODS tag name

NUTTAB 2010 Nutrient Name	NUTTAB 2010 Standard Component	INFOODS TAG NAME	Units	Equated	File
Energy, including dietary fibre	ENERGY-04DF	ENERC1	kJ	✓	Main NUTTAB file Indigenous file
Moisture	MOIS	WATER	g		Main NUTTAB file Indigenous file
Protein	PROT	PROT	g		Main NUTTAB file Indigenous file
Nitrogen	NIT	NT	g		Main NUTTAB file Indigenous file
Fat	FAT	FAT	g		Main NUTTAB file Indigenous file
Ash	ASH	ASH	g		Main NUTTAB file Indigenous file
Dietary fibre	AOACDFTOTW	FIBTG	g		Main NUTTAB file Indigenous file
Ethanol	ETOHM	ALC	g		Main NUTTAB file
Fructose	FRU	FRUS	g		Main NUTTAB file Indigenous file
Glucose	GLUC	GLUS	g		Main NUTTAB file Indigenous file
Sucrose	SUC	SUCS	g		Main NUTTAB file Indigenous file
Maltose	MALT	MALS	g		Main NUTTAB file Indigenous file
Lactose	LACT	LACS	g		Main NUTTAB file Indigenous file
Galactose	GAL	GALS	g		Main NUTTAB file
Maltotriose	MALT3	MALTRS	g		Main NUTTAB file
Total sugars	TOTALSUGARS	SUGAR	g	✓	Main NUTTAB file Indigenous file
Starch	STARCH	STARCH	g		Main NUTTAB file Indigenous file
Dextrin	DEXTRIN	DEXTN	g		Main NUTTAB file
Glycerol	GLYCEROL	GLYRL	g		Main NUTTAB file
Glycogen	GLYCOGEN	GLYC	g		Main NUTTAB file
Inulin	INULIN	INULN	g		Main NUTTAB file
Mannitol	MANNITOL	MANTL	g		Main NUTTAB file
Maltodextrin	MALTODEXTRIN	MALTDEX	g		Main NUTTAB file
Oligosaccharides	OLIGOSACCH	OLSAC	g		Main NUTTAB file
Raffinose	RAFFINOSE	RAFS	g		Main NUTTAB file
Stachyose	STACHYOSE	STAS	g		Main NUTTAB file
Sorbitol	SORB	SORTL	g		Main NUTTAB file
Available carbohydrate,	AVAILCHO	CHOAVL	g	✓	Main NUTTAB file Indigenous file

NUTTAB 2010 Nutrient Name	NUTTAB 2010 Standard Component	INFOODS TAG NAME	Units	Equated	File
without sugar alcohols					
Available carbohydrate, with sugar alcohols	AVAILCHOCNS		g	✓	Main NUTTAB file Indigenous file
Carbohydrate, by difference	CHODIFF	CHOCDF	g	✓	Indigenous file only
Acetic acid	ACETIC	ACEAC	g		Main NUTTAB file
Citric acid	CITRIC	CITAC	g		Main NUTTAB file
Fumaric acid	FUMARIC	FUMAC	g		Main NUTTAB file
Lactic acid	LACTIC	LACAC	g		Main NUTTAB file
Malic acid	MALIC	MALAC	g		Main NUTTAB file
Oxalic acid	OXALIC	OXALAC	g		Main NUTTAB file
Propionic acid	PROPIONIC	PROPAC	g		Main NUTTAB file
Quinic acid	QUINIC	QUINAC	g		Main NUTTAB file
Shikimic acid	SHIKIMIC	SHIKAC	g		Main NUTTAB file
Succinic acid	SUCCINIC	SUCAC	g		Main NUTTAB file
Tartaric acid	TARTARIC	TARAC	g		Main NUTTAB file
Aluminium (Al)	AL	AL	ug		Main NUTTAB file
Antimony (Sb)	SB	SB	ug		Main NUTTAB file
Arsenic (As)	AS	AS	ug		Main NUTTAB file
Cadmium (Cd)	CD	CD	ug		Main NUTTAB file Indigenous file
Calcium (Ca)	CA	CA	mg		Main NUTTAB file Indigenous file
Chromium (Cr)	CR	CR	ug		Main NUTTAB file
Cobalt (Co)	CO	CO	ug		Main NUTTAB file
Copper (Cu)	CU	CU	mg		Main NUTTAB file Indigenous file
Fluoride (F)	F	FD	ug		Main NUTTAB file
Iodine (I)	I	ID	ug		Main NUTTAB file
Iron (Fe)	FE	FE	mg		Main NUTTAB file Indigenous file
Lead (Pb)	PB	PB	ug		Main NUTTAB file Indigenous file
Magnesium (Mg)	MG	MG	mg		Main NUTTAB file Indigenous file
Manganese (Mn)	MN	MN	mg		Main NUTTAB file Indigenous file
Mercury (Hg)	HG	HG	ug		Main NUTTAB file
Molybdenum (Mo)	MO	MO	ug		Main NUTTAB file
Nickel (Ni)	NI	NI	ug		Main NUTTAB file
Phosphorus (P)	P	P	mg		Main NUTTAB file Indigenous file
Potassium (K)	K	K	mg		Main NUTTAB file Indigenous file

NUTTAB 2010 Nutrient Name	NUTTAB 2010 Standard Component	INFOODS TAG NAME	Units	Equated	File
Selenium (Se)	SE	SE	ug		Main NUTTAB file
Sodium (Na)	NA	NA	mg		Main NUTTAB file Indigenous file
Sulphur (S)	S	S	mg		Main NUTTAB file
Tin (Sn)	SN	SN	ug		Main NUTTAB file
Zinc (Zn)	ZN	ZN	mg		Main NUTTAB file Indigenous file
Thiamin (B1)	B1	THIA	mg		Main NUTTAB file Indigenous file
Riboflavin (B2)	B2	RIBF	mg		Main NUTTAB file Indigenous file
Niacin (B3)	B3	NIA	mg		Main NUTTAB file
Niacin Equivalents	NIACIN EQUIVALENTS	NIAEQ	mg	✓	Main NUTTAB file Indigenous file
Pantothenic acid (B5)	PANT	PANTAC	mg		Main NUTTAB file
Pyridoxine (B6)	B6	VITB6A	mg		Main NUTTAB file
Biotin (B7)	BIOTIN	BIOT	ug		Main NUTTAB file
Cobalamin (B12)	B12	VITB12	ug		Main NUTTAB file
Folate, natural	FOLFD	FOLFD	ug		Main NUTTAB file Indigenous file
Folic acid	FOLAC	FOLAC	ug		Main NUTTAB file
Total folates	FOLATETOT	FOL	ug	✓	Main NUTTAB file Indigenous file
Dietary folate equivalents	FOLDFE-04	FOLDFE	ug	✓	Main NUTTAB file Indigenous file
Alpha carotene	ACAR	CARTA	ug		Main NUTTAB file Indigenous file
Beta carotene	BCAR	CARTB	ug		Main NUTTAB file Indigenous file
Cryptoxanthin	CRYP	CRYPX	ug		Main NUTTAB file Indigenous file
Beta carotene equivalents	BCAREQ-04	CARTBEQ	ug	✓	Main NUTTAB file Indigenous file
Lutein	LUTEIN	LUTN	ug		Main NUTTAB file
Lycopene	LYCO	LYCPN	ug		Main NUTTAB file
Xanthophyl	XANTHOPHYL		ug		Main NUTTAB file
Retinol	RET	RETOL	ug		Main NUTTAB file Indigenous file
Retinol equivalents	RETEQ-05	VITA	ug	✓	Main NUTTAB file Indigenous file
Vitamin C	VITC	VITC	mg		Main NUTTAB file Indigenous file
Cholecalciferol (D3)	CHOOL	CHOCAL	ug		Vitamin D file only
Ergocalciferol (D2)	ERGCAL	ERGCAL	ug		Vitamin D file only
25-OH	25HCHOOL	CHOCALOH	ug		Vitamin D file only

NUTTAB 2010 Nutrient Name	NUTTAB 2010 Standard Component	INFOODS TAG NAME	Units	Equated	File
Cholecalciferol (25-OH D3)					
25-OH Ergocalciferol (25-OH D2)	25HERGCAL	ERGCALOH	ug		Vitamin D file only
Vitamin D3 equivalents, with factors	VITAMIND3EQ	VITDEQ	ug	✓	Vitamin D file only
Vitamin D3 equivalents, without factors			ug	✓	Vitamin D file only
Alpha tocopherol	ATOC	TOCPHA	mg		Main NUTTAB file
Alpha tocotrienol	ATOCOL	TOCTRA	mg		Main NUTTAB file
Beta tocopherol	BTOC	TOCPHB	mg		Main NUTTAB file
Beta tocotrienol	BTOCOL	TOCTRB	mg		Main NUTTAB file
Delta tocopherol	DTOC	TOCPHD	mg		Main NUTTAB file
Delta tocotrienol	DTOCOL	TOCTRD	mg		Main NUTTAB file
Gamma tocopherol	GTOC	TOCPHG	mg		Main NUTTAB file
Gamma tocotrienol	GTOCOL	TOCTRG	mg		Main NUTTAB file
Vitamin E	VITE	VITE	mg	✓	Main NUTTAB file
C4	S4	F4D0F	%T		Main NUTTAB file
C6	S6	F6D0F	%T		Main NUTTAB file Indigenous file
C8	S8	F8D0F	%T		Main NUTTAB file Indigenous file
C10	S10	F10D0F	%T		Main NUTTAB file Indigenous file
C11	S11		%T		Main NUTTAB file
C12	S12	F12D0F	%T		Main NUTTAB file Indigenous file
C13	S13	F13D0F	%T		Main NUTTAB file
C14	S14	F14D0F	%T		Main NUTTAB file Indigenous file
C15	S15	F15D0F	%T		Main NUTTAB file
C16	S16	F16D0F	%T		Main NUTTAB file Indigenous file
C17	S17	F17D0F	%T		Main NUTTAB file
C18	S18	F18D0F	%T		Main NUTTAB file Indigenous file
C19	S19	F19D0F	%T		Main NUTTAB file
C20	S20	F20D0F	%T		Main NUTTAB file Indigenous file
C21	S21	F21D0F	%T		Main NUTTAB file
C22	S22	F22D0F	%T		Main NUTTAB file Indigenous file
C23	S23	F23D0F	%T		Main NUTTAB file
C24	S24	F24D0F	%T		Main NUTTAB file Indigenous file

NUTTAB 2010 Nutrient Name	NUTTAB 2010 Standard Component	INFOODS TAG NAME	Units	Equated	File
Total saturated fatty acids (%)	TOT_SAT-04	FASATF	%T	✓	Main NUTTAB file Indigenous file
C10:1	M10	F10D1F	%T		Main NUTTAB file
C14:1	M14	F14D1F	%T		Main NUTTAB file
C15:1	M15	F15D1F	%T		Main NUTTAB file Indigenous file
C16:1	M16	F16D1F	%T		Main NUTTAB file Indigenous file
C17:1	M17	F17D1F	%T		Main NUTTAB file
C18:1	M18	F18D1F	%T		Main NUTTAB file Indigenous file
C18:1w7	M18W7	F18D1N7F	%T		Main NUTTAB file
C20:1	M20	F20D1F	%T		Main NUTTAB file Indigenous file
C20:1w11	M201W11	F20D1N11F	%T		Main NUTTAB file
C22:1	M22	F22D1F	%T		Main NUTTAB file
C24:1	M24	F24D1F	%T		Main NUTTAB file Indigenous file
Total monounsaturated fatty acids (%)	Total Monounsaturated Fat (%)	FAMSF	%T	✓	Main NUTTAB file Indigenous file
C18:2w6	P182W6	F18D2N6F	%T		Main NUTTAB file Indigenous file
C18:3w3	P183W3	F18D3N3F	%T		Main NUTTAB file Indigenous file
C18:3w6	P183W6	F18D3N6F	%T		Main NUTTAB file
C18:4w3	P184W3	F18D4N3F	%T		Main NUTTAB file
C20:2w6	P202W6	F20D2N6F	%T		Main NUTTAB file
C20:3w3	P203W3	F20D3N3F	%T		Main NUTTAB file Indigenous file
C20:3w6	P203W6	F20D3N6F	%T		Main NUTTAB file
C20:4w3	P204W3		%T		Main NUTTAB file
C20:4w6	P204W6	F20D4N6F	%T		Main NUTTAB file Indigenous file
C20:5w3	P205W3	F20D5N3F	%T		Main NUTTAB file Indigenous file
C22:2w6	P222W6		%T		Main NUTTAB file
C22:4w6	P224W6	F22D4N6F	%T		Main NUTTAB file Indigenous file
C22:5w3	P225W3	F22D5N3F	%T		Main NUTTAB file Indigenous file
C22:6w3	P226W3	F22D6N3F	%T		Main NUTTAB file Indigenous file
Total polyunsaturated fatty acids (%)	Total Polyunsaturated Fat (%)	FAPUF	%T	✓	Main NUTTAB file Indigenous file

NUTTAB 2010 Nutrient Name	NUTTAB 2010 Standard Component	INFOODS TAG NAME	Units	Equated	File
Total long chain omega 3 fatty acids (%)	LCW3TOTAL		%T	✓	Main NUTTAB file Indigenous file
C4FD	S4FD	F4D0	g	✓	Main NUTTAB file
C6FD	S6FD	F6D0	g	✓	Main NUTTAB file Indigenous file
C8FD	S8FD	F8D0	g	✓	Main NUTTAB file Indigenous file
C10FD	S10FD	F10D0	g	✓	Main NUTTAB file Indigenous file
C11FD	S11FD		g	✓	Main NUTTAB file
C12FD	S12FD	F12D0	g	✓	Main NUTTAB file Indigenous file
C13FD	S13FD	F13D0	g	✓	Main NUTTAB file
C14FD	S14FD	F14D0	g	✓	Main NUTTAB file Indigenous file
C15FD	S15FD	F15D0	g	✓	Main NUTTAB file
C16FD	S16FD	F16D0	g	✓	Main NUTTAB file Indigenous file
C17FD	S17FD	F17D0	g	✓	Main NUTTAB file
C18FD	S18FD	F18D0	g	✓	Main NUTTAB file Indigenous file
C19FD	S19FD	F19D0	g	✓	Main NUTTAB file
C20FD	S20FD	F20D0	g	✓	Main NUTTAB file Indigenous file
C21FD	S21FD	F21D0	g	✓	Main NUTTAB file
C22FD	S22FD	F22D0	g	✓	Main NUTTAB file Indigenous file
C23FD	S23FD	F23D0	g	✓	Main NUTTAB file
C24FD	S24FD	F24D0	g	✓	Main NUTTAB file Indigenous file
Total saturated fatty acids (g)	TOTALSATURATFD-04	FASAT	g	✓	Main NUTTAB file Indigenous file
C10:1FD	M10FD	F10D1	g	✓	Main NUTTAB file
C14:1FD	M14FD	F14D1	g	✓	Main NUTTAB file
C15:1FD	M15FD	F15D1	g	✓	Main NUTTAB file Indigenous file
C16:1FD	M16FD	F16D1	g	✓	Main NUTTAB file Indigenous file
C17:1FD	M17FD	F17D1	g	✓	Main NUTTAB file
C18:1FD	M18FD	F18D1	g	✓	Main NUTTAB file Indigenous file
C18:1w7FD	M18W7FD	F18D1N7	g	✓	Main NUTTAB file
C20:1FD	M20FD	F20D1	g	✓	Main NUTTAB file Indigenous file
C20:1w11FD	M201W11FD	F20D1N11	g	✓	Main NUTTAB file
C22:1FD	M22FD	F22D1	g	✓	Main NUTTAB file

NUTTAB 2010 Nutrient Name	NUTTAB 2010 Standard Component	INFOODS TAG NAME	Units	Equated	File
C24:1FD	M24FD	F24D1	g	✓	Main NUTTAB file Indigenous file
Total monounsaturated fatty acids (g)	Total Monounsaturated Fat (FD)	FAMS	g	✓	Main NUTTAB file Indigenous file
C18:2w6FD	P182W6FD	F18D2N6	g	✓	Main NUTTAB file Indigenous file
C18:3w3FD	P183W3FD	F18D3N3	g	✓	Main NUTTAB file Indigenous file
C18:3w6FD	P183W6FD	F18D3N6	mg	✓	Main NUTTAB file
C18:4w3FD	P184W3FD	F18D4N3	mg	✓	Main NUTTAB file
C20:2w6FD	P202W6FD	F20D2N6	mg	✓	Main NUTTAB file
C20:3w3FD	P203W3FD	F20D3N3	mg	✓	Main NUTTAB file Indigenous file
C20:3w6FD	P203W6FD	F20D3N6	mg	✓	Main NUTTAB file
C20:4w3FD	P204W3FD		mg	✓	Main NUTTAB file
C20:4w6FD	P204W6FD	F20D4N6	mg	✓	Main NUTTAB file Indigenous file
C20:5w3FD	P205W3FD	F20D5N3	mg	✓	Main NUTTAB file Indigenous file
C22:2w6FD	P222W6FD		mg	✓	Main NUTTAB file
C22:4w6FD	P224W6FD	F22D4N6	mg	✓	Main NUTTAB file Indigenous file
C22:5w3FD	P225W3FD	F22D5N3	mg	✓	Main NUTTAB file Indigenous file
C22:6w3FD	P226W3FD	F22D6N3	mg	✓	Main NUTTAB file Indigenous file
Total polyunsaturated fatty acids (g)	Total Polyunsaturated Fat (FD)	FAPU	g	✓	Main NUTTAB file Indigenous file
Total long chain omega 3 fatty acids (mg)	LCW3TOTALFD		mg	✓	Main NUTTAB file Indigenous file
Undifferentiated fatty acids (%)	FAUNDIFF		%T		Main NUTTAB file
Undifferentiated fatty acids (mg)	FAUNDIFFFD	FAUN	mg	✓	Main NUTTAB file
C16:1T6	M161T6	F16D1TF	%T		Trans fatty acid file only
C18:1T	M18T	F18D1TF	%T		Trans fatty acid file only
C18:1T9	M181T9	F18D1TN9F	%T		Trans fatty acid file only
C18:1T7	M181TW7	F18D1TN7F	%T		Trans fatty acid file only
Total monounsaturated trans fatty acids -	TOTAL_TRANSMONO (%)	FATRNMF	%T	✓	Trans fatty acid file only

NUTTAB 2010 Nutrient Name	NUTTAB 2010 Standard Component	INFOODS TAG NAME	Units	Equated	File
calculated (%)					
C18:2T	P182T	F18D2TF	%T		Trans fatty acid file only
C18:2CLA	P182CLA		%T		Trans fatty acid file only
C18:2T9T12	P182T9T12		%T		Trans fatty acid file only
C18:2Tw6	P182TW6	F18D2TN6F	%T		Trans fatty acid file only
C18:3T	P183T		%T		Trans fatty acid file only
C18:3T9T12T15	P183T9T12T15		%T		Trans fatty acid file only
Total polyunsaturated trans fatty acids - calculated (%)	TOTAL_TRANSPOLY (%)	FATRNPF	%T	✓	Trans fatty acid file only
C16:1T6FD	M161T6FD	F16D1T	mg	✓	Trans fatty acid file only
C18:1TFD	M181TFD	F18D1T	mg	✓	Trans fatty acid file only
C18:1T9FD	M181T9FD	F18D1TN9	mg	✓	Trans fatty acid file only
C18:1T7FD	M181TW7FD	F18D1TN7	mg	✓	Trans fatty acid file only
Total monounsaturated trans fatty acids - calculated (mg)	TOTAL_TRANSMONO (FD)	FATRNM	mg	✓	Trans fatty acid file only
C18:2TFD	P182TFD	F18D2T	mg	✓	Trans fatty acid file only
C18:2CLAFD	P182CLAFD		mg	✓	Trans fatty acid file only
C18:2T9T12FD	P182T9T12FD		mg	✓	Trans fatty acid file only
C18:2Tw6FD	P182TW6FD	F18D2TN6	mg	✓	Trans fatty acid file only
C18:3TFD	P183TFD		mg	✓	Trans fatty acid file only
C18:3T9T12T15FD	P183T9T12T15FD		mg	✓	Trans fatty acid file only
Total polyunsaturated trans fatty acids - calculated (mg)	TOTAL_TRANSPOLY (FD)	FATRNP	mg	✓	Trans fatty acid file only
Total trans fatty acids (%)	TOTAL_TRANSFA	FATRNF	%T	✓	Trans fatty acid file only
Total trans fatty	TOTAL_TRANSFAFD	FATRN	mg	✓	Trans fatty acid file

NUTTAB 2010 Nutrient Name	NUTTAB 2010 Standard Component	INFOODS TAG NAME	Units	Equated	File
acids (mg)					only
Tryptophan (mg/g N)	TRYP	TRPN	MN		Main NUTTAB file Amino acid file
Tryptophan (mg)	TRYPFD	TRP	mg	✓	Main NUTTAB file
Alanine	ALA	ALAN	MN		Amino acid file only
Arginine	ARG	ARGN	MN		Amino acid file only
Aspartic Acid	ASP	ASPN	MN		Amino acid file only
Cystine + Cysteine	CSY	CYSN	MN		Amino acid file only
Glutamic Acid	GLU	GLUN	MN		Amino acid file only
Glycine	GLY	GLYN	MN		Amino acid file only
Histidine	HIS	HISN	MN		Amino acid file only
Isoleucine	ILEU	ILEN	MN		Amino acid file only
Leucine	LEU	LEUN	MN		Amino acid file only
Lysine	LYS	LYSN	MN		Amino acid file only
Methionine	MET	METN	MN		Amino acid file only
Phenylalanine	PHE	PHEN	MN		Amino acid file only
Proline	PRO	PRON	MN		Amino acid file only
Serine	SER	SERN	MN		Amino acid file only
Threonine	THR	THRN	MN		Amino acid file only
Tyrosine	TYR	TYRN	MN		Amino acid file only
Valine	VAL	VALN	MN		Amino acid file only
Caffeine	CAFFEINE	CAFFN	mg		Main NUTTAB file
Cholesterol	CHOL	CHOLE	mg		Main NUTTAB file

APPENDIX 2 - Summary of limits of reporting for *NUTTAB 2010* data in analytical surveys from 1989 - 2008

Nutrient	Units (per 100g)	1989	1993	1996	2002	2006	2008
		LOR	LOR	LOR	LOR	LOR	LOR
Moisture	g	0.5	-	0.5	0.2	0.2	0.2
Protein	g	-	-	-	0.2	0.5	0.2
Nitrogen	g	0.1	-	0.1	-	-	-
Fat	g	0.3	-	0.3	0.1	0.2	0.2
Sugars	g	-	-	0.1	0.1	0.2	0.2
Starch	g	-	-	0.5	0.2	0.5	0.1
Dietary fibre	g	-	-	0.5	0.5	0.5	0.5
Ash	g	-	-	0.1	0.1	0.2	0.2
Cholesterol	mg	1	-	1	1	1	1
Ca	mg	1	1	1	0.2	1	1
Cl	mg	-	1	1	0.1	-	-
Cu	mg	0.05	0.05	0.02	0.01	0.001	0.001
F	mg	-	0.05	0.05	0.02	-	-
Fe	mg	0.1	0.1	0.1	0.2	0.1	0.1
K	mg	1	1	1	1	1	1
Mg	mg	1	1	1	0.2	0.5	-
Mn	mg	0.05	0.05	0.02	0.01	0.001	0.001
Na	mg	1	1	1	1	0.5	0.5
P	mg	1	1	1	1	1	1
S	mg	-	2	2	-	-	-
Se	µg	-	1	1	2	1	2.5
Zn	mg	0.1	0.1	0.1	0.01	0.001	0.001
Thiamin	mg	0.05	0.05	0.05	0.025	0.05	0.02

Attachment 2

Nutrient	Units (per 100g)	1989	1993	1996	2002	2006	2008
		LOR	LOR	LOR	LOR	LOR	LOR
Riboflavin	mg	0.05	0.05	0.05	0.05	0.05	0.05
Niacin*	mg	0.2	0.2	0.2	0.5	0.5	1
Vitamin C	mg	1	1	1	1	1	1
Retinol	µg	5	5	5	5	5	5
Tocopherols	mg	-	0.1	0.1	0.1	0.1	0.1
Carotenes	µg	5	5	5	5	5	5
Cobalamin	ng	-	50	50	5	20	20
Pyridoxine	µg	-	8	20	-	50	20
Pantothenate	µg	-	25	100	100	100	100
Biotin	µg	-	0.08	0.1	-	-	-
Folates	µg	-	-	-	10	1	3
Caffeine	mg	-	-	-	0.02	-	-
Fatty acids	%	0.1	-	-	0.1	0.1	0.1
Vitamin D3	µg	-	-	-	5	0.05	1
25-hydroxy D3	µg	-	-	-	0.5	0.05	0.1
Organic acids	mg	-	-	20	20	20	20

LOR = Limit of reporting

Note that these values are indicative only and may not represent all limits achieved for the range of matrices covered in all of the analytical programs conducted.

*Some values reported above are affected by the matrix under study; for example the 2002 LOR for niacin was determined in dry soup powders, a difficult matrix for analysis