

DESCRIPTION AND APPLICATION OF THE MICHIGAN STATE UNIVERSITY
NUTRIENT DATA BANK

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The Michigan State University Data Bank, developed from the HVH-CWRU data bank, contains approximately 3,500 food and drink items. For each food, nutrients are recorded in the bank per 100 grams. All data currently available on nutrient composition of the foods contained in the data bank is accessible for dietary analyses. Dietary components contained in the bank which are infrequently available from other nutrient data banks include: total sugar, sodium, folacin, pantothenic acid, zinc, pyridoxine, saccharin, caffeine, theobromine, and lead. Also contained in the bank are a large number of home recipes. Sources for the nutrient composition of foods in the bank include USDA, commercial establishments and current scientific literature. The MSU Data Bank has the capability of calculating nutrient intakes on a meal, daily or weekly basis; these intakes can be expressed as %NRC-RDA or %US RDA as well as in unit measures. The MSU Data Bank is updated on a weekly basis; thus, it is one of the most current nutrient data bases available.

Thus far the data bank has been used in areas of research, industry, extension, and teaching. Its greatest use presently pertains to survey research. From a cross-sectional sample of 2000 U.S. families (all members within the household), analyses have been done to 1)determine the average nutrient intakes of various subgroups of the sample population; 2)assess distributions of these nutrient intake levels; 3)evaluate the relationships among consumption patterns of various nutrients; 4)determine how frequently particular food items are consumed as well as what food items are consumed with the product, e.g., how frequently cookies are consumed with milk as opposed to a soft drink; 5)assess frequency of snacking, items eaten during snack periods, and the contribution these food make to the total diet; 6)classify sample population by their eating habits and examine the nutrient intakes of these subgroups; 7)delineate meals themselves as being of a particular type, e.g., containing ready-to-eat cereal, and examine the average nutrient composition of the meals; 8)examine food source of children's total sugar intake; 9)assess usage levels of vitamin/mineral supplements by sample population; and 10)examine food consumption patterns of individuals classified as obese, heavy, slight and average in weight.

The MSU Nutrient Data Bank's basic processing unit is an Amdahl 470/V7. This is a 32 bit processor with a memory of 16.5 million bits of storage. It runs on a dual tasking system with two processors; disk storage is 20 billion bits on line for each drive. The programming language for the data bank is SAS. The data base is in ASCII format and requires one meg on disk storage. The MSU Data Bank was designed as a sequential file system; as such, total processing time is about minimal. The key word to the bank is flexibility; this allows handling the bank in a variety of ways.

Though applications of the MSU Nutrient Data Bank have been principally survey research analyses, many other applications are planned for the future.

For example, many general extractions could be made, such as identifying various foods that would be appropriate for a low sodium diet. The bank could be merged with different data bases, for example cost data bases, to perform functions such as cost per gram of protein from various food products. The most interesting challenge which remains for the MSU Bank is to convert it to a micro-computer system. This is quite feasible since the MSU Bank can be condensed to a composite picture form at under 400K. When this conversion has been completed, accessibility of the system will be maximized.