Insert after Part I

International Food Information Systems

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Part 2: Procedures for Coding and Processing Data

The unique features of the proposed International Food Information System allows the retrieval and organization of food composition data on many different levels of complexity, depending on the specific needs of the user. In addition to the specificity of data one may obtain, the alpha numeric organization of foodstuffs by a standardized name which is linked to descriptive parameters makes any data base generated by this system introconvertible to any other derived from this system via an appropriate transformation. Thus, the International Food Information System has the versatility to meet individual user needs while retaining the attributes of standardization. This paper describes the protocol for retrieving food composition data using this system.

Selection of Foods and Parameters

The initial step in producing a computerized data base from the master Food Information System is deciding what foods or food categories are to be included. These choices may be specific, such as, baked, top grade Idaho Russet potatoes; or a general classification, such as, potatoes. Once the food choices have been established, attributes or descriptions of these foods are selected, completing the matrix of the data base. The user then enters the components for the required data base using two tapes. The first is the name file tape containing the International Food Names and their International Food Numbers, as described by Dr. Harris in Part I. The specificity of the foods desired is controlled by using the proper number of name facets. The most detailed food would use all the facets whereas the general categories would collapse the data by using only one or two facets, such as "Origin" and "Part". Each food, whether general or complex has its own 5-digit code number. This code number links the first tape file to the second which contains the information or attributes about foods. The attributes are classed as parameters, such as, source of sample, kind of package, brand name, data source, etc. and as food composition data including analytical values for dry matter, macronutrients, vitamins, minerals, trace elements, additives, contaminants and toxins, among others.

Sorting the Data

The data is retrieved from the Food Information System by sorting on the desired parameters of the foods selected for inclusion in the data base to be

created. Foods may be sorted on any number or combination of attributes and food composition data which are linked to the food name by the International Food Code Number.

Summarizing the Data

Unless the entire Food Information System is to be used, some sort of summary of individual foods and the data from their individual source forms will be made to yield the desired data set. Summaries are automatically made on all data for food names which contain one or more detailed foods names in the same category. For example, a summary for "rice cereals" would be comprised of an average of all individual rice cereals and their attributes contained in the master food system data base. A user can also decide which attributes will be used and how they will be averaged. For example, the value for the amount of a specific nutrient, such as Vitamin B_6, in a summarized food may be given as the mean values and standard error of single assays of all samples of foods that qualify for the food summary. The mean may represent the mean value of 2 or more samples of the same food or the mean value of a nutrient from different sub foods. The type of summary would depend on the requirements and discretion of the user. Summaries can include all analytical assays and sources of data or specific methods and/or investigations may be chosen. Sources are printed out as one of the attributes, if desired.

Data on food composition can be retrieved as amount per humdred grams or converted to other amounts that are part of the Food Information Software System previously described.

Printout of Data

The data is printed out according to the choices of foods and their parameters described above. Each user receives the information in the format which corresponds to the specifications which were programmed to yield the required data. As seen in Figures 1 and 2, two different users required data on rice in different forms. The first (Figure 1) wanted data on cooked and raw rice as a grain. The first 5 columns represent the 5 facets of the International Food Name, followed by the Food Code for that specific food. The last 7 columns are attributes selected by the user. The attribute columns are determined by the requirements of the data base. In Figure 2, the user wished a summary of the attributes of all rice cereals. The process column is represented by the combined control cards on cereal processing that grouped all the appropriate cereal breakfast foods into the summary. Note that no specific source of data or brand

of cereal was designated. Therefore, all sources and brands of rice cereal were included in the composite food required by user 2.

Future Development

The International Food Information System provides a method for users to retrieve and generate food composition data according to their own needs. This process does require time and expertise and only a limited number of data base users would be willing to spend the time to research the foods and attributes best suited to their needs. Furthermore, some universal decisions should appropriately be made by an expert panel which would standardize and set policy for use of the International System. Some obvious situations are: naming of complex foods, methods of updating the data base and ways of dealing with missing or questionable data.

Since many users will have similar requirements which can be served by similar data sets, standard data bases can be constructed and used in the same way standardized software programs have been developed for statistical analysis. Thus, the International Food Data System could be accessed by any user on a level consistent with his objectives and expertise.

and the attribute codes are inserted across the top of the table. Information can then be punched and inserted into the system without putting it on a source form or a card format.

Another type of input is to code printouts from industry or from a laboratory. This information can be inserted into the system without putting it on a source form by following the same procedures as outlined under the third type described above.

Information for the User

The data are stored in the databank on a dry basis and preferred unit (metric system with all the parameter codes). If the user wishes to have information by states, for example, the raw data are sorted by state and then summarized. It would then be given to the user in this form. Of course, the data could also be sorted and summarized by any parameter or combination of parameters and summarized before giving it to the user.

On the other hand, many users of the data do not worry about all the parameters. In this case, the data could be summarized by country and put on-line or a tape of the information could be given to the user. If the data are on-line, the user could access it from a remote terminal. A conversion program may be needed to convert the data to serving portions or it could be put on-line in this form. The data could then be used to calculate diets for hospital patients or to calculate nutrient contents of a recipe.

It is proposed that an International System for making up a databank be implemented. Since the system described is flexible and open-ended, it could be readily adapted to the wishes of an International Group.

Insert Part 2 (see attached)