Nutrient Data Resources Available from HNIS

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This paper will describe a number of the various nutrient data bases developed by HNIS, what's in them, and how to obtain them.

All of the information in this paper is also available on the Nutrient Data Bank Bulletin Board. In addition, some of the files described herein can also be downloaded from the Bulletin Board. The Bulletin Board was first announced at this conference in 1989 and was demonstrated at the conference last year in Blacksburg, Virginia. Since its inception, the Bulletin board has received almost 2,000 calls from 44 states and Canada.

In order to access the Bulletin Board you need an IBM compatible PC, a modem, and a communications program. The telephone number is (301) 436-5078, and it is available 24 hours a day, 7 days a week, except for brief periods for maintenance. Therefore you can call when the phone rates are lower. We plan to update the bulletins, as appropriate, during the first week of each month. Of course, new information will be posted immediately. While the Bulletin Board can be accessed from mainframes and other computers, you won't be able to uncompress any files you may download, because they are compressed using a MS-DOS program. However, you will be able to read all of the bulletins.

There are also a number of small files available for downloading. These files will be described below. In addition to the data files, the Dietary Analysis Program developed by HNIS and the Extension Service can also be downloaded from the Bulletin Board. The data contained in our provisional tables on vitamins D and K are also available. As new provisional tables are released, data sets will be added to the Bulletin Board. You can also leave messages for the sysop. Since we have not implemented the full message capabilities of the board, we will contact you by phone, so please leave a number where you can be reached.

USDA NUTRIENT DATA BASE FOR STANDARD REFERENCE

The USDA Nutrient Data Base for Standard Reference (or Standard Reference) is the machine readable version of Agriculture Handbook No. 8. The current version is Release 9 which was issued last summer (1990) when the revised data on beef in the 1990 revision of AH-8-13 was published. It contains data from sections 1-17, 20, 21 and the 1989 supplement (Table 1). Data from the 1963 edition of AH-8 is retained for unrevised sections. Earlier data are removed as new data from the revised sections are added to the data base. It is expected that most of these data will be replaced in the near future. There is also an abbreviated version of this data base which contains fewer nutrients but all of the food items.

Release 10, which will add data from the second (1990) and third (1991) supplements as well as data from AH-8-19 on Snacks and Sweets and possibly data from AH-8-18 on Baked Products, will be available later this year or early 1992. The third (1991) supplement will contain new pages for a major revision of AH-8-10 on Pork Products. Standard Reference uses the NDB numbers, which are printed at the bottom of each page of the handbook to identify the food items. The first two digits (01-21) denote the food group. Food groups 22 and 23 which had previously been identified as "Mixed Dishes" and "Miscellaneous" have been dropped. Items slated for inclusion for these sections will be included in the remaining sections and in supplement pages for previously issued sections. The last three digits denote the food item within the group.

The Standard Reference Data Base is available on both diskettes and magnetic tape. Diskettes are formatted for IBM-compatible machines and are available in 3-1/2" and 5-1/4" formats, both low and high density.

Table 1 - Agriculture Handbook No. 8 Series			
Series No.	Food group	Year Issued	No. of Items
8-1	Dairy and Egg Products	1976	144
8-2	Spices and Herbs	1977	43
8-3	Baby Foods	1978	217
8-4	Fats and Oils	1979	128
8-5	Poultry Products	1979	304
8-6	Soups, Sauces, and Gravies	1980	214
8-7	Sausages and Luncheon Meats	1980	80
8-8	Breakfast Cereals	1982	142
8-9	Fruits and Fruit Juices	1982	263
8-10	Pork Products	1983	186
8-11	Vegetables and Vegetable Products	1984	470
8-12	Nut and Seed Products	1984	117
8-13	Beef Products	1990	367
8-14	Beverages	1986	153
8-15	Finfish and Shellfish Products	1987	174
8-16	Legumes and Legume Products	1986	133
8-17	Lamb, Veal, and Game Products	1989	221
8-18	Baked Products	In preparation	
8-19	Snacks and Sweets	1991	301
8-20	Cereal Grains and Pasta	1988	123
8-21	Fast Foods	1988	166
1989	Supplement	1990	96*
1990	Supplement	1990	114*
1991	Supplement	In preparation	

* New and revised items

Table 2 - Nutrient in the USDA Nutrient Data base for Standard Reference.

Proximates	Minerals	Vitamins[3]
Water	Calcium	Ascorbic acid
Protein	Iron	Thiamin
Fat	Magnesium	Riboflavin
Carbohydrate[1]	Phosphorus	Niacin
Crude fiber[2]	Potassium	Pantothenic acid
Energy	Sodium	Vitamin B_6
	Zinc	Folacin
	Copper[4]	Vitamin B_{12}
	Manganese[5]	Vitamin A (IU and RE)

Lipids	Amino acids
Fatty acids	Tryptophan
Total saturated	Threonine
Total monounsaturated	Isoleucine
Total polyunsaturated	Leucine
Individual fatty acids	Lysine
Cholesterol	Methionine
Plant sterols	Cystine
	Phenylalanine
	Tyrosine
	Valine
	Arginine
	Histidine
	Alanine
	Aspartic acid
	Glutamic acid
	Glycine
	Proline
	Serine

[1] By difference.
[2] If available, total dietary fiber is given.
[3] If available, alpha-tocopherol is given.
[4] Not available for handbook sections 8-4.
[5] Not available for handbook sections 8-3 and 8-4.

For those of you who have purchased a previous release and do not want to replace all of the data when a new release is issued, an update is available. These updates contain all of the information needed to update the previous release. For example, the update to Release 8 contains the new data on Beef Products published in AH-8-13 (1990), as well as a few corrections. Once you have updated your copy of Release 8 with these data, you will have a data set identical to Release 9. The update files can be purchased from NTIS on magnetic tape and all diskette formats described above. The update files are also available on the Bulletin Board.

Release 9 of the Standard Reference Data Base contains data on 5,145 food items. For the revised section of AH-8 it contains all of the nutrients listed in Table 2. Any proximate, mineral, or vitamin values missing on the AH-8 printed pages were imputed for the tape. Imputed values are calculated from either another form of the same food or from a similar food. Also included on the data file is a brief (20 characters) description of the food item. A more complete (72

characters) description is contained in a separate file, which also contains the column headings and weights for columns E, F, and G from the printed AH-8 pages. The microcomputer version contains factors for calculating the values presented in columns E, F, and G in order to save space, while the magnetic tape version contains the calculated values.

DATA SET 72-1

Data set 72-1 contains the nutrient data from Home and Garden Bulletin No. 72. Latest version is Release 3.2 which contains the updated values on eggs, which were released in our 1989 supplement, as well as a few corrections. These data are expressed in terms of

common household units. The data set is available on diskettes (same formats and densities as Standard Reference) and magnetic tape. This data set can also be downloaded from the Bulletin Board.

The data set contains information on 961 food items, arranged by food groups. The printed publication contains an index. Each item is assigned an unique 4-digit number. The data set also contains a description of each food and the household weight. The nutrients in this data set are listed in Table 3.

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|                                                   |
|  Table 3 - Nutrients in Data Set 72-1.            |
|                                                   |
|  Proximates    Minerals      Vitamins             |
|                                                   |
|  Water         Calcium       Ascorbic acid        |
|  Protein       Iron          Thiamin              |
|  Fat           Phosphorus    Riboflavin           |
|  Carbohydrate¹ Potassium     Niacin               |
|  Energy        Sodium        Vitamin A            |
|                              (IU and RE)          |
|                                                   |
|  Lipids                                           |
|                                                   |
|  Fatty acids                                      |
|     Total saturated                               |
|     Total monounsaturated                         |
|     Total polyunsaturated                         |
|  Cholesterol                                      |
|                                                   |
|  ¹ By difference.                                 |
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USDA NUTRIENT DATA BASE FOR FOOD INTAKE SURVEYS

The USDA Nutrient Data Base for Food Intake Surveys (or Survey Nutrient Data Base) was first developed for the 1977-78 Nationwide Food Consumption Survey and contained data on 15 nutrients.

This was Release 1 of the data base. Release 2 was developed for the Continuing Survey of Food Intakes by Individuals (CSFII) and was used for the first set of data collected in the 1985 survey (Wave 1 core monitoring group). Release 2.1 covers the complete 1985 survey and contains approximately 500 additional foods for approximately 4,500 items.

Release 3 was developed for the 1986 CSFII and contains approximately 5,300 items. Release 4 was developed for the 1987-88 Nationwide Food Consumption Survey and contains approximately 6,300 items.

Releases 2.0, 2.1, 3 and 4 all share the same format and contain the nutrients listed in Table 4. Each item is identified by a 7-digit food code. Contained in each food record is a 51-character description of the food item. The record also contains a "fat in cooking code." This code is used to access the nutrient records calculated using fats or oils other than the one designated in the recipe for a particular item. For example, if butter were the designated fat in the recipe file, an alternate nutrient profile would be calculated for the same food cooked in margarine and several other cooking fats and oils. A "salt in cooking code" is used in those recipes where the food preparer has the choice of adding or not adding salt to the recipe. In these cases two records are created--one with salt added and the other with no salt added.

Data from Release 4 is available on the Bulletin Board. However, to save space only the default fat values are included. Furthermore, the two salt records are combined in one record with two sodium fields. If salt is added to a recipe, one field contains the sodium value for salt added and the other field contains the sodium value if no salt was added. If the recipe does not contain salt or if the food preparer does not have the option of omitting salt from the recipe, both sodium fields contain the same value. Also included is the survey codebook, which contains full descriptions and household weights for each item in the Survey Nutrient Data Base.

DATA SETS USED TO CREATE THE USDA NUTRIENT DATA BASE FOR FOOD INTAKE SURVEYS.

There are three data sets that contain the data used to create the USDA Nutrient Data Base for Food Intake Surveys. They are (1) Primary Nutrient Data Set for USDA Nationwide Food Consumption Surveys, (2) USDA Table of Nutrient Retention Factors, and (3) Recipe File for the USDA Nutrient Data Base for Individual Food Intake Surveys.

The Primary Nutrient Data Set for USDA Nationwide Food Consumption Surveys (PDS) contains the nutrient data used to calculate the nutrient values in the Survey Nutrient Data Base. It contains the same 30 nutrients as the Survey Nutrient Data Base and is based on the Standard References releases as follows:

Survey	PDS	Standard Reference
CSFII 85	1	5
CSFII 86	2	5
NFCS 87-88	3	7

Data on the nutrient content of eggs and beef in Release 3 were adjusted to reflect changes in the food supply. If a nutrient value was missing from the Standard Reference (either because that nutrient is not in Standard Reference or a value for a nutrient that is in Standard Reference is missing) it was added to the PDS. In addition, new foods not in the matching release of NDB-SR were also added as needed. When a new release of Standard Reference contains a food previously added to the PDS, that item is replaced with the new values from the latest release of the Standard Reference when the PDS was updated for a new survey. Future releases of this database will contain additional foods as well as updates from new releases of the Standard Reference. For example, we are currently working to update the PDS to include data from Releases 8 and 9 of Standard Reference. The PDS contains the same nutrients as the Survey Nutrient Data Base, which are listed in Table 4. The PDS also contains a brief (20 characters) description. A longer (72 characters) description appears in a separate file.

The USDA Table of Nutrient Retention Factors contains the retention factors used to calculate the nutrient values in the Survey Nutrient Data Base. The factors are based primarily on the HNIS 1984 "Provisional Table on Percent Retention of Nutrients in Food Preparation." Additional factors and food categories

have also been added to the table. Releases of this table are as follows:

Survey	Retention Factors
CSFII 85 and 86	Release 1
NFCS 87-88	Release 2

There are retention factors for 16 minerals and vitamins. If a factor is not present in this table, the program used to calculate the nutrient values in the Survey Nutrient Data Base assumes 100% retention. The table contains a 4-digit computer code that is used to access the retention data as well as a brief description. The retention factors are reviewed periodically to insure that the most up-to-date values, based on the latest research, are used.

The last of the three files used to create the Survey Nutrient Data Base is the Recipe File for the USDA Nutrient Data Base for Individual Food Intake Surveys. This file, along with a computer program, ties the values in the PDS and retention factors file together to create the Survey Nutrient Data Base. The recipe file contains the component ingredients and their proportions, plus a retention code if applicable. There is a recipe record for every item on the Survey Nutrient Data Base, although approximately one-half of these recipes are single ingredient recipes--i.e, they only reference a single PDS record. The file contains a header record for each recipe. In addition to the name of the recipe, the header record also contains yield, including if applicable moisture loss or gain, and fat loss or gain. The ingredient records contains the PDS identification number, a description (used as a check on the data entry), a retention factor code, the measure (optional; entered for documentation), and the weight or proportion of that ingredient. There are also codes to indicate if alternate fat and salt records are to be calculated for the Survey Nutrient Data Base. The PDS code can be replaced with a code designating another recipe. For example to calculate the nutrient values for spaghetti with meat sauce, the 7-digit food code for meat sauce, which was calculated previously as a separate item in the Survey Nutrient Data Base, is combined with the code for cooked spaghetti.

A documentation file accompanies these three files. It contains (1) documentation for the three files, (2) a description of the recipe calculation procedure, and (3) a coding manual for the PDS. Ordering instructions for data sets and other data sets prepared by the Human Nutrition Information Service are available from our office. The same information is also available on the Nutrient Data Bank Bulletin Board.

Table 4 - **Nutrients in the USDA Nutrient Data Base for Individual Food Intake Surveys and Primary Nutrient Data Set for USDA Nationwide food Consumption Surveys.**

Proximates	Minerals	Vitamins
Water	Calcium	Ascorbic acid
Protein	Iron	Thiamin
Fat	Magnesium	Riboflavin
Carbohydrate[1]	Phosphorus	Niacin
Total Dietary	Potassium	Vitamin B_6
Fiber	Sodium	Folacin
Energy	Zinc	Vitamin B_{12}
Alcohol	Copper	Vitamin A (IU and RE)
		Carotene
		Vitamin E

Lipids

Fatty acids
    Total saturated
    Total monounsaturated
    Total polyunsaturated
Cholesterol

[1] By difference.