Food composition databases for nutrition labelling: experience from Australia

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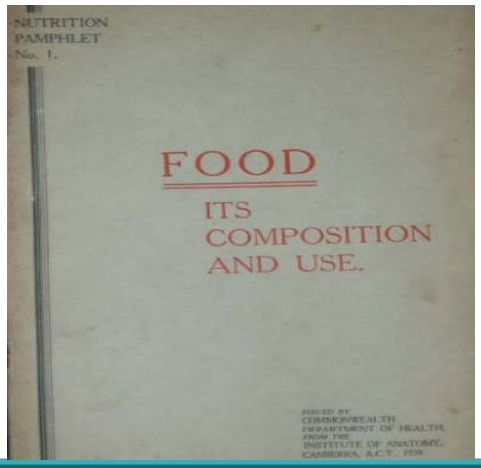
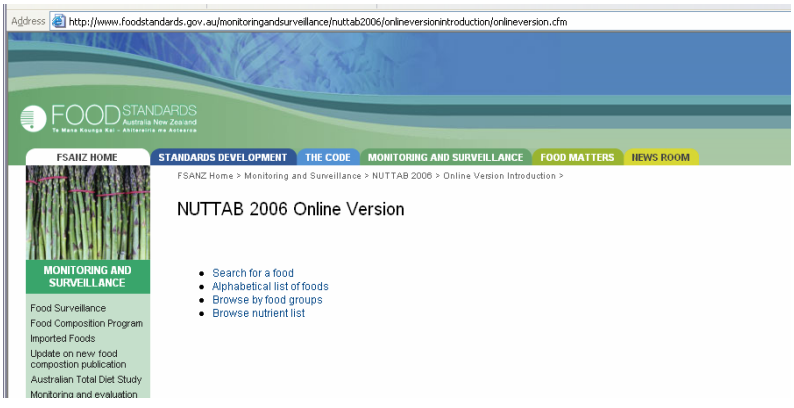
We set standards for the composition & labelling of foods supplied in Australia and New Zealand

8th International Food Data Conference
October 1-3, 2009
Bangkok, Thailand

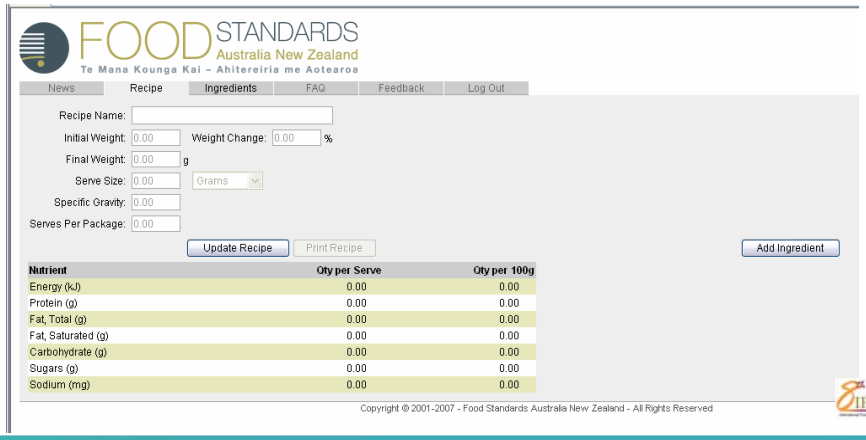
Australian food composition tables -1939:



Australian food composition tables -2006:



Nutrition Panel Calculator



Outline of presentation

- Consider why we have nutrition labelling
- Discuss how food composition databases can be used for nutrition labelling
- Draw on the Australian experience with these databases
- Identify problem areas
- Use an example of potato crisps

Purpose of nutrition labelling

•"providing the consumer with information so that a wise choice of food can be made"

•"ensure that nutrition labelling does not describe a product or present information about it which is in any false, misleading, deceptive or insignificant"

Codex Guidelines on Nutrition Labelling CAC/GL 2-1985

Why prepare a labelling database?

1. As an alternative to direct analysis (but not permitted in some countries)
2. To provide guidance on when nutrients will be present at insignificant levels
3. To provide guidance on when a formulation change will affect nutrient levels
4. To assist with validation of analytical results
5. To assist with exports from your country

Features of a labelling database

- Purpose of a database determines its features
- Includes trade level ingredients
- Individual ingredients not mixed foods
- Only covers nutrients required on labels
- No missing nutrient values
- Data should be high quality

Steps in preparing a database

Understand the legal requirements for your country:

- Nutrients to be included
- Definitions of nutrients:
  - energy – what factors are used?
  - carbohydrates – sugar alcohols? by difference or by analysis?
  - Units – e.g. Calories or kilojoules?

Is it for export foods or only domestic foods?

Steps in preparing a database

Understand food production in your country:

- Major ingredients used (e.g. oils, starches)
- Common foods sold in your country
- Categories of foods where greater focus is required

Steps in preparing a database

Prepare your data:

- Update critical nutrient values, e.g. sodium, saturated fat
- Include food additives with their number
- Names used – include local and trade names

Other data you need to provide

A food composition database needs more than nutrient data:

- Weight change factors
- Nutrient retention factors
- Measures (e.g. Mass of 1 cup, 1 spoon)
- Density
- Edible portion information
- Simple and clear guidance for users

Problems in using nutrition databases

- Not suitable for all types of processing, including deep frying, salting, brining and fermenting,
  - ➢unless users have high level skills
- Not recommended if making a specific nutrition claim
  - ➢"reduced sodium", "low fat"

Problems in using nutrition databases: vitamins

- Greatest challenge for accurate labelling
- Difficult to develop reliable values due to processing and storage losses
- No retention factors for some modern processes
- Direct analysis can be difficult & expensive
- Some vitamins are also food additives

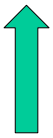
User Issues

- Users may not be skilled
- May not understand laboratory reports
- A calculation tool is very useful for this
  - Automates rounding
  - Deals with zero or less than values
  - Presents data in required format
- Still need to provide user support

Are the results reliable?

- We don't know how nutrition data prepared with a database compare to data generated by analysis

- Limited research on accuracy of nutrition panels suggests:



energy & protein

fat, sugars, fatty acids, sodium

Accuracy

Reliability of mandatory values

Nutrient	% accurate
Energy	>90
Protein	80 - 95
Fat, total	60 - 85
Sugars	60 - 85
Saturated fat	65 - 90
Sodium	70 - 80

From Fabiansson (2006)

Reliability of micronutrient data

Nutrient	% accurate
Vitamin A	27
Vitamin C	28
Vitamin D	33
Folic acid	45
Calcium & iron	50

New Zealand Food Safety Authority, 2006-2009

Ingredient information

Potatoes, vegetable oil (Palmolein, sunflower &/or canola oils), food acids (262, 330), salt, rice flour, sugar, flavour enhancer (621), dextrose, spice extracts, lactose

NUTRITION INFORMATION

Servings per package: 5.00
Serving size: 25.00 g

	Average Quantity per Serving	Average Quantity per 100 g
Energy	419 kJ	1680 kJ
Protein	1.0 g	4.2 g
Fat, total	8.0 g	31.8 g
- saturated	0.6 g	2.3 g
Carbohydrate	6.0 g	24.1 g
- sugars	0.2 g	0.9 g
Sodium	264 mg	1050 mg

Summary & conclusions

- Generating accurate nutrition labels is challenging, whether by direct analysis or from food composition databases
- Food composition databases can provide an alternative to direct analysis in most cases
- Database needs to be comprehensive, industry focussed, aligned with regulation
- Some processes & nutrients unsuited

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