

Nutrition Labeling

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The Nutrition Labeling session was a hands-on laboratory allowing participants to use "Genesis R & D" (version 4.2, 1994, ESHA Research, Salem, OR) software to determine nutritional profiles and develop nutrition labels for meat products. This software will calculate all macro- and micronutrients, fatty acid profile, cholesterol and amino acids, using the USDA data base. Ingredient names (salt, water) are entered into the spreadsheet format, then the software searches its ingredient entries for the ingredient. Once found, the specific ingredient is selected, the amount is specified and the nutrient data is added to the record.

Some of the features of this software that make it particularly well-suited for meat products include: (1) It contains a "fat formulator" function which will mix lean of a user-specified fat content with fat of a user-specified fat content either in specified proportions (pounds of lean and fat) or to a desired fat content. In either case, the software will calculate the nutrient profile of the finished product. (2) It allows for various kinds of "adjustments" to be made prior to determination of nutrient content. Adjustments include user-determined moisture, fat and processing losses, and modification of the nutrient profile of ingredients stored in the data base to more closely match those being used by a particular processor. (3) Commonly used mixtures (custom-blended spices) can be entered into the data base either by creating a "foodlist" of ingredients already in the data base (salt, pepper, mustard, etc.) in specific proportions or by entering the nutrient profile for the specific mixture provided by the supplier. This feature reduces data entry time for each individual formulation. (4) The program allows the user to select nutrients to be displayed on the label, to adjust serving size and common household measure, and to determine number of servings per package. (5) The user can enter unit costs for ingredients into the data base, simplifying calculation of per-package or per-serving costs and making possible least-cost formulations. (6) The program will keep track of ingredients entered both individually and as a component of a mixture (salt plus salt in spice preblend) so that the ingredient listing will accurately reflect the ingredients present in descending order. (7) The user can produce labels in two formats, regular and simplified, whichever is most suitable for the product. (8) The program will determine whether

the label information complies with USDA and FDA requirements.

Prospective users should be aware of some limitations of this software that may affect both accuracy of calculated values and usefulness for specific applications. If a processor is producing FDA-approved products, he should see the FSIS guidelines for the use of data bases to calculate nutrient information for the purpose of nutrition labeling. Formulations are difficult for meat products because the lean and fat raw materials are the most variable; it is important for processors to validate the fat content of their raw materials (analytically) in order that the nutrient calculations will be accurate. The "fat formulator" function will mix only two ingredients together; if your application involves mixtures of more than two ingredients that contribute fat, this function cannot be used to mix them to a predetermined fat content. If the user attempts to enter an ingredient more than one time, the software will not accept the attempted entry. For example, salt might be entered as a single ingredient and salt might be entered again as a component of another ingredient mixture; this would occur if the ingredient mixture were entered component by component rather than as a "foodlist." This software does not calculate a range (tolerance) within which the content of any nutrient may vary, making it difficult for the processor to determine whether the values determined analytically are within 20% of the data base value. The data base lacks information on sugars, fiber and sodium for some ingredients. In spite of this deficiency, the data base values for sugars and fiber, other than those for breaded products, while not absolutely correct, will fit within the 80% to 120% range allowed for the actual content once the nutrient profile of the total product is calculated. However, because sodium content can vary dramatically in ingredients from different sources, it should be determined analytically on a periodic basis, then checked against the calculated value. The processor must know the correct serving size and number of servings per container or package; this information is contained in the Federal Register (January 6, 1994) and Technical Amendments or from the USDA.

Webb Technical recommends analytical verification of moisture, fat, protein, ash, sodium and sugar at the very least. If there is a significant disparity (2%) between the calculated values and those determined analytically, other nutrients should be checked. Checking the fatty acid profile is particularly useful in this situation because it will help the processor determine whether the fat source in the formulation is responsible for the deviations from the calculated values. As much as possible, the processor should use his own nutrient data (determined analytically and/or provided by suppliers) to increase the accuracy of the calculated values for his product. Vitamins A and C and calcium are probably insignificant in

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meat products other than liver and those containing nonfat dry milk. Use of erythorbate is not reported as vitamin C for the purposes of nutrition labeling.

The cost of Genesis R&D is about \$2,000; however, it is

available at a substantial savings to American Meat Processors members. "Genesis Light," which contains a reduced number of nutrients and limited options, is available for about \$500.