

Software packages under review

By Anny Dentener

In previous issues of FTNZ I have reviewed several nutrition software packages for their suitability to provide information needed under the new ANZFA nutrition panel requirements, and for product development against nutrition targets. As the end of 2002 deadline draws closer, time for a wrap up and a comparison of software versus other options including laboratory analysis.

Software options and their advantages/disadvantages.

Options for nutrition calculation	My ratings	Pros	Cons
ANZFA website www.anzfa.govt.nz or www.anzfa.gov.au	★	Free access. Cost limited to internet charges. Results in standard labelling format. Some food ingredients added. Easy to use. Helpful notes.	Hard to access, slow at times. Limited number of nutrients. Only hard copy as record. Have to re-enter common ingredients and intermediate products/bases. Poor word recognition. Uses Australian database.
FoodWorks Pro www.xyris.com.au (NZ1,050 incl. 2 years free upgrade). Free phone 0800 230 007	★★★★★ FTNZ April 2001	NZ database. Very easy to use. Easy for target formulation. Good reporting options. Good price in comparison to lab analysis costs. Missing values indicated with '?'. Good filing in folders. Upcoming version 3 with ingredient listing incl. compound ingredients in ANZFA labelling format.	Limited nutrients (new fatty acid database in vs. 3). No sub-ingredient % list. No formula % or characterising % calculations. No costing.

Options for nutrition calculation	My ratings	Pros	Cons
Genesis R&D www.esha.com (US\$2,999)	★★★★ FTNZ May 2001	Big database (21,000 entries incl. food industry ingredients). Long list of nutrients incl. sugars, fatty acids, amino acids, taurine, with option to add more. Calculates % and costs. Sub-ingredients drawn into formula and final % incl. characterising % calculated. Missing values indicated as >.	Poor overview whilst target formulating. Lack of NZ foods data. High price. New foods in one database without sub-folders option. Uses old 9/4/4 rule for energy.
Hamilton Grant Recipe Module www.hamilton-grant.com (A\$17,000)	★★★ FTNZ Nov 2001	Integrated formulation/recipe management package linked to production, costing, labelling, allergen alerts etc. Can set up to use new ANZFA energy calculation rules.	Very expensive. Unstable during testing.
TechWizard www.owlsoft.com (US\$1,200)	★★★ FTNZ June 2001	Additional software features incorporated such as least cost formulation, reverse engineering, ice cream freezing and US label generation.	Clumsy interface and menu layout/options. Interferes with Excel settings. No NZ Foods database.
Serve NZ www.serve.com.au (NZ\$700)	★★ FTNZ Jan 2002	Search function. NZ Foods database.	Clumsy to use. Lack of on screen feedback. No missing value indication. RDI requires 3-stage loop.
Computer spreadsheet (e.g. use NZ FoodFiles; USDA Vol. 14; McCance and Widdowson)	★	Readily available. Can be set up to suit any nutrient or property. Could install databases to draw data from.	Error prone. Takes more time than software. Messier record keeping. Formulas needed to correct for yields or to final moisture%.

The ANZFA website Nutrition Panel Calculator, while free, has an Australian database and poor word recognition when searching (e.g. it could only find “*seeds, sesame*”, not “*sesame seeds*”). While allowing for correction for moisture loss/yields, it sometimes has incorrect data (butter is too salty in comparison with NZ). At times it is excruciatingly slow or not available. As no information can be stored, information for common food ingredients has to be re-entered each time. Access is best early in the morning before Australia logs on. At the time of writing this article the calculator was “not available till further notice”. This confirms the value of having my own PC-based software. The initial purchase cost is soon offset against frustration and time wasted using the NPC calculator.

An alternative is computer spreadsheet calculations, using NZ food data (see www.crop.cri.nz for food table options) as well as information from suppliers. Secondary sources of information are from the UK’s McCance and Widdowson, *The Composition of Foods* (6th summary edition due any day) or the USDA database Volume 14 from <http://www.nal.usda.gov/fnic/foodcomp/index.html> with around 6,000 foods. Advantages of the USDA database are that the dietary fibre data are by the now required

AOAC method. It lists fatty acids and amino acids, but not sugars however. More information on the test method issue for dietary fibre is available at www.ift.org.uk/hottop33. Overall, spreadsheets are cheap to run but can be time-consuming and error prone. A typical spreadsheet error spotted was for instance a burger chain understating % energy from fat exactly by the factor difference between a large fries, and 100 gram.

Software use is faster and more accurate. It can automatically adjust the recipe for water loss and "concentrate" all nutrients. I am convinced that calculating with software is the way to go with many advantages over spreadsheet use. So how to decide which software is best suited to your needs? Download a demo and test it. Check if the software can handle the nutrients you want to declare and/or know about. Can it handle the loss issues for your production process, does the database contain the kind of foods/ingredients you are using, and if not can you easily add them? For ease of use and reasonable pricing FoodWorks, with the complete NZ foods database, would suit most peoples needs and be my pick of the bunch. The version 3 upgrade (to be reviewed) promise of ANZFA label generation, %RDI declaration and ingredient statements including compound ingredients would further confirm this. Unfortunately it has limited data in the speciality food and ingredient area. When adding supplier data to your software database be critical as I frequently come across errors in specification sheets. FoodWorks also excels in (re)formulating products, for instance for "Pick the Tick", as it lets you easily identify nutrient contribution from the ingredients by clicking on the nutrient in the calculated information.

In need of more extensive nutrition data calculation or access to a database of 21,000 ingredients, then Genesis R&D software may be your choice. It has proven invaluable for me with its data on less common fresh foods and for formulating sport foods with its capability of tracking amino acids and fatty acids. It also has more off-beat ingredients like ginseng root and the ingredients for Sushi. However, price tag and lack of information on NZ standard foods is a drawback. If you are in the market for a full recipe management package consider Hamilton-Grant, but this option is very expensive just for nutrition calculation. TechWizard is only an option if you also need ice cream software.

If you do not have the time or inclination to calculate yourself than the options are to find a knowledgeable food technologist or nutritionist to do it for you, or to have your products analysed. Calculations generally offer considerable savings over analysis. So how does software calculation stack up against laboratory analysis?

	Software Calculation	Laboratory analysis
Pro	<p>Easy to use for formulation work, adjusting existing formulas, “what-if” scenarios.</p> <p>Cost effective, especially with flavour variants of a basic formula.</p> <p>Checks analytical results.</p>	<p>Generally accurate results with totals at 100 ±3 %.</p> <p>Worry-free (send it off and pay the bill).</p> <p>Better option for multi-stage and complicated products.</p> <p>Generally only option for fried products and drained products e.g. cheeses (whey loss).</p>
Con	<p>Results depend greatly on the “quality” and range of entries in the database.</p> <p>May have to use overseas data where no NZ ones available.</p> <p>Sometimes impossible to get info from suppliers for unusual fresh foods or exotic ingredients.</p>	<p>Expensive with analysis costing on average \$400 (without) to \$560 (with dietary fibre) per sample for a one-off analysis.</p> <p>Errors do occur at times.</p> <p>One-off pictures only, no help at (re-)formulation stages or variants.</p> <p>Risk of a non-representative sample due to processing and seasonal/growing variations.</p>

I found 6 laboratories that can analyse for nutrition labelling: AgriQual, Amdel, Cooke Laboratories and SGS in Auckland with the Massey University Nutrition Laboratory in Palmerston North and the Cawthron Institute in Nelson. Costs vary considerably, but all mentioned that costs were negotiable for larger lots and/or ongoing contracts. Also verify laboratory accreditation status, check turn around time (5-28 days) and take into account your other ongoing analytical needs e.g. microbiological testing.

Both calculation and analysis can go wrong. An example spotted recently was when I noticed that two cereals next to each other on the shelf claimed approximately the same energy level, with one stating a 10% higher fat level. Discrepancies between calculation and analysis are generally due to wrong supplier information, poor sampling, natural variations and/or plain errors. Always make a comparison with similar products and double-check analytical results with a theoretical calculation, even if you have to estimate for some of the ingredients.

Do not leave compliance with the new labelling regulations to the last minute. You probably will find that packaging and label companies are too busy to cope. Redoing labelling also presents the ideal opportunity to reformulate products, get new designs and/or change suppliers. Allow at least 5-6 months for the whole process. Whichever way you decide to sort out your nutrition labelling the message has to be: GET ON WITH IT.

Anny Dentener is an independent Food Technology Consultant and founding FoodInc member (www.foodinc.co.nz). Contact: anny.dentener@xtra.co.nz.

Original article published in the “Food Technnology in New Zealand” magazine, March 2002, Volume 37 (3): 6-7. Copyright © Anny Dentener 2002.