New Zealand Institute for Crop & Food Research Limited

- A Crown Research Institute

REPORT

of the

2ND MEETING OF THE NORTH AMERICAN

FOOD COMPOSITION REGIONAL DATA CENTER

Riverdale, Maryland, USA

16-18 September 1996

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1. SUMMARY

The second meeting of NORAMFOODS, September 16-18, 1996, at the United States Department of Agriculture, Riverdale, Maryland, USA, formalized the tentative structure for the North American regional data base proposed at the first meeting held in February 1995. It was agreed that NORAMFOODS would continue to be made up of representatives of Canada, Mexico, and the United States. In addition, the Mexican National Food Composition Data Center (MEXFOODS) would coordinate a network for the Spanish and French speaking countries of the Caribbean to be known as MEXCARIBEFOODS. The English speaking countries of the Caribbean will be covered by a regional data center in Jamaica to be known as CARICOMFOODS. Representatives of MEXCARIBEFOODS and CARICOMFOODS were represented at the meeting and will be invited to participate in future NORAMFOODS meetings.

In addition the second meeting established six working groups: recipe standardization; terminology and nomenclature; analytical methods and quality control; data quality identification; statistical issues; and industrial ingredients data base. The first of these will be coordinated by Miriam Chavez of MEXFOODS, the second by Danielle Brulé of CANADAFOODS and the remaining four by USDA personnel.

MEXFOODS and NORAMFOODS are already using INFOODS tagnames which facilitate data interchange within the INFOODS system. Both CARICOMFOODS and CANADAFOODS will incorporate them in their data bases as soon as possible. Joanne Holden was elected coordinator of NORAMFOODS for a two year term. It was agreed that NORAMFOODS would meet annually.

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2. REVIEW OF UNU/INFOODS ACTIVITIES

AND INFORMATION RESOURCES

B A Burlingame, INFOODS Coordinator

Aims and objectives of INFOODS

The International Network of Food Data Systems (INFOODS) was established to provide leadership for the development of standards and guidelines for generating, compiling, and reporting food composition data. The foundation meeting in January 1983, in Bellagio, Italy was organized by the United Nations University with participation of FAO and WHO. Its purpose was "to explore the needs for and the limitations of food composition data bases...and to propose what was needed." Out of this conference came the design and scope of an international network to be designated as INFOODS that would "promote international cooperation in the acquisition and interchange of quality data on the nutrient composition of foods, beverages, and their ingredients in forms appropriate to meet the needs of government agencies, nutrition scientists, health and agriculture professionals, policy makers and planners, food producers, processors and retailers, and consumers."

To fulfil this purpose, INFOODS has undertaken the following responsibilities: 1) establishing a network of regional data centers, 2) creating an organizational administrative framework for various expert task forces, 3) acting as the generator and repositor of special international data bases, 4) providing stimulus for national data base programs, and 5) providing a general and specific resource for persons and organizations interested in food composition data on a worldwide basis.

Organisation of INFOODS

In 1983, UNU accepted responsibility for administering INFOODS and, in addition, support was received for three years from the U.S. National Cancer Institute. With the combined support, INFOODS established a secretariat and several regional data centres. In 1994, FAO proposed to re-establish its activities in the area of food composition, and in 1995 FAO became a partner with UNU in the promotion of INFOODS.

Activities and publications 1987 - 1994

Through a UNU sponsored IUNS committee, INFOODS was able to ensure the completion of four key publications, all of which are available from UNU Press distributors or UNU offices worldwide.

Food Composition Data: A User's Perspective **(UNU, Tokyo, 1987)**

Based on a conference in Logan, Utah in March 1985, this volume presents the views and experiences of prominent workers in the field concerning the importance of food composition data, current problems, and what must be done to improve the situation. It provides an essential introduction and survey for anyone interested in or expecting to be involved with gathering, compiling, and using food composition data. It emphasizes the ways in which food composition underpins research and policy in important areas of public health, dietetics, nutrition, and epidemiology as well as being critical for the food industry and key decisions made by bilateral and international assistance agencies. It is a useful reference for university courses on food and nutrition.

Compiling Data for Food Composition Data Bases (UNU, Tokyo, 1991)

Food composition data have been compiled into many data bases throughout the world. As the uses of these data increase, larger numbers of individuals and organizations become involved in the compilation, and thus the need for guidelines on the gathering, formatting, and documentation increases. This document describes and presents recommendations for the procedures involved with compiling the values for food composition data bases, including direct analysis, calculated representative values, "borrowed" data from other sources, estimated data from similar foods, and estimated/calculated data from ingredients.

Identification of Food Components for Data Interchange (UNU, Tokyo, 1989)

The effective use of food composition data requires the precise identification of the nutrients and other food components actually measured. Common names for food components are often applied to a variety of methods of analysis, or combinations of chemicals that can result in different quantitative values for what appears to be the same food component. This book provides the first comprehensive standardization of nomenclature for international nutrient data exchange. It sets out a straightforward set of rules for identifying food components precisely and constructing data bases suitable for transfer between computers.

INFOODS Composition Data Interchange Handbook (UNU, Tokyo, 1992)

This volume provides information and guidelines about requirements for food composition data, the identification of nutrient and non-nutrient components of foods, the computer representation and accurate interchange of food composition data, and on the organization, compilation, and content of food composition tables and data bases. It presents the structure and rules for moving data files between countries and regional organizations in a way that preserve all of the information available. The approach also alerts the developer of data bases about potential areas in which

ambiguities are likely and where special care should be taken to improve overall data base quality.

Establishment of an International Journal of Food Composition

The Bellagio meeting also urged investigation of the "feasibility of establishing an international journal devoted to food composition studies." It was felt that such a journal would facilitate adoption of guidelines by the scientific community, serve as an information source for any future revision of the guidelines, and provide a means for dissemination of the findings and critical reviews in all areas of food composition. In 1987 the United Nations University established the Journal of Food Composition and Analysis as a co-publication with Academic Press, with Kent Stewart as the editor. This Journal, now in its tenth year, publishes manuscripts on all scientific aspects of the data on the composition of human foods with particular emphasis on analytical methods, actual compositional data, and studies on the statistics, use and distribution of such data and data systems. Information on subscriptions can be obtained from Academic Press, 6277 Sea Harbor Dr., Orlando, FL 32887-4900, USA.

Directory of International Food Composition Tables and Data Bases

A listing of all available food composition tables and data bases has been compiled and distributed by INFOODS. There are currently more than 200 national, regional and global food composition tables in use around the world that contain some unique data. The directory is available on the INFOODS World Wide Web site, or in printed form from the New Zealand secretariat.

Food Composition Data: Production, Management and Use (H. Greenfield and D.A.T. Southgate, 1992. First printing, Elsevier. Reprint with corrections, Chapman & Hall)

UNU provided support for Dr. Heather Greenfield of Australia to spend a sabbatical year in Norwich, England working with Dr. David Southgate to provide an updated version of his classic manual. Published in 1992, this book systematically and authoritatively covers the initiation and organization of a food composition data program, including the selection of foods, sampling, choice of analytical methods, quality control, conventions and modes of expression of data, nutrients to include and guidelines for use. It is an essential companion to the other INFOODS manuals described above.

Guidelines for Food Nomenclature

A UNU-IUNS Committee chaired by Stewart Truswell developed a document that was reviewed at a meeting in Copenhagen in July, 1987 and published in the Journal of Food Composition and Analysis, as "INFOODS Guidelines for Describing Foods: A Systematic Approach to Describing Foods to Facilitate International Exchange of Food Composition Data (Truswell et al.,1991). This report is based on extensive international consultations and is intended to be culture-independent. It presents guidelines for describing foods with the intent of facilitating the interchange of food composition data between nations and cultures by compilers of nutrient data bases. The system is a broad, multifaceted, and open-ended description mechanism using a series of descriptors. The committee has been re-established and is now developing more detailed approach to complement and expand the earlier work taking new technological developments into consideration. Reprints of this paper can be obtained from the Journal.

Electronic resources

INFOODS has developed three electronic information/communications resources which operate via the Internet: the FOOD-COMP list, the FOOD-TAG list, and a WorldWideWeb server.

The FOOD-COMP group, created in 1993, is operated for the purpose of discussing issues and disseminating information to the entire food composition professional community. The procedure for joining this list is to send an e-mail to **mailserv@mailserv.fao.org**

leaving the subject blank and putting a one-line message :-
subscribe Infoods-Food-Comp-L

A Welcome message will then be sent to you, telling you how to post and how to unsubscribe.
Mail messages can then be posted to **InFoods-Food-Comp-L@mailserv.fao.org**
Discussions on this list cover a spectrum of topics from sampling, sample preparation and methodological details, to naming conventions, and data presentation formats and expressions. Other information is often transmitted on this list, including announcements of conferences and meetings, availability of resource materials, and other notices of relevance to those engaged in food composition activities. Discussions, questions and relevant information notices are posted to this electronic list and disseminated to approximately 300 people world-wide. The most significant development in the last year is the large number of list subscribers from developing countries, including India, Pakistan, China, Indonesia, Thailand, Vietnam, Bolivia, Peru, Guatemala, Jamaica, Zimbabwe, Ghana, and others.

The FOOD-TAG Registration List, also created in 1993, involves a very small group of participants to update the food component identifiers. New tagnames are proposed according to an established formula. They are posted to the list, discussion is called for and if no discussion or dispute occurs within 30 days, the tag is officially registered and added to the master list. Participation is by invitation or by special request to the Secretariat. In the last year, approximately 50 new food components, many of which are specific to a particular method of analysis, were added as tagnames. Examples include food component recently acknowledged as having properties affecting health such as the carotenoids lycopene and cryptoxanthin; components required for international trade in foods such as "fat" expressed as the triglyceride equivalents of fatty acids that is required on all labels of all foods imported into the United States; and rough calculations used to approximate nutrient content when the chemical methods are too expensive such as calculating potential niacin from the average tryptophan content of protein.

The INFOODS WWW site was constructed in 1994. It contains a collection of news, data, and documents relating to INFOODS and the regional data centres. It can be accessed using any Web browser:
THE INFOODS WEB SITE

Activities and publications since 1995 and work in progress

Data quality committee meeting

A two-day international meeting on data quality took place under the auspices of INFOODS, at US Dept of Agriculture offices, in June 1995.

Participants were from the USA, Thailand, Chile, Zimbabwe and INFOODS. Some of the issues examined included the need for data quality indicators in a food composition data system; their applications in retrospective data evaluation, and production and evaluation of new data; their advantages/uses; the different types of component values in a food composition data base to which they could be applied; the baseline data quality parameters for analytical data and derived data; and how data quality should be represented in a food composition data system.

Some of the follow-up activities include surveys in countries where some data quality/source information is currently supplied to users, to determine how widely the information is used and how it is applied. A second survey is also being prepared for data users who do not receive quality indicators, to determine how they would make use of the indicators if supplied.

Food nomenclature and terminology meeting

A working group convened to determine the tasks for an expert committee on food nomenclature and terminology. This one-day meeting was hosted by the US Dept of Agriculture at their offies in June 1995, with the same participants as the data quality meeting. The first item addressed was the affirmation of the need to re-convene an international committee pertaining to food terminology, nomenclature, and descriptors. The tasks for this committee, as recommended by this working group, were as follows: review systems currently in use to determine the feasibility of linking them; determine if it is possible for a single food description language or a set of minimum criteria to be adopted among various countries; assume responsibility for the compilation of an electronic international food description dictionary/thesaurus/concordance, possibly including food images; describe and contrast the various systems for users, perhaps on the Internet, to see where the systems are complementary and where are they in conflict; and prepare an update, as a continuation of the development of the INFOODS system, previously published in the Journal of Food Composition and Analysis.

WorldFood Dietary Assessment System

INFOODS is supporting the updating of an international dietary assessment system, WorldFood, developed at the University of California at Berkeley. The WorldFood System is designed to facilitate rapid dietary assessment using an IBM-compatible personal computer. A list of 1800 foods, reported in six countries (Egypt, Kenya, Mexico, Senegal, India, and Indonesia) has been compiled and can be accessed through user-friendly menus. The data are taken from published food composition tables, or imputed if no analytic data are available; there are no missing entries. The source of each entry is documented and INFOODS tagnames are being incorporated as component keys. WorldFood will be supplied to investigators undertaking dietary research projects in developing countries. Information on obtaining the disks and manual can found on the INFOODS WWW Server or from the Secretariat.

Fellowships and training awards

Fellowships: During the last year, many INFOODS fellowships were awarded, including several to attend the 1st and 2nd International Postgraduate Course on the Production and Use of Food Composition Data in Nutrition, held in Wageningen in 1992 and 1994; ten to attend Food Comp '96 in Wageningen, one to a LATINFOODS scientist in 1994 and an AFROFOODS scientist in 1995 to study food composition data systems at the NZ Institute for Crop & Food Research.

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3. REVIEW OF FAO FOOD COMPOSITION ACTIVITIES AND RELEVANT UPCOMING EVENTS

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Food and Nutrition Division, FAO

FAO has a long and successful history, at the international level, in producing and disseminating food composition tables and relevant information. FAO started its activities in this field in the late 1940s and its first food composition table was published in 1949. In the 1960s and 1970s, FAO prepared regional food composition tables for Asia, Africa, Latin America and the Middle East in collaboration with both the US Departments of Health and Agriculture and INCAP, as well as various nutrition institutes. This series of publications was completed in the late 1970s and for a long time they have remained some of FAO's most sought-after publications. These tables were mainly a compilation of results of analysis of the composition of specific foods published in different countries and different journals. Although many countries have, since then, produced new data, these old tables are still in use and still in high demand because they are the only documents presenting food composition data at regional level in a comprehensive manner. Upon completion of these food composition tables for the developing regions, FAO reduced its work in this area and, in the 1980s UNU responded to continued interest in further work on food composition by setting up INFOODS.

The second period of FAO's direct involvement in the generation or compilation of data on food composition started with the ICN in December 1992. During this Conference, it was stated that food composition data is a major requirement for action in nutrition education, intervention on micronutrients, nutritional support for health care plans, food trade, food labelling and regulations and the integration of nutrition concerns in agricultural policies. The ICN plan of action recommended explicitly the establishment of updated food composition tables. In order to respond to these, FAO and UNU agreed that new joint work on food composition is needed to provide more accurate food composition data, based on additional analysis of foods in different parts of the world, or by better sharing of existing and validated data. At the same time the need for more detailed data, for instance on minerals (zinc, selenium), amino acids, etc. was expressed; it became clear that with improved analytical techniques and better knowledge of representation sampling, it would be possible to obtain data much more accurate than the existing published data. Improved food composition information would be used to meet the increasing needs of all users.

When FAO decided after the ICN to establish a Global Programme on Food Composition, it naturally decided to collaborate with INFOODS. The modalities of this collaboration were discussed at the informal meeting on international food composition activities in Rome (February 1993) and at the meeting in Tunis (March 1994). The overall purpose of FAO's programme in food composition is to promote generation and dissemination of reliable food composition data that meet the needs of local users.

At the same time, major events related to world trade, international food standards and consumer information have highlighted the fact that food composition data have broader applications than in the past. In fact, the largest change in the last several years is the need for food composition data to address issues of world trade and international food standards.

An important element in the food marketing chain is the control procedures necessary to assure that the food is safe, of high quality and is nutritionally sound. This element applies whether the food is a raw commodity, semi-processed, processed, manufactured or prepared. Implementing food control practices to assure food safety, quality, and nutritional value is of paramount importance. Food quality encompasses the basic composition of foods and aspects concerning food safety which are areas of particular interest to our Organization. As FAO undertakes the renewal of its nutrient food composition work, there is a need to link to the Organization's ongoing activities aimed at strengthening food control systems.

Because of the nature of work in food composition and its complexity, collaboration among different institutions and sectors is highly desirable - not only at national, but

also at international level. Summary of all these tasks is in the following tables: the regional model for action is given in Table 1, FAO areas of work are summarized in Table 2 and FAO's coordinating role is shown in Table 3.

In order to achieve all these objectives, FAO has several on-going activities. These activities include:

- The publication of Guidelines for an Effective Food Composition Program. The guidelines are to be targeted to government officials, laboratory managers, and food composition analysts in developing and transitional nations. These Guidelines are in preparation.

- The formulation of criteria for the assessment of data quality and data sampling. FAO is working with USDA where staff are producing expert systems for the evaluation of data quality.

- As a complement to the work already done by INFOODS and EUROFOODS, FAO is establishing a Directory of Institutions active in the field of food composition. The type of data on food composition that they generate and manage is also included.

- The support of training activities in the field of food composition such as the course organized by the Agricultural University of Wageningen where participants are trained in many aspects related to food composition. FAO also organized a three-week training workshop for Spanish-speaking countries which was held in Chile, in October 1995. This workshop included training in the areas of laboratory-based data compilation, and multimedia approaches to data dissemination. FAO intends to support similar workshops in other regions. A publication on this training workshop will be available this year.

- FAO is also providing direct support in specific developing countries where conditions for generating data are difficult. For example, assistance to the Ethiopian Nutritional Institute for laboratory upgrading, staff training and the preparation of a new food composition database has recently been completed.

- FAO is collaborating with INFOODS for the establishment or strengthening of specific regional networks. Support will be provided to facilitate an exchange of expertise between national institutions responsible for activities on food composition and the Regional Centres. Several meetings in different regions of the world have been already held, and review of all tasks discussed. A synthesis document based on conclusions and recommendations from all these meetings is under preparation.

- FAO is also providing support for the publication of revised food composition tables in various countries.

- In parallel with this support to regional networks or national institutions for the establishment of databases on food composition, FAO is using the new databases generated in specific countries to update the calculation of the nutrient content of national food supplies for each of the countries for which FAO Food Balance Sheets are published.

FAO's main role will be one of coordinator in assisting the Member Countries to establish effective and reliable networks on food composition data as well as to formulate and implement national food composition programs. However, these results can only be achieved with the collaboration of all the entities working in this field.

As already mentioned, the development of reliable, internationally comparable food composition data is one crucial element for improving nutrition in the world and FAO is fully committed to that goal. Improving nutrition is an issue of supreme importance to many millions of people throughout the world who are suffering from persistent hunger and malnutrition, and to others who are at risk of doing so in the future.

There is a general consensus today, that a complex set of causes determines hunger and malnutrition, and a wide variety of social and economic policies have a strong influence on all causes. Overcoming these causes in a sustainable cost-effective manner, will require actions at the highest levels of Government. It has therefore been decided to convene a World Food Summit to be held in Rome from 13 to 17 November 1996. Heads of State and Government from about 200 countries have been invited to gather at FAO Headquarters to agree on the blueprint for a coordinated campaign, in partnership with civil society and international organizations, to eradicate hunger and malnutrition and to achieve a lasting food security for all.

The participation of national leaders is instrumental in mobilizing all government ministries and agencies concerned with food security - from agriculture, fisheries, forestry and the environment to foreign affairs, trade, economy and developed cooperation. This wide involvement, along with the active participation of non-governmental organizations, the private sector and other groups, is essential for developing a sound and realistic draft plan of action for the Summit and subsequently for ensuring achievement of the Summit's goals.

Preparations for the Summit are being supported by a series of analytical papers on the state of knowledge about the problem of hunger and food security, and ways of eliminating it. These topics are:

- global developments in food and agriculture
- investments in agriculture
- water and food production
- food marketing, processing and distribution
- lessons from the green revolution
- problems of security and ethics
- the socio-political and economic environment
- food security assessment
- food security success stories
- food aid
- food production and population growth
- impact of food production on the environment
- food production and nutrition
- food and international trade
- agricultural research.

The high visibility of the Summit and its preparatory process also serves to draw public attention to the food security question and to stimulate debate in all sectors of society and in the media. As a world forum, the Summit will take a global perspective in dealing with all aspects of food security. At the same time, it will address the specific challenges faced by different regions of the world. The agreements reached at the Summit, in particular its plan of action, will place food - the first and fundamental requirement for life - at the top of the global agenda alongside peace and stability.

Table 1: Food composition - regional model for action

The regional model must be seen as a dynamic system of information handling for food composition data.

The system will perform functions such as:

- Generating and distributing continuous revisions to data on food composition that occur due to changes in product formulation, food processing techniques, food varieties, production systems, improvements in analytical techniques, and other changes.

- Formulating and updating standards and procedures that specify the minimum quality criteria required for food composition data.

- Maintaining a structure of committees of government and institutional representatives that will approve standards, procedures and priorities of work in each region.

Table 2: Food composition - FAO areas of work

- Promote and expand activities at national, regional and international centres active in food composition work in order to increase national and regional capacity to generate, manage and disseminate, in a timely manner, food composition information targeted to regional and national users.

- Assist in formulating standards on terminology for the identification of food and nutrients, sampling procedures for food, requirements for handling food samples, analytical methodology, and assessment criteria for data quality that will make the network data more compatible/harmonious across regions.

- Promote the dissemination and appropriate use of food composition data.

- Strengthen and build the capacity of institutions and individuals involved with all aspects of food composition work through training.

Table 3: Food composition - FAO's coordinating role

- FAO has the United Nations' mandate for activities that span all sectors related to food at the international level, such as Codex Alimentarius, food quality, food trade and food composition issues.

- FAO has a broad international mandate for food-related development issues that require food composition data.

- FAO has an established system of communication with national governments to promote food composition activities and regional cooperation at government level.

- FAO previously published food composition data for use in developing countries and these publications have had wide circulation for several decades.

- FAO is well-placed to shape actions on interdisciplinary problems which require an open forum to formulate solutions.

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4.1 THE CANADIAN NUTRIENT FILE

The Canadian Nutrient File (CNF) is a computerized, bilingual information bank containing average values for nutrients in foods available in Canada. Much of the data

in the CNF have been derived from the comprehensive USDA compilation of analytical data, USDA Handbook No. 8 plus subsequent supplements. Modification for Canadian levels of fortification, along with addition of Canadian only foods, as well as where appropriate, some brand name foods, form this standard Canadian resource for nutrient calculations.

Data Generation

Very little data generation is directly undertaken for the CNF. Analytical data is drawn from USDA Handbook No. 8 plus supplements. Industry and marketing boards commission analyses either in house or in a private lab or university setting. Data is also gleaned from scientific literature, particularly for some of the uniquely Canadian foods. However, the following government labs within the Health Protection Branch are capable of undertaking component analysis utilizing standard AOAC methods and instruments. The purpose of their analyses is to provide or verify food composition data in order to aid survey operations or to investigate food component issues related to health concerns. Their expertise is often sought in the verification process.

Macronutrients Chief, Dr. R. Mongeau

Micronutrients Chief, Dr. M. L'Abbé

Funds available for food nutrient analysis are very limited.

Projects currently underway include:

- Verification of reported total dietary fiber values in certain babyfoods, legumes, fruits and vegetables (Dr. Mongeau).
- Determinations of Total fat and fatty acid profiles of Canadian margarines (Dr. Ratnyake).

Data Compilation

Seven editions of the CNF have been distributed to date, the most current being the 1991 version. As reflected the status of information technology at the time it is in delimited ASCII. Work is well underway to release an updated version likely in ASCII which will read to WINDOWS- DBASE. The target for this release is the Spring of 1997.

The file is organized into three subfiles for ease of use in software programming: food name subfile, nutrient name subfile and nutrient amount subfile. There are 3910 foods in the Food Name Subfile which gives the present food code, the old Nutrition Canada

food code (if applicable), the name of the food (described in 60 characters) in both English and French, the year of data entry and four conversion factors. The conversion factors are food specific multipliers by which the nutrient values for each food may be multiplied to give the nutrients in described portions. The food code has been adapted from the new USDA food codes through addition of a third digit to aid in identifying source data. A systematic hierarchy is utilized for recording common foodnames. Elements which may be included are Product type, Breed, Part, Physical State Shape or Form, Cooking Method, Preservation Method, and/or Brand name.

For example:

CHICKEN, BROILER/FRYERS, THIGH, MEAT+SKIN, STEWED

CEREAL, READY-TO-EAT, MINI-WHEATS, FROSTED, KELLOGG'S

SOUP, CANNED, MUSHROOM, CREAM OF, CONDENSED +WHOLE MILK

The nutrient name subfile lists 98 different food components, their USDA nutrient codes, their units of measure, the number of foods which contain data for this nutrient (both numerically and as a percentage).

The nutrient amount subfile contains the nutrient values available for each food for 100 g edible portions, the standard error of the means and the number of observations. Each nutrient is flagged indicating its source. Although the flag will indicate the general source of data or data manipulations, specifics are rarely indicated. For example, a flag 4 will indicate a calculation utilizing USDA data, but will not indicate specifically which data. A combination of the third digit of the food code (above) and the nutrient flag, entails source documentation. Plans to further expand upon information provided regarding source and date of updates are underway. Carbohydrate values are calculated by difference; energy values are calculated using specific Atwater factors and is furnished in units of both kilocalories and kilojoules.

Records and logbooks are maintained as to procedures undertaken to procure the data, their verification and input procedures, although not in a routine or strict pattern. Since the creation of the CNF it has never been maintained by a staff greater that one. Therefore documentation tends to become personalized by each successor.

Data Dissemination

In addition to the CNF, the Health Protection Branch of Health Canada also publishes a smaller version of this database entitled *'Nutrient Values of Some Common Foods* in

both printed and electronic formats. This document is available in English and French versions.

The CNF is a multipurpose file distributed by government, with a wide range of clients. To list a few:

Client	Their Objectives With The Data	Number of Copies Sold
Other Federal Government Departments	Health Strategies, Statistics, Epidemiology, Regulatory	7
Public Health Units/Provincial Government	Nutrition Education, Epidemiology	10
Universities/Colleges	Research, Education	13
Bookstores	Service	16
Hospitals/Research Institutes	Metabolic, Research, Administrative	16
Software Developers	Provision of program features to meet specific target users	26
Private Dietitians	Dietary profile	34
Food Industry	Administrative, Regulatory	28
Other		9
Total		**159**

However, the numbers of copies sold are a very poor indication of the actual number of users.

Software developers 'repackage' our data for specific target groups. One copy sold to a large organization such as a University or Hospital, will likely end up on a network where many users can gain read only access.

In addition we receive and process many queries and requests related to the CNF, via telephone, fax and mail.

Year	Annual Total	Source			
		Government	Non-Government		
			Industry	Consultants	Public, Media
1993	300	94	64	171	98
1994	398	146	76	222	141
1995	350	167	70	233	64
1996 (6 mo.)	226	50	70	99	7

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4.2 COUNTRY REPORT - JAMAICA

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Background

To provide our regional policy-makers with vital food and nutrition information the Caribbean Food and Nutrition Institute (CFNI) analyzes various components in the food chain: food availability (at national level), accessibility (household), consumption (household and individual) and utilization (individual). Our most difficult task is to assess food consumption because of the lack of an appropriate food composition database in the Caribbean.

In 1996 CFNI obtained an grant from INFOODS which provided the opportunity to initiate the process of establishing a database that reflects the foods commonly consumed in Jamaica. We intend to expand this database to include foods from the wider Caribbean region.

The establishment of a food composition database is a complex and expensive process. Our first task therefore was to employ a systematic method in determining the priority Jamaican foods and products to be included. Secondly, we needed to ensure that the established database is compatible with others in the INFOODS system.

Determination of foods commonly consumed in Jamaica

CFNI conducted a qualitative study (carried out by Pauline Samuda) to obtain information on the priority foods to be included in the database based on the most commonly consumed foods across Jamaica.

Focus group discussions and interviews were used to obtain the critical information needed. Twenty focus groups were selected from a subset of the sample Enumeration Districts (EDs) from the Statistical Institute of Jamaica Survey of Living Conditions (SLC) 1995. Ten sampling regions (see figure) were selected from the 78 adopted for the SLC and distributed to the three area divisions of the SLC - Kingston Metropolitan Area (KMA) -2 , Other towns -3 and Rural areas -5. This was done in an attempt to have representation from various economic groups and geographical locations. In an

effort to have results reflect types of food consumed within households, we recruited the person responsible for food purchase and preparation, within each ED household. The focus group discussions were conducted using a pre-tested discussion guide. All sessions were tape recorded and later transcribed.

The results suggest a relative homogeneity in the types of foods consumed by households within the sample population. In general a total of 70 foods were mentioned by participants as being commonly consumed on a weekly basis by household members. Chicken (parts and back), rice (plain, rice and peas), yellow yam and green bananas were among the foods frequently consumed.

As expected there was much variation in consumption at weekends, by season, and among the young, adult and elderly populations.

Analysis of the study findings defined the list of foods and food products which formed the basis for including foods into the Jamaica database.

Strategies for obtaining compositional values

CFNI is currently compiling this database using direct and indirect methods. We are combining original analytical results with values taken form the literature and other databases as well as imputed and calculated values. The cost of the various methods, the priority of the food item, and the availability of valid alternative values, are the main factors considered in selection of foods for inclusion.

Based on the results of the qualitative analysis we are currently attempting to obtain values thus:

1. Proximal analyses - for foods where no valid values are available.

2. Search of published / unpublished reports - Investigations suggest that valid original analytic values on a number of foods commonly consumed by the Jamaican population exist in reports. Efforts will be made to collect these data for entry into the food composition database.

3. Calculated values - Compositional values calculated from the nutrient contents of the ingredients (corrected for preparation factors).

4. Imputed values - Values from databases such as INCAP, INFOODS and USDA foods similar to those being investigated.

Laboratories undertaking or capable of component analysis

1. Bureau of Standards - Statutory body, for Government regulatory purposes.

2. Scientific Research Council - Statutory body - Research.

3. Food Chemistry Department, University of the West Indies - Research.

4. Technological Solutions - private, previously Grace Technological Centre.

Analytical Instruments/Expertise locally available

NUTRIENT	METHOD OF ANALYSIS
Total calories	Calculation of fat, carbohydrate and protein content
Total fat	Soxhlet extraction
Fatty acids	Gas Liquid Chromatography
Cholesterol	Thin Layer Chromatography (TLC)
Total Carbohydrate	
a. starch content	Starch- Polarimetric method using acid reduction
b. sugar content	Sugar- Lane and Eynon titration
Carbohydrate (simple)	HPLC
Carbohydrate (complex)	Copper red method, enzymatic methods, TLC
Protein	Kjeldahl method
Calcium	Precipitation then titration with EDTA
Sodium	Flame Photometry
Vitamin C	Indo-phenol titration
Vitamin A	HPLC
Other Vitamins	Various microbiological methods
Cadmium	Extraction as Chelate then Atomic absorption
Mercury, Iron, Zinc, Potassium, Sodium	Atomic Absorption Spectrophotometry

Status of database

I. Modified Nutritionist IV

Existing Nutritionist IV database of 13083 foods has been expanded to include approximately 400 Caribbean foods and recipes, mostly Jamaican and Trinidadian. Some are commercial preparations (e.g. Grace products). Some of the Jamaican ones were analyzed by the Bureau of Standards but this is less comprehensive and includes only the macro-nutrients and a few micro-nutrients (minerals). Several foods from the Caribbean Food Composition Tables have also been added.

The original Nutritionist IV database, while providing complete analytical information contains mainly USDA data as well as Canadian, Malaysian and manufacturer's data, and does not contain several foods commonly used in the Caribbean region.

II. Food Composition Tables for use in the English Speaking Caribbean (Revised)

This was first published by the CFNI in 1974 and was revised in 1995, It includes food items commonly found in markets, supermarkets, local shops, sold by street vendors or prepared in homes throughout the Caribbean. The foods included were not analyzed locally. Most information is from USDA Human Nutrition Information Service Handbooks, the University of Texas FIAS data base for Puerto Rican foods, and the United Kingdom's collation of immigrant and other foods consumed frequently by its people. Because of this the data may not be representative of the Caribbean region. For example, many of the plant and fish species eaten in the Caribbean could not be found in any of the source documents and therefore are excluded. Moisture content of the staple foods and vitamin content of processed foods, fresh vegetables and fruits may also vary according to region.

The foods are grouped according to the sequence suggested by the FAO for reporting food consumption surveys or food balance sheets:

1. Cereals
2. Starchy Fruits, Roots and Tubers (ground provisions/produce)
3. Sugars and Syrups
4. Pulses, Nuts and Oilseeds
5. Green, Leafy and Yellow vegetables
6. Other Vegetables
7. Fruits
8. Meats
9. Poultry and Other Meats
10. Eggs
11. Fish and Shellfish
12. Milk and Milk Products
13. Fats and Oils
14. Miscellaneous foods
    and an extra group:
15. Composite dishes/Prepared foods

Most values given are for the edible portion of raw foods. The tables also include some data for cooked foods and ingredients of composite dishes. Items which may fall

into more than one group are cross referenced, e.g. Green pigeon peas may be grouped with the **pulses, nuts and oilseeds** or with the **vegetables.**

Proximate analyses

- Water: g/edible portion
- Energy: kcal - physiological energy values *(Caloric factors based on Atwater system - Specific factors for some foods are tabulated)*
- Protein: g
- Total Fat: g (Crude fat, ether extract - includes free fats, fatty acids, lecithin and some pigments)
- Saturated Fat: g/g food
- Cholesterol: mg
- Total CHO: 100% - (water + protein + fat + ash) *(includes fibre)*
- Dietary fibre: g
- Refuse as purchased: %

Minerals (mg)

- Calcium
- Iron
- Potassium
- Sodium
- Zinc

Vitamins

- Vitamin A (R.E.) μg (includes carotenes)
- Thiamin: mg
- Niacin: mg (does not include contribution by tryptophan)
- Total Folacin: g
- Cyanocobalamin: g
- Vitamin C: mg (reduced ascorbic acid)

Nine hundred and ninety-five foods are now included in the table, but a few values, particularly for the vitamins and minerals, are missing for some foods.

Naming of foods

Within each food group the foods are listed in alphabetical order by common names. Scientific names are given in parentheses and alternative names are sometimes given.

Problems with the Food Composition Tables

1. The names used for a particular food may differ in the various Caribbean countries. e.g. Cho-cho in Jamaica is known as christophene in the other countries.

In addition, the same name may be used for different foods, e.g. the fruit known as guinep in Jamaica and most other islands is called ackee in Barbados and St. Lucia. The Jamaican ackee is an entirely different fruit which must be cooked before eating and is not eaten in most other countries of the region.

With the wide range of cultures in the area such problems are perhaps inherent, and the usage of the alternative and scientific names in the list somewhat solve this problem.

2. Many foods commonly used in the region are not included, e.g. June plum/pommecythere/golden apple

3. Much of the data given is for raw foods and gain/loss of weight and loss of nutrients in cooking must be factored in.

Constraints and Future Projections

This report outlines the overall plan for the establishment of the database. The most critical constraint in achieving this is funding.

We recently obtained a grant from INFOODS which supported the necessary qualitative work, initiated some of the proximal analyses required and a limited literature search for valid values and calculations of foods.

Our immediate objective is to obtain funds to complete the analysis of the most commonly consumed foods in Jamaica so that the database will reflect the full range of priority foods.

The next objective is to extend this database to include priority foods from the other Caribbean countries.

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4.3 REPORT OF MEXFOODS TO NORAMFOODS

Miriam Munoz de Chavez

Data Generation

The participant laboratories are:

National Institute of Nutrition Institute "Salvador Zubiran", National Institute of Cancerology, Metropolitan University, University of Hidalgo, University of Campinas; Brazil and Consumer's Institute (laboratories).

The affiliation of the laboratories are:

National System of Certification of Laboratories, Secretary of Agriculture, Secretary of Commerce and Secretary of Health.

The main group (expertise available):

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  (52 5) 573-7333 x 2813
  Eduardo Mendez
  (52 5) 687-4426
- Efren Parada
  (52 5) 754-4910
- Ernesto Moreno (to be confirmed)
  (52 5) 622-4155
- Sergio Serna

Each Institute has some internal funds, but funds mostly depend on external financing, private industries and laboratories (Kellogg's and ILSI).

The current projects underway or being planned are:

- Analysis and compilation of:

- Autoctonous foods (115),

- Edible Insects (137),
- Desert plants (35),
- Edible flowers (25 species),
- Quelites (90 species).

Data Compilation

Status of Data Base

1. The database of our Food Composition Table is in process. At this moment there are 850 items (raw, cooked and prepared dish). The print edition has 613 foods. The database includes the first original foods analyzed at the old Institute of Nutrition between the years 1945 to 1947. The total foods analyzed at that time were 400 and the nutrients included were 14.

2. From 1953 many other data and analyzed foods were added and at present 36 nutrients are included.

3. We are in the process of documenting all the data.

4. Scientific name as well as the common names in Spanish (Mexico) and English language are stated for each food.

5. Key and tag names are given.

6. Foods are classified by groups.

7. Information on parts of the foods analyzed is provided for some foods.

8. Average and S.D., number of samples, technique of sampling and analysis will be provided when the documentation data will be completed on July 1997.

9. The CD-ROM version and the database (including images) will is expected to be ready by August 1997.

10. A detailed bibliography is included.

11. The 1996 review of the Recommended Dietary Allowances for Mexico are included.

12. The data base has 850 foods, including some autoctonous, edible insects and commercial foods. Foods from Cuba, Dominican Republic and Puertorrican tables are included.

13. The procedure for "naming" foods is according to Langual criteria and result of National Surveys on foods and master food code number.

14. The completeness of information is acceptable, documentation of most of the data is still missing.

15. INFOODS tagnames are used for identifying foods components.

16. Actual proximate expressions are: carbohydrate by difference, the main database use Atwater factors (4,4,9), protein factors are: N x 6.25, milk products: N x 6.38 and soy bean N x 5.7.

17. Source of Data, first food composition data for Mexico in 1943 and the 1953 data, United States, INCAP, and CHILE.

18. The documentation procedures used according to INFOODS guidelines, LATINFOODS, CTPD course (Chile 1995) and internal laboratory guidelines.

19. Data Dissemination Products:

Valor Nutritivo de los Alimentos de Mayor Consumo en Mexico segunda edicion revisada, 1992
Miriam M. de Chavez, Mercedes Hernandez, Jose Antonio Roldan.
Tablas de Valor Nutritivo de los Alimentos de Mayor Consumo en Mexico
Edicion Internacional, espanol-ingles
Editorial PAX, 1996
Miriam Munoz de Chavez, Jose Antonio Roldan, Jose Angel Ledesma Solano, Eduardo Mendoza Martinez, Adolfo Chavez Villasana
MEXFOODS, Mexican food composition tables, computerized version, 1996
Angel Ledesma, Miriam Munoz, Adolfo Chavez
MEXFOODS, Web Page 1996: http://pobox.com/~mexfoods
Email: mexfoods@pobox.com
19. The users are: National Institutes of Health, Universities, Research Centers, Food Industry, Medical and Nutrition schools, Public Health professionals, Students, Banks, National bourse, Ministry of Agriculture.

It is very difficult to calculate the number of actual users.

20. Products on preparation:

- MEXFOODS, Interactive CD-ROM , 1997

- Mexican Food Composition Tables, of Mexican Foods, Full Release 1997 37 nutrients, 850 foods. (with documentation)
- Other Food composition tables:
    - Autoctonous foods, full version
    - Carotenoids content in Mexican fruits and vegetables
    - Omega-3 contents in Mexican vegetables
    - Edible insects (137)
    - Quelites, 90 species
    - Edible flowers, 25 species
    - All edible oils.
- Amino acid, iron and zinc contents, in some selected foods*
- Review of the first food composition tables published in 1947* (Hector Bourges laboratory).

21. Special Requirements:

More funds! More computer equipment, including scanner, digital camera, laser printer, unit rewritable CDROM and travel expenses.

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4.4 THE US FOOD COMPOSITION PROGRAM

USDA's food composition research is conducted by the Beltsville Human Nutrition Research Center. The Nutrient Data Laboratory (NDL) is responsible for the acquisition, evaluation, compilation, and dissemination of food composition data. As part of this mission the NDL develops and maintains the National Nutrient Databank System to support this work the Laboratory conducts research in statistical sampling, data quality evaluation, and the application of analytical quality control techniques. The Food Composition Laboratory (FCL) is responsible for developing accurate, precise and robust methods to analyze foods and for conducting research in the development of analytical quality control procedures.

The USDA National Nutrient Databank is the major available source of food composition data in the United States. Analytical and calculated values and/or mean values for individual sources are documented and archived in the USDA Nutrient Databank System and are used to provide representative and accurate estimates for the U.S. food supply. Data from individual sources may be aggregated to provide a generic estimate of a nutrient in a specific food when needed. The Nutrient Database for Standard Reference (SR) is the primary product of the Databank System.

Current versions of SR provide the foundation for most public and private sector databases, including more than 40 nutrient database products on the market today. Specialized applications of SR developed internally by the Nutrient Data Laboratory include the Primary Data Set (PDS), a subset of the Nutrient Database for Standard Reference, for use in the USDA Continuing Survey of Food Intakes by Individuals and the National Health and Nutrition Examination Survey. Data are disseminated in electronic form on the internet and are used by others in the national and global scientific communities to support nutrition research, monitoring, education, as well as food product development and nutrition labeling.

The USDA's SR contains values for more than 5600 foods and approximately 80 nutritional components; the foods can be raw, processed, or prepared. At the present time most foods have generic descriptions while some foods (primarily breakfast cereals, candies and infant formulas) are described by brand name. The data for individual foods and nutrients can be analytical, derived from analytical data, calculated through the application of factors, or calculated from standard recipes and formulations. The most frequent number of samples is less than five per food and nutrient while a limited number of foods(e.g. whole milk, green beans) may have data which represents as many as several hundred samples. Estimates which are based on one or two analyses can not be considered to be a representative estimate of the U.S. food supply.

A comprehensive review of data for all foods and nutrients in the National Nutrient Databank System was begun in 1974 and continued through 1992. Data were updated and released by food group, resulting in the publication of data for 21 food groups. Supplement volumes containing updated information for selected foods were published in 1990, 1991, and 1992.(18) Periodic updates in the data for the 21 food groups are now released in the electronic versions of the SR.(11) However, data for some foods (e.g. poultry) have not been updated since their release in the 1970's and may not be representative of today's food supply. Extensive collaborations with the meat industry have generated accurate and representative data including individual fatty acids values for beef, pork, lamb, and veal. Comprehensive nutrient profiles for important restaurant, institutional, and processed products are needed. SR, Release 11, released in September, 1996, provided new data for five hundred additional foods and updated values for many nutrients (e.g. breakfast cereals, beef and lamb cuts, canned vegetables, infant formulas).

Need for New Data

Data for new foods are needed since the formulations for many foods have changed in response to consumer demands and/or market pressures (e.g. increased use of canola oil) for improved economic, functional and nutritional attributes (e.g. fat free bakery

products). Recent legislation mandating the fortification of milled grains and related products with folate will require new data for these products. Food consumption patterns have changed resulting in the demand for more processed and prepared foods. Many data users have requested more brand-specific data due to the unique formulations of many products. Other new foods, including low fat and fat free forms as well as genetically engineered foods have become popular.

The number and specificity of forms of nutritional components have changed. Data users require information about levels of individual fatty acids or individual vitamers in foods. Food composition data for newly recognized components such as flavonoids and many antioxidants are needed for health research initiatives. Previously, with regard to specificity, the USDA National Nutrient Databank System contained values for total carbohydrate, determined as the difference between 100 percent and the grams percent of the sum of (protein, total fat, ash, and moisture), expressed as grams per 100 gm of sample. Since 1992 total dietary fiber values for many foods have been developed. Many user sectors require values for individual sugars, non-starch polysaccharides, and other important chemically determined carbohydrate components.

Worldwide, other national databank systems are providing data for these individual components.(Table 1) The Nutrient Data Laboratory has begun to acquire carbohydrates data for individual sugars, starch, and other carbohydrate components and will include values for total sugar content in selected foods as well as dietary fiber in the 1997 Interim Release of the SR.

Sources of analytical data on food composition

Data have been obtained from USDA contracts, from other government agencies, from the food industry, and the scientific literature. Current limited resources for generating new analytical data have restricted the numbers of foods and components which can be updated and/or added to the Nutrient Databank. Over the years, small analytical contracts have been funded by NDL.

However, current analytical rates of $1 000-2 000 per analytical sample to obtain the required nutrient profile limit the number of possible analyses to approximately 30 samples per year.

Limited quantities of analytical data are generated by USDA laboratories for the National Nutrient Databank. Analytical data have been obtained from FDA's Total Diet Study to supplement other data for mineral components in core foods. It has been estimated that data published in the scientific literature constitute less than 10% of all data collected in recent years.

Analyses by academic institutions and government laboratories of foods for nutrient composition has decreased significantly since the 1960's. At best published work addresses the composition of basic animal and plant products. Data for processed or formulated foods are not released.

It is possible that the enactment of the Nutrition Labeling and Education Act (NLEA) of 1990, resulted in substantial reformulation of commercial food products. However, only limited food composition data have been provided to the Nutrient Databank by any sectors of the food industry since NLEA. Food label data may be based on analytical or calculated values. Many food manufacturers are unable to provide analytical data to the Databank since label values for many foods are calculated from ingredient values, formulation proportions, and appropriate algorithms. Others are unwilling to provide analytical values citing undue financial and personnel burden during private sector "downsizing", breach of proprietary constraints, and loss of competitive advantage. Data have been especially limited for processed branded products where the formulation is known only to the manufacturer. In many cases label values may be adjusted or rounded values, contributing to a systematic bias in the dataset. For those products where analytical data are submitted, much of the desired documentation (e.g. analytical method, sampling plan, number of samples, indicator of variability) is not provided.

Even if the food industry shared with the USDA their analytical results obtained for NLEA purposes, the national needs would not be met for the development of a data base that is optimal for national nutrition monitoring and surveillance nor for the support of nutrition-related biomedical research. The maximum mandatory number of nutrients required for the Nutrition Labeling and Education Act (NLEA) is 14: calories, protein, total fat, saturated fatty acids, vitamin C, vitamin A, iron, dietary fiber, sodium, calcium, cholesterol, sugars, total carbohydrate. It is not apparent that data for other important nutrients (i.e. selenium, carotenoids, potassium, vitamin E) are available from the food industry. Figure 1 illustrates that even if the food industry were able to provide high quality analytical data for all "mandatory" NLEA nutrients the number is far less than those 28 nutrients for which Recommended Dietary Allowances have been defined. The list of NLEA nutrients does not satisfy the data needs for the USDA and National Center for Health Statistics (NCHS) food consumption and nutrition and health surveys (50 nutritional components) or other nutrition research (e.g. NIH-CRC's, USDA-Human Nutrition Research Centers) requirements.

Investigators have requested more complete documentation about individual values for foods and nutrients as well as explicit indicators of data quality based on appropriate quality standards.

The Nutrient Data Laboratory has developed source codes which have been linked to food composition data to indicate the origin of the data and, in some cases, the level of documentation.

The assessment of food composition data quality is a function of the evaluation of documentation related to the execution of analytical methods, protocols, and procedures used to generate the data. These facets have been identified by Holden and coworkers as validation of the analytical method, assurance of ongoing (day-to-day) quality control of analyses, development and implementation of the sampling plan, execution and documentation of the sample handling process, and identification of the statistical characteristics of the dataset. To date several prototype systems using an expert systems approach have been developed to evaluate existing data for selenium, copper, carotenoids, and Vitamin K. A multi-nutrient, system-wide approach is needed to provide a scientific and continuous basis for evaluating the quality of existing data and, at the same time, to provide guidelines for the generation of new data.

Data Dissemination

Currently, the USDA food composition data are disseminated at no cost to users in electronic version on the USDA Bulletin Board and on the internet in three relational database formats.

During 1997 these data will be released on CD-ROM. In April, 1996 the Nutrient Data Laboratory's Internet Home Page was accessed nearly 6,700 times. Of these, over 5,800 queries were for food composition data while about 900 were for USDA food composition bulletins and related information. Of the data files, approximately 3,200 accesses selected the SR file, Release 10. Currently no database management software is available to permit the retrieval of specific values for certain types of foods or nutrients. With the release of SR11 basic retrieval software will permit the retrieval of specific nutrient data for a single food or for a single nutrient in 100 most important foods.

State of the USDA National Nutrient Databank System: Hardware and Software

To acquire, evaluate, compile, and disseminate representative food composition data the Nutrient Data Laboratory requires a state-of-the-art flexible, computer system of hardware and software.

The redesign of the National Nutrient Databank System hardware and software, will include a comprehensive review and revision of data management and calculation procedures. The current databank system is based upon mainframe hardware and

software developed in 1974 and updated with minor modifications in 1984. The existing databank system in inflexible and unresponsive to the current demands for data processing. During FY-97 ARS will redesign the databank system to improve the accuracy and efficiency of the development of SR.

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5. STATUS OF NUTRITION LABELING IN NORTH AMERICA

In this session, two comprehensive presentations were given for the countries of the Caribbean and for the United States. Two brief presentations were given for Canada and Mexico.

A period of discussion followed the presentations of food labeling and some pertinent conclusions were drawn. Chapter 12, Conclusions and Recommendations, lists some specific agreements under the subheadings *Organisational* and *Technical.*

They are listed below:

- All national groups will attempt to link food composition with food labelling as far as is practicable.
- mandatory fortification issues (types and amounts of nutrients) will be examined as a first step toward investigating food standards' harmonisation;
- links with the individuals/agencies involved in harmonisation talks on nutrition labelling will be established;
- relevant agencies in Mexico, the Caribbean, and Canada will be encouraged to consider adoption of American definitions for "light" "low in...", etc.
- the role and appropriateness of label data in food composition data bases (eg "fuzz" around central value) will be established.

Labeling is an issue that impinges on many other areas of food composition work, and the topic was raised frequently during discussions of technical harmonisation issues, principles of proper documentation, data quality assessment, and the organisational framework of INFOODS and its regional data centres.

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5.1 NUTRITION LABELING IN JAMAICA

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Summary Points

1. Labeling of all registered products is mandatory in Jamaica.
2. Nutrition labeling though encouraged is optional; except when product is being exported, otherwise it is left to the manufacturer/producer to add nutrition information to his/her package. The format used is that of the recipient country.
3. The packaging department in the Jamaica Bureau of Standards is responsible for labeling.
4. This packaging department is the only one of its kind in the Caribbean.
5. The Bureau checks to make sure that the labeling information is correct.
6. For nutrition labeling the Chemistry Department analyses the product to determine the values to be placed on the nutrition information.
7. This cost of analysis is borne by the producer.
8. For local products the US format is most commonly used is nutrition labeling.
9. Within the Bureau, a labeling committee is set up to decide whether Jamaica will develop its own format or adopt the format of another country.
10. The legal framework for making nutrition labeling mandatory exists in the Food and Drugs Act.

Goal

The goal of nutrition labeling in Jamaica is twofold:

1. To provide the consumer with consistent, readable, understandable and usable information so that they can make more healthful food choices.

2. To encourage the use of nutrition principles in the manufacturing of foods which benefit public health.

Background

The organization responsible for product labeling in Jamaica is the Jamaica Bureau of Standards. The Bureau is a statutory organization which was established to promote and encourage higher standards in commodities, processes and practices. It is a member of the International Organization for Standardization.

The Jamaica Bureau of Standards formulates and publishes National Standards. The Bureau tests, analyses, and certifies a variety of raw materials, components, and finished products on behalf of manufacturers, national and international agencies, importers and exporters.

The Department within the Bureau responsible for labeling is the Packaging Department which is the only one of its kind in the Caribbean. The Caribbean Food and Nutrition Institute works closely with the Bureau by providing assistance through technical cooperation in nutrition and other related areas.

Labeling of all processed food is mandatory in Jamaica, however, nutrition labeling is optional. Labeling is covered under the Food and Drugs Act. The regulations require that the labeling of any container should not contain information which is false, misleading or deceptive or likely to create erroneous impression regarding the nature, content, value, quantity, weight, composition, grade, purity, merit, date or packing or other characteristic of the food in the container. The Regulations state the information to be set out in the labels, and defines what the declaration of contents on the label shall include.

Current Status

Though nutrition labeling is optional, if the producer decides to add nutrition information to his product label the following requirements must be met.

1. The information must be given as per specified serving or per package

2. The per serving information must be stated as a percentage of a recommended daily allowance e.g. Caribbean RDA, US RDA.

3. Substantiating reports from a recognized body must be submitted to the Bureau.

4. The information should be presented in a tabular form.

The Caribbean has not yet developed its format for nutrition labeling. Until this is done the US, EEC, or the Codex Alimentarius Commission (Canadian) formats are all acceptable. The US format is the one most frequently used in Jamaica.

Requirements

Legal

From a legal perspective it would not be difficult to institute mandatory nutrition labeling in Jamaica, as provision for this already exists in the Food and Drugs Act.

Compliance

All registered companies should have their labels approved by the Bureau so if nutrition labeling is made mandatory it would not be difficult to ensure compliance. Existing companies would be required to upgrade their product. These companies are already registered thus making it easy to locate and monitor them. A timeframe could be given after which all products would be required to carry nutrition labels.

Cost

Chemical testing of the product has to be done. Presently, the Bureau's Chemistry Department ensures that the nutrition information is factual. The approximate cost for nutrient testing on each product is US$152. A new producer could include this in his initial costs, however, an existing producer would need to have his product analyzed as well as have his label redone.

Table 1: Breakdown in cost of the tests that can be performed at the Bureau of Standards

NUTRIENT	**METHOD OF ANALYSIS**	**APPROXIMATE COST $US**
Total calories	Calculation of fat, carbohydrate and protein content	$5.00
Total fat	Soxhlet extraction	$17.00
Total Carbohydrate:		
a. starch content	Starch- Polarimetric method using acid reduction	$25.00
b. sugar content	Sugar- Lane and Eynon titration	$22.00
Protein	Kjeldahl method	$15.00
Calcium	Atomic Absorption	$20.00
Iron	Atomic Absorption	$11.00
Sodium	Flame Photometry	$11.00
Vitamin C	Indo-phenol titration	$26.00
TOTAL COST per product		**$152.00**

Upgrade of laboratory services

There is need for upgrade of the laboratory facilities at the Bureau so that the nutrition label could carry information such as cholesterol content. The Bureau should also be able to verify the accuracy of the cholesterol information, for example, which already exists on some product labels.

Risks/Assumptions

If a Nutrition Labeling Act is passed in Jamaica there is bound to be a debate between the food industry and the public health community regarding the costs and benefits of nutrient analysis and relabelling of products.

The University of the West Indies should be commissioned to evaluate the potential health benefits of nutrition labeling. Estimates should be made for a 10-20 year period to show how much could be saved in medical care, and how many cases of nutrition related diseases could be prevented.

In the Caribbean 30% of men and almost half of our women are obese. Our main causes of death are heart disease, stroke, diabetes and cancers, all complicated by obesity. It can therefore only be to our benefit to have nutrition labels on all our products to share in the health benefits derived if these labels are used to select more nutritious diets. The cost-benefit analysis should be done to confirm numerically that the benefits to be derived outweigh the cost of implementation and monitoring.

Implementation of Mandatory Nutrition Labeling

Steps required:

1. Launch Public Awareness/Education Program

The Caribbean consumer is becoming more aware of the importance of a healthy diet. This is particularly important now that our main causes of death and suffering come from heart disease, diabetes, stroke and hypertension. A public education program would assist the consumer in reading the nutrition label and will assist them in choosing more nutritious diets.

2. Upgrade current laboratory facilities

The Bureau of standards is unable to test for all the nutrients required for a basic nutrition label. The current laboratory facilities need to be upgraded to ensure that checks can be made to verify that the nutrition information on the label is factual.

3. Push for Regulations and Government policies that make nutrition labeling mandatory

Jamaica has a unique position because legal foundation has been laid in the Food and drugs Act. The next step in the implementation would be in educating the consumer in reading and understanding the labels.

4. Surveillance

A system of surveillance needs to be set up so that nutrition information can be checked systematically to ensure that labels carry consistent factual nutrition information.

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5.2 NUTRITION LABELING, USA

A presentation on the Nutrition Labeling and Education Act was delivered by Mary M Bender, PhD - Center For Food Safety and Applied Nutrition (HFS-Q165). Food And Drug Administration, 200 C St. SW, Washington, D.C. 20204, USA. Tel 1-202-205-5592. E-mail: m0b@cfsan.fda.gov

Highlights from this presentation are listed below:

Nutrition labeling is mandatory for most foods and must contain the following information: serving size; servings per container; calories; calories from fat (unless the product contains < .5 g total fat); total fat; saturated fat; cholesterol; sodium; total carbohydrate; dietary fiber; sugars; protein; vitamin A; vitamin c; calcium; iron. Other nutrients are optional.

FDA used data from USDA and industry to calculate 95% prediction intervals, one-sided, to account for underinflation or overinflation.

For compliance, the 80:120 rule is also used (e.g. manufacturers can report up to 20% more fat on the label than they believe is in the product, but not less; can report up to 20% less vitamin C on the label than they believe is in the product, but not more).

This creates *fuzz* around the value and therefore labeling data should NOT be used as a source of research data. This fuzz can create bias in the estimates. Do try to get the data behind them.

Compliance division takes 12 samples for the same lot or production line in a single plant. Testing is not random, but based on where reason to do so.

In the 1994 survey of 300 foods, it was found that consistency was high for fat, sodium and protein; and very low for vitamins and minerals but still within expected compliance limits. Results of the 1996 survey appear at the end of this paper.

A congressionally mandated compliance study is undertaken every two years to determine if at least 60% of the (2000) retailers surveyed provide consumers with nutrition labeling for (at least 90%) of the top 20 raw fruits, vegetables, and fish sold in the store.

96% of products now have a nutrition label.

Nielsen SCANTRACK sales data are weighted to represent 82% of the sales. The stores sell $2 million and above.

Raw produce (also including bags of raw fruits and vegetables) and raw fish fall under the voluntary nutrition labeling program.

FDA requires voluntary labeling for raw produce and fish; must use the generic data provided by FDA unless they have data for a specific variety of apple, fish, etc. Can also include optional nutrients.

Cut produce industry making decisions now regarding bags of produce (e.g. prepared salads).

Various marketing boards provide data bases to FDA for approval, many have plans for more analyses. For this process, FDA wants thorough documentation but old data will be accepted for two years while they are getting new analyses. This is regarded as a positive approach to encourage industry to collect new data without discarding old data.

Many of the labeling problems are with serving sizes. It is important to investigate harmonising on household measures (US), e.g. metric cups, tsp, Tbsp.

Reprints of the Federal Register document "Food Labeling: Guidelines for Voluntary Nutrition Labeling of Raw Produce and Fish and Policy for Data Base Review for Voluntary and Mandatory Nutrition Labeling; Final Rule", published Aug 16, 1996, are available for $8.00 from the U.S. Govt Printing Office. Orders can be made by writing to the Superintendent of Documents, Washington, DC 20401, calling 202-

512-1800, or faxing to 202-512-2250. The GPO order number is 769-004-02687-3. Rush service is available on Federal Express for an additional $8.50.

Electronic access to the Federal Register and the Code of Federal Regulations is through the Govt Printing Office:

http://www.access.gpo.gov

An addendum to this paper was received just prior to publication. It is printed below:

300 FOODS SURVEY: On December 12, 1996, FDA received a final report describing the consistency between nutrient values identified through laboratory analyses and those printed on product labels of 300 processed, packaged foods regulated by FDA. The Life Sciences Research Office (LSRO) of the Federation of American Societies for Experimental Biology (FASEB) was commissioned by FDA under contract to work with Corning Hazleton Laboratories in Madison, Wisconsin to provide the data. The final document provides information on 300 food items selected randomly by FDA from the Nielsen North American SCANTRACK data base via the Food Label and Package Survey (FLAPS). These data generalize to food stores representing the majority (82%) of the market and provide to the agency the best available sampling frame. The current survey is a follow-up to an earlier baseline study completed in 1994 to determine laboratory/label consistency. While the survey is not a review of regulatory compliance, data provide a snapshot representation of laboratory/label consistency. Results indicate that 91% of the 2174 analyses conducted on all products fell within the limits required by the labeling regulations, and was an increase over the 87% identified in 1994. Nutrients identified as having the most within-limit values include calories (93%), total fat (96%), saturated fat (93%), sodium (90%), total carbohydrate (98%), sugars (96%), and vitamin C (88%). A moderate percentage (80%) of within-limit values was identified for cholesterol, dietary fiber, and calcium, and a lower percentage for iron (69%) and vitamin A (53%). All percentages for individual nutrients increased or remained the same as 1994 estimates. The out-of-limit values are generally small variances, and some of the problems may be related to analytical difficulties. CFSAN has identified and will follow-up on products with significantly out-of-range nutrients or other labeling issues.

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5.3 NUTRITION LABELING, CANADA AND MEXICO

Brief presentations from Mexico and Canada were delivered and the following points were made:

Canada

Two different agencies are responsible for food composition work and food labeling legislation. The agency responsible for food legislation is Agriculture and Agri-Food Canada, 59 Camelot Drive, Nepean, Ontario K1A 0Y9. Tel: 1-613-952-8000, Fax: 1-613-952-7387.

U.S. labels bearing a nutrition facts panel are not in compliance with Canada regulations nd vice versa. Both U.S. and Canadian companies must prepare **separate labels** for the U.S. and Canada.

Major problem for harmonisation between USA and Canada is DRVs (daily reference values).

Mandatory fortification issues (types and amounts of nutrients) need to be addressed regionally.

Canadian labels must be bilingual and metric.

Canada is working toward harmonization of nutrient definitions (e.g. definition of fat) and criteria for nutrient claims (e.g. "low fat") allowing manufacturers to use a single formulation for a products to be sold in both Canada and the U.S.

Carbohydrates are calculated by difference as in the USA. However, "starch" is declared rather than "other carbohydrates." The term "complex carbohydrate" is not encouraged, but if used, it should be made clear that it means starch, [e.g. "Complex carbohydrate (starch)].

Mexico

Ministry of Health and Ministry of Education working on food labeling, with assistance from ILSI, Hoffman-LaRoche and the Consumers' Institute.

Nutrient labeling regulations in Mexico exists are (NOM) 051 and 086.

Portion size is proving to be a very difficult issue.

US labeled products are accepted.

It is thought that Mexico will need to adopt U.S. nutrition labels so that they can export and import food freely.

The FDA will permit Mexican manufactures to use historical data for two years and then require them to produce new data.

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6. INFOODS IN THE WESTERN HEMISPHERE

Intra- and inter-regional relationships

Although food composition programmes are largely the concern of national governments, they must be considered in a regional context. The INFOODS Regional Data Centres in the Western Hemisphere have some unique opportunities to achieve harmonisation on a region-wide basis.

Relationships within the region will not lead to adoption and implementation of regional policies *per se* in the area of food composition. Policy-making remains at the national level. The expectation is that national policies will be more effectively informed and influenced by the experiences and problems of other countries in the region and in nearby regions. Thus an important aim of establishing the relationships in the Western Hemisphere is to develop a regional food composition understanding that is conceived as the aggregation of the national policies and programmes rather than one which emerges from a regional policy-making institution.

These relationships constitute a network which is action-oriented and not simply information-oriented. It is from these more robust foundations within each country that a more effective regional approach to food composition in all its forms may emerge.

Among the recommendations specifically related to the relationships among national, sub-regional and regional teams in this part of the world are the following:

- Countries will maintain their national programmes and goals while integrating the INFOODS objectives and activities into their core activities.
- There should be an annual meeting of NORAMFOODS arranged by the coordinator at an appropriate time and place.

- Both the coordinator and other representatives of CARICOMFOODS and MEXCARIBEFOODS will be invited to participate in meetings of NORAMFOODS, along with a representative from LATINFOODS.
- The three country coordinators or their designated associates will maintain e-mail contact with each other and with the INFOODS coordinator and will regularly monitor the Food-Comp listserv exchange.
- The regional coordinator will pursue inter-regional interactions and data interchange via other regional data centres.

Regional Data Centre and sub-regional coordinators and/or contact persons

CARICOMFOODS

Anguilla, Antigua and Barbuda, Bahamas, Barbados, Belize, British Virgin Islands, Cayman Islands, Dominica, Grenada, Guyana, Jamaica, Montserrat, St. Kitts & Nevis, St. Lucia, St. Vincent & the Grenadines, Trinidad & Tobago, Turks & Caicos Islands, Suriname, (Bermuda), (American Virgin Islands).

Coordinator: Dr Fitzroy Henry, Caribbean Food and Nutrition Institute, University of the West Indies, PO Box 140, Kingston 7, Jamaica. Tel: 1-809-927-1540, Fax: 1-809-927-2657.

LATINFOODS

The sub-regions of CAPFOODS (Central America and Panama) and SAFOODS (South America).

Coordinator: Dr. Ricardo Bressani, Institute of Nutrition for Central America and Panama, Carretera Roosevelt, Zona 11, P.O. Box 1188, Guatemala City, Guatemala. Tel: (5022) 723762, Fax: (5022) 736529

Associate Coordinator: Professor Lilia Masson, Facultad de Ciencias Quimicas y Farmaceuticas, University of Chile, Santiago, Chile. Tel: (562) 222-7426, Fax: (652) 222-7900.

Sub-regional coordinators:

CAPFOODS (Central America and Panama)

Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama and Belize

Coordinator: Dr. Rafael Flores, Institute of Nutrition for Central America and Panama, Carretera Roosevelt, Zona 11 P.O. Box 1188, Guatemala City, Guatemala. Tel: (5022) 723762, Fax: (5022) 736529

SAMFOODS (South America)

Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay and Venezuela

Coordinator: Saturnino de Pablo, Institute of Nutrition and Food Technology, University of Chile, Casilla 138-11, Santiago, Chile. Tel: (562) 678-1431, Fax: (562) 221-4030, E-mail: sdepablo@uec.inta.uchile.cl.

MEXCARIBEFOODS

Cuba, Dominican Republic, Mexico, and Puerto Rico, (Aruba), (Haiti)

Coordinator: Miriam Munoz de Chavez, Instituto Nacional de Nutricion "SZ", A.P. 86-252, Mexico D.F., 14391 Mexico. Tel: (525) 573-1116, Fax: (525) 668-1390, E-mail: achavez@quetzal.innsz.mx

NORAMFOODS (North America)

Canada, Mexico, United States of America

Coordinator: Joanne Holden, United States Department of Agriculture, Human Nutrition Research Center, 4700 River Road, Riverdale, Maryland 20737, USA. Tel: 1-301-734-8491, Fax: 1-301-734-5643, E-mail: jholden@rbhnrc.usda.gov

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7. WORKING GROUPS

NORAMFOODS will set up working groups with assigned responsibilities for the following activities:

- Recipes: Compile and/or develop recipe standards and formats, including retention factors and yields, portion sizes (Coordinator: Miriam Chavez).
- Terminology and Nomenclature: Facilitate French, Spanish and Latin descriptor interchange for the region. Identify and prepare standardized definitions of food processing, cooking, quality, etc terms; undertake

international collaborations via UNU/IUNS/INFOODS food nomenclature and terminology committee (Coordinator: Danielle Brulé).

- Analytical methods and quality control: Investigate interlaboratory proficiency studies; recommendations for region on normalising of fatty acids to total fat, etc. (Coordinator: Joanne Holden; Associate: Beecher?).
- Data quality determination: Identify and prepare source and derivation codes for comparison and standardisation; standardise on source codes for common sources of data; recommend documentation procedures for known quality components codes; submit system and the algorithms for review and beta-testing before adoption for data quality (Coordinator: Joanne Holden).
- Statistics: Representation of numerical information (representation of central values); numbers of samples (eg, composite of 12 in duplicate); outliers; standard equations for standard errors (Note: provide Proceedings from stats workshop); review non-numeric data; and numerical representations for values below the limit of quantitation (Coordinator: Pamela Pehrsson).
- Industrial Ingredients Data Base: Establish contacts and collect ingredients' data, particularly industrial ingredients; establish liaison with Eurofoods (Coordinator: Rena Cutrufelli).

It is expected that the work will be conducted largely by e-mail with actual meetings only as essential; a day or two might be set aside immediately before the 1997 NORAMFOODS meeting for working group meetings.

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8. NORAMFOODS CONCLUSIONS AND RECOMMENDATIONS

8.1 Organizational

NORAMFOODS will continue to be made up of Canada, Mexico and the United States with the coordinating secretariat in USDA (see Appendix 1 for representatives and their contact information).

Countries will maintain their national programmes and goals while integrating the INFOODS objectives and activities into their core activities.

Joanne Holden, who has been serving as the interim coordinator for the first year will continue for a two-year term renewable term as the coordinator and convener of NORAMFOODS.

There should be an annual meeting of NORAMFOODS arranged by the coordinator at an appropriate time and place.

INFOODS for the English speaking Caribbean countries will be represented by CARICOMFOODS (for Caribbean Community) This will include all of the countries listed in Appendix 2, and will be coordinated by Dr. Fitzroy Henry, the Director of CFNI.

The CARICOMFOODS coordinator will appoint a steering committee with representatives from Jamaica, Trinidad, and one or two other countries of the region.

The Spanish- and French-speaking Caribbean countries will become part of MEXCARIBEFOODS.

MEXFOODS will provide the coordinator and secretariat site for MEXCARIBEFOODS and will also participate as a member of NORAMFOODS.

The coordinator of MEXFOODS, Dr. Miriam Chavez, will serve as the interim coordinator of MEXCARIBEFOODS and will issue invitations to participate to the designated member countries and establish a regional steering committee.

An effort will be made to convene a MEXCARIBEFOODS meeting in 1997 at which time a coordinator will be confirmed or selected for a two year renewable term.

MEXCARIBEFOODS will include Cuba, Dominican Republic, Mexico, and Puerto Rico.

Both the coordinator and other representatives of CARICOMFOODS and MEXCARIBEFOODS will be invited to participate in meetings of NORAMFOODS.

Danielle Brule will serve as national coordinator for Canada, and she will interact with the Canadian inter-agency nutrition committee in lieu of a formal food composition steering committee.

The three coordinators or their designated associates will maintain e-mail contact with each other and with the INFOODS coordinator Barbara Burlingame in New Zealand, and will regularly monitor the Food-Comp e-mail exchange.

The regional coordinator will pursue inter-regional interactions and data interchange via other regional data centres.

All national groups will attempt to link food composition with food labelling as far as is practicable.

8.2 Technical

All national groups agree to standardise nutrient tagnames for most components, as follows:

- Use INFOODS tagnames for food component identification (already accomplished by US and Mexico; to be implemented by Canada).
- Adopt USDA's choices, with addition of other expressions of carbohydrate to eventually express carbohydrate as ***available by summation*** with the individual mono and disaccharides and starch values provided.
- Energy standardised as kilocalories with kJ as optional.
- Energy calculated using individual factors with the factors captured with tagnames.
- Fat standardised as solvent/gravimetric, with NLEA fat values added as they become available.
- Values for nitrogen and nitrogen conversion factors will be included with their tagnames.
- Analytical method for fiber will be Prosky, with exception of the Mongeau Method for fibre in Canada (this will require registration of a new INFOODS tagname).
- Vitamin E will be expressed in mg alpha-tocopherol equivalents, vitamin A will be expressed in micrograms retinol equivalents and vitamin D will be expressed in micrograms (note: this does not preclude inclusion in IU additionally), with their respective tagnames.
- Total niacin equivalents will be presented along with potential niacin from tryptophan and preformed niacin with their respective tagnames.
- Folate method will be microbiological until a better method is identified.
- Ascorbic acid analysis issue still to be resolved.
- As far as is practicable, individual fatty acid analyses and then presentation will include positional and geometric isomers.

The list of current USDA tagnames is attached as Appendix 3.

Canada, Jamaica, Mexico and the USA represented at the meeting agreed on the following:

- to standardise on source codes;
- to participate in communications and consultation on the redesign of the USDA database;

- to standardise on household measures serving sizes as far as is practicable, with acknowledgement that certain standards cannot be achieved because of national difference in portions (e.g. McDonalds, liters/quarts);
- to cooperate in developing a consolidated NORAMFOODS data base for foods that enter food supply of US, Canada and Mexico;
- to promote the of conversion to metric standards for the cup and other measures;
- to share data on foods that are imported and exported between the countries for inclusion in each data base, acknowledging that there are unique foods (including those for reasons of unique food standards) that are not available intra-regionally and therefore need not be part of interchanges;
- to standardise certain aspects of food identification, food nomenclature, food terminology and the associated data structures, including:
    - Providing alternative names to appear in separate name field with multiple alternative names comma delimited.
    - Providing shortnames to appear in a separate name field with a 32 character limit.
    - Standardising on abbreviations, using USDA's as the basis.
    - Providing scientific names for each record where they are appropriate.
    - Sharing of French and Spanish language descriptor files with the USDA five digit keys with each national group (Note: for Canada, strip off the third digit to get exact match with USDA).
    - Identifying and documenting foods and food samples with images and later to agree on format for image files. Each image should include a measure ruler, colour scale (e.g. Pantone), several views, actual labels, portions.
- to support other countries for obtaining industry analytical data, including IFDA system (or IFDA-type system) for a format for industry to submit data;
- to share information on current and future analytical projects, books and electronic materials;
- to examine mandatory fortification issues (types and amounts of nutrients) as a first step toward investigating food standards' harmonisation;
- to establish links with the individuals/agencies involved in harmonisation talks on nutrition labelling;
- to review the role of label data in food composition data bases (e.g. fuzz around central value).

8.3 Support/promotion/advocacy

Each national representative will:

- contact national FAO secretaries to get food composition work endorsed in country reports and mentioned in the global recommendations for the World Food Summit (13-17 November 1996);
- ensure the INFOODS goals at the international, regional and country levels are represented at the World Food Summit via the UNU contribution;
- seek ways to improve and/or facilitate better university training in food composition.

The regional coordinator draft a NORAMFOODS summary brochure to be available in printed and electronic forms.

8.4 Working Groups

Recommendations on working groups can be found in Chapter 7.

8.5 Recommendations for INFOODS

- Reconvene a working group or task force to make recommendations on preferred food components.
- Via 3rd International Food Data Base Conference, inform and involve external agencies in food comp issues.
- Request an opportunity for NORAMFOODS to review the FAO book on food composition.
- Prepare guidelines for analytical laboratories and then post to food-comp list.
- Increase the sharing of information by periodically posting information on the food-comp list.
- Invite Clive West to form a global working group for training, including advanced courses, regional course, hands-on specialty courses, development of instructional manuals.
- Request UNU and FAO to reform and convene a technical advisory committee for the global INFOODS project.

Prepared by Barbara Burlingame and Nevin Scrimshaw for review and correction by all participants in the NORAMFOODS Meeting, 16-18 September 1996.

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APPENDIX 2: AGENDA

16 September

09.00 Welcome and introductions
09.15 Review of meeting objectives and expected outcomes (Burlingame)
09.45 Review of INFOODS/UNU activities and information resources (Burlingame)
10.30 COFFEE BREAK
11.00 Review of FAO activities and relevant upcoming events (e.g., World Food Summit) (Holcikova)
11.45 Country Reports
- Canada (Brulé)
12.30-13.30 LUNCH

13.30 Country Reports, continued
- Jamaica/West Indies (Henry)
- Mexico (Chavez)

15.30 COFFEE BREAK
15.45-17.00 Country Reports, continued
- United States of America (Holden)

17 September

09.00 Food composition harmonisation issues for NORAMFOODS (Burlingame)
10.00 Nutrition labeling: current status and requirements
- US FDA on NLEA (Bender)

10.30 COFFEE BREAK
11.00 Nutrition labeling: current status and requirements
- Canada (faxed report, Steele)
- Mexico (Chavez)
- Jamaica/West Indies (Henry)

12.30-13.30 LUNCH
13.30 Discussion and recommendations: Nutrition labeling consultation and harmonisation
14.30 Discussion and recommendations: Food composition harmonisation for intra- and interregional data interchange and food trade
15.30 COFFEE BREAK
15.45 Principles of proper documentation (Burlingame)
16.30-17.00 Data quality assessment (Holden)

18 September

09.00 The working structure, roles and responsibilities within NORAMFOODS
10.00 Linkage formalisation: national and regional (e.g., with food control programmes, with other regional data centres)
10.30 COFFEE BREAK
11.00 Resource requirements (e.g., infrastructural, equipment, training)
12.00 Advocacy activities
12.30-13.30 LUNCH
13.30 Working groups: definitions and roles
14.30 Review of recommendations, decisions and outcomes (NORAMFOODS Coordinator)
15.00 Closing (Scrimshaw)

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APPENDIX 3: USDA TAGNAMES IN CURRENT USAGE

Nutr. no.	Units	INFOODS tagname Units other than default after_	Nutrient description	IFDA no.
203	g	PROCNT*	Protein	228
204	g	FAT*	Lipids	232
205	g	CHOCDF*	Carbohydrates, total by difference	224
207	g	ASH	Ash	236
208	kcal	ENERC_KCAL	Energy	200
221	g	ALC	Alcohol	990
255	g	WATER	Moisture	220
262	mg	CAFFN	Caffeine	788
263	mg	THEBRN	Theobromine	848
268	kJ	ENERC	Energy	204
291	g	FIBTG*	Fiber, total dietary	262
301	mg	CA	Calcium, Ca	580
303	mg	FE	Iron, Fe	604
304	mg	MG	Magnesium, Mg	608
305	mg	P	Phosphorus, P	620
306	mg	K	Potassium, K	624
307	mg	NA	Sodium, Na	632
309	mg	ZN	Zinc, Zn	636
312	mg	CU	Copper, Cu	592
315	mg	MN_MG	Manganese, Mn	612
318	IU	VITA_IU*	Vitamin A, IU	674
392	mcg	VITA*	Vitamin A, RE	
394	mg	VITE*	Vitamin E, ATE	730
401	mg	VITC*	Vitamin C, ascorbic acid	714
404	mg	THIA	Thiamin	670
405	mg	RIBF	Riboflavin	666
406	mg	NIA	Niacin, nicotinic acid	658
410	mg	PANTAC	Pantothenic acid	662
415	mg	VITB6A	Vitamin B-6	710
417	mcg	FOL*	Folate	654
418	mcg	VITB12	Vitamin B-12	706
501	g	TRP_G	Tryptophan	400
502	g	THR_G	Threonine	398
503	g	ILE_G	Isoleucine	384
504	g	LEU_G	Leucine	386
505	g	LYS_G	Lysine	388
506	g	MET_G	Methionine	390
507	g	CYS_G	Cystine	376
508	g	PHE_G	Phenylalanine	392
509	g	TYR_G	Tyrosine	402
510	g	VAL_G	Valine	404
511	g	ARG_G	Arginine	372

512 g	HIS_G	Histidine	382
513 g	ALA_G	Alanine	370
514 g	ASP_G	Aspartic acid	374
515 g	GLU_G	Glutamic acid	378
516 g	GLY_G	Glycine	380
517 g	PRO_G	Proline	394
518 g	SER_G	Serine	396
601 mg	CHOLE	Cholesterol	334
606 g	FASAT	Fatty acids, saturated	420
607 g	F4D0	4:0 butyric	424
608 g	F6D0	6:0 caproic	428
609 g	F8D0	8:0 caprylic	432
610 g	F10D0	10:0 capric	436
611 g	F12D0	12:0 lauric	440
612 g	F14D0	14:0 myristic	444
613 g	F16D0	16:0 palmitic	452
614 g	F18D0	18:0 stearic	460
615 g	F20D0	20:0 arachidic	464
617 g	F18D1	18:1 oleic	506
618 g	F18D2	18:2 linoleic	524
619 g	F18D3	18:3 linolenic	544
620 g	F20D4	20:4 arachidonic	552
621 g	F22D6	22:6 docosahexaenoic	564
624 g	F22D0	22:0 behenic	468
625 g	F14D1	14:1 myristoleic	494
626 g	F16D1	16:1 palmitoleic	498
627 g	F18D4	18:4 moroctic	548
628 g	F20D1	20:1 gadoleic	510
629 g	F20D5	20:5 timnodonic	556
630 g	F22D1	22:1 erucic	514
631 g	F22D5	22:5 clupanodonic	560
636 mg	PHYSTR	Phytosterols	350
645 g	FAMS	Fatty acids, monounsaturated	490
646 g	FAPU	Fatty acids, polyunsaturated	520
652 g	F15D0	15.0 pentadecanoic	448
653 g	F17D0	17:0 heptadecanoic	456
654 g	F24D0	24:0 tetracosanoic	472

* Further details are provided in Chapter 8 Conclusions and Recommendation, section 8.2 Technical

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APPENDIX 4: ENERGY FACTORS

A PDF file of the **Agriculture Handbook No. 74, Energy Value of Foods** is available from USDA's Nutrient Data Laboratory website. The file is 5.3Mb in size, and the Adobe Acrobat viewer (available free from Adobe) is required to read it.

This 1973 publication explains the basis and derivation of the Atwater energy factors which have been determined for basic food commodities. These specific factors take into account the physiological availability of the energy from these foods. The more general factors of 4-9-4 were developed from the specific calorie factors determined by Professor Atwater and associates.

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