

USDA NUTRIENT DATABANK PROGRESS AND PLANS

Betty Perloff

*Human Nutrition Information Service
U.S. Department of Agriculture
Hyattsville, Maryland*

The Human Nutrition Information Service (HNIS) in Hyattsville, MD operates the National Nutrient Databank to prepare comprehensive food composition databases which are made available in published and machine-readable forms. This presentation will report on progress and plans concerning the Nutrient Data Bank and related activities at HNIS.

Eighteen of the 22 planned sections of the current revision to Agriculture Handbook No. 8, "Composition of Foods . . . Raw, Processed, Prepared" (AH-8), have been completed. They are:

- AH-8-1 Dairy and Egg Products
- AH-8-2 Spices and Herbs
- AH-8-3 Baby Foods
- AH-8-4 Fats and Oils
- AH-8-5 Poultry Products
- AH-8-6 Soups, Sauces and Gravies
- AH-8-7 Sausages and Luncheon Meats
- AH-8-8 Breakfast Cereals
- AH-8-9 Fruits and Fruit Juices
- AH-8-10 Pork Products
- AH-8-11 Vegetables and Vegetable Products
- AH-8-12 Nut and Seed Products
- AH-8-13 Beef Products
- AH-8-14 Beverages
- AH-8-15 Finfish and Shellfish Products
- AH-8-16 Legumes and Legume Products
- AH-8-17 Lamb, Veal, and Game Products
- AH-8-21 Fast Foods

The last two sections (Lamb, Veal, and Game Products and Fast Foods) were released since the last Nutrient Databank Conference. The four sections remaining in this revision are in preparation:

- AH-8-18 Baked Products
- AH-8-19 Snacks and Sweets
- AH-8-20 Cereal Grains and Pasta
- AH-8-22 Mixed Dishes

Handbook No. 8-20, Cereal Grains and Pasta, is in the final production stage and will be available this year. The other three sections are scheduled for completion in 1990. Also in preparation and expected to be available this year is a revision to the Beef Products section which was published in 1986. Later in today's program, Lynn Dickey will provide details about the Beef Products revision -- why it was undertaken and where the differences occur in the data.

A market basket study on pork products sponsored by the National Livestock and Meat Board is in progress. The study includes measuring fat trim levels, dissecting raw and cooked cuts into separable lean and fat, and measuring the nutrient content of the separable lean and fat. Information from this study will be used to determine if a revision to the Pork Products section of Handbook No. 8 is needed.

This year we are also beginning a series of supplements to Handbook No. 8 to update portions of previously published handbook sections when complete revisions of the sections are not needed. Since the current

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handbook revision uses looseleaf pages with one food item to a page, the supplements can be used easily with existing sections. They will include: (1) revised data printed on pages that will replace corresponding existing pages; and (2) newly published data printed on pages that can be inserted into the looseleaf books at the appropriate places.

The 1989 supplement will contain revised data for 55 items, i.e., 55 replacement pages for previously published items. For example, in AH 8-1, Dairy and Egg Products, nine egg items are being updated. Seven other food groups have from two to twenty items that are being revised. The supplement will also include data for 14 new items that can be inserted into the appropriate sections. Examples of the new items are canola oil and ground turkey.

In addition to the "replacement" and "insertion" pages, the 1989 supplement will include tables of data for specific nutrients. Tables of copper and manganese values will be present for AH 8-1, Dairy and Egg Products, and AH 8-2, Spices and Herbs, since these data were not available when the sections were originally prepared. Total dietary fiber will also be included for several food items. The tables covering specific nutrients will be in the form of appendices which can be inserted into specific sections of the handbook. Food item numbers will be included for each value on these tables.

The Nutrient Database for Standard Reference is the computerized data set containing all data from Agriculture Handbook No. 8. The current release is number 7, which includes data from AH 8-1 through AH 8-16. Release 8, in preparation and scheduled for release this summer, also will include data from the Lamb, Veal, and Game Products and Fast Food sections. It will also include data from the 1989 supplement.

A new computerized code manual is in preparation for the Standard Reference database to accompany both the tape and diskette versions. The code manual was designed and is being constructed under contract by Technical Assessment Systems, Inc. It will have separate data fields for food group, food description, percent refuse, refuse description, and the household measure weights and descriptions. It is designed so that additional household measures can be added in the future if information becomes available. The new manual will be included with the Standard Reference database for releases that take place after next year.

The USDA Nutrient Database for Individual Intake Surveys is another database maintained at HNIS. The current working version is being used for analysis of the 1987-88 Nationwide Food Consumption Survey and will be released to the public when the survey results are released.

Since the last conference, HNIS issued a provisional table on Total Dietary Fiber, prepared by Ruth Matthews and Pamela Pherrson. The table is based on data derived by the method of the Association of Official Analytical Chemists (AOAC). HNIS is currently sponsoring an international collaborative study on dietary fiber. Seven laboratories in Canada, England, and the U.S. are analyzing the same 50 samples of foods, under controlled conditions. Each laboratory is using at least two of the current methodologies. Results of this study will be analyzed to determine if HNIS can use data generated by methods other than the AOAC method. Lately there has been increased interest in data on soluble and insoluble dietary fiber components, but presently the database for these components is not adequate to permit deriving reasonable estimates. We are encouraging development of practical methods of analyses for these components to permit reporting them separately.

HNIS has four other analytical research projects underway. We will soon finish the second of two separate analytical studies planned to provide selenium data on major selenium contributing foods from different regions. These data will be combined to provide values for use with nationwide surveys. The second project includes analyses for copper, zinc, manganese and magnesium in a number of foods to confirm or monitor current values.

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The third project is to compare the nutrient composition of several wild and cultivated species of finfish and shellfish (catfish, rainbow trout, coho salmon, oysters and crayfish). Of particular interest will be the data on cholesterol and fatty acids, especially the omega-3 fatty acids. Vitamins and minerals are also being determined. The fourth project is to provide data for items missing from our food composition database; for example, aseptically packaged milk and juice drinks. Much of the data from this contract will be included in the 1990 Handbook No. 8 supplement.

This last project also included analytical measurements on the retention of alcohol during cooking, in foods that have an alcohol containing ingredient. This phase of the contract has been completed and several retention factors for alcohol in cooked foods are now available:

<u>Preparation Method</u>	<u>Percent of Alcohol Retained</u>
No heat application, immediate consumption	100
No heat application, overnight storage	70
Alcohol ingredient added to a boiling liquid and removed from heat	85
Flamed	75
Baked, approximately 25 minutes, alcohol ingredient on surface of mixture (not stirred in)	45
Baked/simmered, alcohol ingredient stirred into mixture:	
15 minutes	40
30 minutes	35
1 hour	25
1 1/2 hours	20
2 hours	10
2 1/2 hours	5

Two research projects are planned for fiscal 1989. One involves proximates, vitamins, and minerals for 20 key food items used in the survey database. The foods selected for analysis are major consumption items, and major contributors of the various nutrients. We will use data from the 1987-88 Nationwide Food Consumption Survey to compile a larger list of key foods to be studied in detail over several years beginning in fiscal year 1990.

The second project planned for fiscal 1989 will cover fatty acids and cholesterol for the key foods and also some of the important cooking fats. In 1990 if funds are available, HNIS will conduct additional nutrient retention research, concentrating on the effects of different methods of cooking.

In addition to our extramural projects, several staff members at HNIS are serving on the American Meat Science Association's committee to establish a research protocol for deriving nutrient profiles for muscle foods. This protocol will serve as a standardized procedure to be used by any organization performing research on these foods. Four sub-committees are developing protocols for: sample selection and storage; dissection, cooking and yield; nutrient analysis; and applications for use. Co-chairmen of the committee are Robert Rizek, HNIS, and Burdette Breidenstein, Texas A & M.

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We are presently installing the Nutrient Databank Bulletin Board at HNIS to provide a ready source of up-to-date information about nutrient data releases and announcements about Nutrient Databank Conferences. Information will be presented mostly in the form of bulletins which can be read while accessing the bulletin board or saved on a disk for later review. In addition, the bulletin board will include a limited number of small nutrient data files available for downloading.

During this installation and initial test phase, several bulletins and one nutrient data file are available for access on the bulletin board. Current bulletins contain information about the latest USDA nutrient databases. The data file includes information from HERR 48, Sugar Content of Selected Foods.

Nutrient Databank Conference attendees are invited to participate in the current test phase. Equipment needed include a computer, telephone line, modem (1200 or 2400 baud), and communications software. The following parameters must be set on the modem or through a communications software package: n/8/1 (n = no parity; 8 = 8 bits; and 1 = stop bit). The phone number is 301-436-5078. Comments may be left for the system's operator, and individuals contacting the board are encouraged to leave suggestions or comments that may help to improve this new service provided by HNIS.