

abandoned as uninformative to the public." To implement this recommendation, FDA has proposed that the word "imitation" be used only on foods nutritionally inferior to an imitated food.

For variant products that are not less than nutritionally equivalent to an imitated food, it was proposed that different common or usual names, names fully descriptive and informative to consumers, be established.

As a starter, FDA proposed to rescind its 1955 statement of policy calling for labeling frozen desserts made in semblance of ice cream, but containing vegetable fats in substitution for milk fat, with the name "Imitation Ice Cream." Instead, FDA proposes that an identity standard should be established for vegetable fat frozen desserts under the name Mellorine.

Mellorine is not a new name. Some 25 states have sanctioned distribution of vegetable fat frozen desserts labeled Mellorine in their intrastate commerce. A new standard was also proposed under the name Parevine for frozen desserts made in semblance of ice cream but containing no milk, meat, or ingredients derived from milk or meat.

The proposals for Mellorine and Parevine remind us of the identity standard for oleomargarine. As is well known, oleomargarine originated in France in 1870 as a butter substitute. It was first marketed in our country in 1874. Here dairymen and food regulatory officials were diligent in preventing the word butter from appearing on the labels of oleomargarine.

When the standard was established in 1941, it was declared that the common and usual name for this food was oleomargarine. Corporations engaged in marketing butter challenged the standard in court. They argued that the standard should have prescribed the name "Imitation Butter."

The court rejected this argument, saying "Oleomargarine is a well-known food product with an identity of its own . . ."

Congress recognized that consumers are interested in being dealt with honestly and fairly in their purchases

of food. The FDA proposals for more complete ingredient declarations and more informative labeling on standardized foods are intended to promote these consumer interests.

#### FOR FURTHER READING:

U.S. Department of Agriculture, Office of Communication, *Standards for Meat and Poultry Products—A Consumer Reference List*, unnumbered publication, Washington, D.C. 20250, 1973.

\_\_\_\_\_. *USDA Grade Standards for Food—How They are Developed and Used*, PA-1027, for sale by Superintendent of Documents, Washington, D.C. 20402.

U.S. Department of Commerce. *Federal Inspection Marks for Fishery Products*, Food Fish Facts 50, 100 E. Ohio St., Chicago, Ill. 60611.

\_\_\_\_\_. *U.S. Grade Standards for Fishery Products*, Food Fish Facts 51, 100 E. Ohio St., Chicago, Ill. 60611.

## Nutrient Labeling And Guidelines

THE FOOD AND DRUG Administration has completed a major rearrangement of regulations dealing with food labeling. "Nutrition Labeling," the most important of these regulations, involves a whole new concept—the direct listing of nutrient contents of a food on the label.

Formerly, when vitamins were added to foods the products carried "Special Dietary" labels. Now, common foods, including most of those that contain added nutrients, can be labeled under *Nutrition Labeling*.

The *Special Dietary Foods* label will be restricted to foods that really are special, such as those used for sole items of the diet or under the supervision of a physician.

Nutrition labeling is voluntary, with a few major exceptions. The exceptions are foods to which nutrients are added or about which nutrition claims have

been made. Enriched bread, breakfast cereals, and enriched milk products are among the foods to which nutrients have been added and for which *Nutrition Labeling* is mandatory.

Another change brought about by nutrition labeling is that the Minimum Daily Requirement (MDR) values that were listed by the Food and Drug Administration starting in 1941 have been replaced by "U.S. Recommended Daily Allowance" (U.S. RDA) values, a new set of labeling standards. The U.S. RDA standards were derived from the "Recommended Dietary Allowances" published by the National Academy of Sciences-National Research Council (see the first chapter in this Yearbook) and are subject to amendment from time to time as more information on human nutrition becomes available. Values to be used on most foods are listed in a table with the first chapter.

During development of the Nutrition Labeling regulation, nutrition educators and spokesmen stressed the advantages of a standard format for the consumer and as an aid in consumer education. An example of the standard format required by the regulation is illustrated in the sample label for Green Beans.

The explicit statement "per serving" is required under (or following) the heading "Nutrition Information." To avoid confusion about the basis for the various values, all values on the table refer to the amount provided per serving. Size of a serving must be listed in common household units (such as "cup") or as a recognizable portion (slice).

The number of servings that are in a container must be listed.

Caloric content is the next item in the format. Calories are listed in two-calorie increments below 20 calories and in five-calorie increments up to 50 calories.

Above 50 calories, 10-calorie increments are used.

Contents of protein, carbohydrate and fat are listed to the nearest gram, for the purpose of simplifying consumer understanding and use. Information on fat composition or cholesterol content

may also be provided, as discussed below. The listing of the protein content provides information to aid in comparative shopping for complex food products such as potpies. Calorie and fat content probably will be of the greatest overall use—to those interested in weight-reduction and fat-modified diets.

The amounts of eight nutrients—protein, vitamin A, vitamin C, thiamine, riboflavin, niacin, calcium and iron—are shown as "Percentage of U.S. Recommended Daily Allowances (U.S. RDA)." These seven vitamins and minerals plus protein form the lower portion of the standard format and must always be listed.

Many manufacturers did not think it reasonable to list the "zeroes" which products lacking in some of these nutrients would require. Many nutritionists and educators believe it is time consumers learn that every food does not necessarily contain all nutrients.

Two modifications of the standard format are permissible. Both provide the same basic information but in a simplified format. In the first, the zeroes that might be listed opposite some of the nutrients can be replaced by an asterisk which relates to a footnote at the bottom stating: "Contains less than 2% of the U.S. RDA of these nutrients." According to the second modification, if a food contains three or less of the eight nutrients in the standard format at more than 2 percent of the U.S. RDA, these may be listed as a footnote, indicated by an asterisk, that would read, "Contains less than 2% of the U.S. RDA of \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_, listing whichever of the eight nutrients are missing.

For example, nutrients present at less than 2 percent of the U.S. RDA might be protein, vitamin A, riboflavin, niacin and calcium. This alteration of the standard format was an effort to

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AUTHOR *H. Neal Dunning* is with the Bureau of Foods, Food and Drug Administration (FDA).

CO-AUTHOR *Ogden C. Johnson*, formerly with the Bureau of Foods, FDA, is now with the Hershey Food Co., Hershey, Pa.

**NUTRITION INFORMATION**  
(per serving)  
**SERVING SIZE=1 CUP**  
**SERVINGS PER CONTAINER=2**

CALORIES .....	40
PROTEIN .....	2 grams
CARBOHYDRATE .....	7 grams
FAT .....	0 grams

**PERCENTAGE OF U.S. RECOMMENDED  
DAILY ALLOWANCES (U.S. RDA)**

PROTEIN .....	2%
VITAMIN A .....	10%
VITAMIN C .....	8%
THIAMINE .....	2%
RIBOFLAVIN .....	4%
NIACIN .....	2%
CALCIUM .....	6%
IRON .....	10%

Sample Nutrition Label for Green Beans

achieve some reality while providing full nutrition information.

Final regulations also have been issued for the "Labeling of Foods in Relation to Fat, Fatty Acid, and Cholesterol." A manufacturer may indicate on the label of his product the composition of the fat and/or the amount of cholesterol that are in the product. The use of cholesterol or fat labeling invokes full nutrition labeling. For that reason, fat composition labeling may be conveniently considered together with nutrition labeling. A Frozen Main Dish label illustrates this combination.

Besides a statement of the total grams of fat, fat labeling requires a statement of the percent of calories provided by fat. Below this are listed the grams of polyunsaturated fat and grams of saturated fat.

The sum of "saturated" and "polyunsaturated" does not equal the grams of fat (total). Unsaturated fats, short chain fats, and some others are not included in either "saturated" or "un-



*Checking a label.*

saturated." However, the data on the label provide the ratio of polyunsaturated-to-saturated fats and also gives the actual amount of polyunsaturated fat. These were the two figures that most dietitians and nutritionists wanted. In addition, a conditional statement must be made as follows: "Information on fat and cholesterol content is provided for individuals who, on the advice

**NUTRITION INFORMATION**  
(per serving)  
**SERVING SIZE = 8 OZ.**  
**SERVINGS PER CONTAINER = 1**

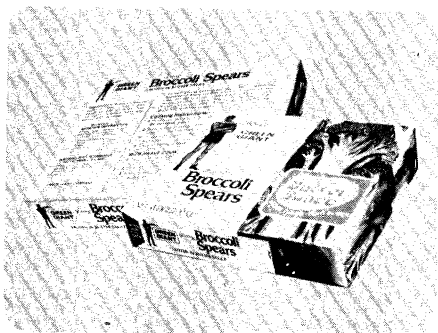
CALORIES	560	FAT (percent of calories 53%)	33 g
PROTEIN	23 g	*Polyunsaturated	2 g
CARBOHYDRATE	43 g	Saturated	9 g
		*CHOLESTEROL (20 mg/100 g)	45 mg
		SODIUM (300 mg/100 g)	680 mg

**PERCENTAGE OF U.S. RECOMMENDED  
DAILY ALLOWANCES (U.S. RDA)**

PROTEIN	35%	RIBOFLAVIN (VITAMIN B <sub>2</sub> )	15%
VITAMIN A	35%	NIACIN	25%
VITAMIN C (ASCORBIC ACID)	10%	CALCIUM	2%
THIAMINE (VITAMIN B <sub>1</sub> )	15%	IRON	25%

\*Information on fat and cholesterol content is provided for individuals who, on the advice of a physician, are modifying their total dietary intake of fat and cholesterol.

Sample Nutrition Label for Frozen Main Dish



(Top) Part of a carton of frozen broccoli spears. (Above) Milk carton labeling allows nutritive comparison between regular milk and 2% low fat milk.

of a physician, are modifying their total dietary intake of fat and cholesterol.”

It is permissible to list sodium content without using nutrition labeling. However, sodium content also may appear on a nutrition label as shown in the frozen main dish label. In both cases, it also is listed in milligrams per 100 grams, each declared to the nearest multiple of 5 milligrams.

Nutrition labeling contains another new concept—details of testing compliance are specified, including the statistical guidelines. The compliance section provides ample range of nutrient content for indigenous nutrients in recognition of natural variations. However, it has a solid statistical base to assure that the consumer obtains the amounts of nutrients listed on the label. Tolerances for added nutrients are considerably more strict, but still provide room for reasonable variation consistent with good manufacturing practices.

Nutrition labeling also takes into account the quality of protein in the food.

**NUTRITION INFORMATION**  
(per serving)  
**SERVING SIZE = 8 FL. OZ. (1 CUP)**  
**SERVINGS PER CONTAINER = 4**

	Per Serving (8 fl. oz.)	Per Day (1 quart)
CALORIES	160	640
PROTEIN	8 grams	32 grams
CARBOHYDRATE	12 grams	48 grams
FAT	9 grams	36 grams

**PERCENTAGE OF U.S. RECOMMENDED  
DAILY ALLOWANCES (U.S. RDA)**

PROTEIN	15%	60%
VITAMIN A	6%	25%
VITAMIN C	4%	15%
THIAMINE	4%	15%
RIBOFLAVIN	20%	80%
NIACIN	0%	4%
CALCIUM	25%	100%
IRON	0%	4%
VITAMIN D	25%	100%

Sample Nutrition Label for Whole Milk

Protein quality is commonly described scientifically by an expression, "Protein Efficiency Ratio" or "PER." PER is defined as the gain in weight of a young rat divided by the weight of protein consumed during a period of rapid growth, usually of three-week duration. A control is run with as nearly identical rats as possible in which casein is the protein.

The ratio for the casein-containing diet commonly is about 2.5. If it differs from 2.5, both ratios are corrected so that the ratio for casein becomes 2.5 and the other PER is adjusted accordingly.

Two adult U.S. RDA values for protein have been set. The U.S. RDA values for adults are listed as 65 grams if the PER of the protein is less than that of casein, and 45 grams if the PER is equal to or better than that of casein.

This means that when a "better than casein" protein is consumed, less pro-

tein is needed for a person to obtain the U.S. RDA value than when a protein with a PER value below casein is consumed.

The "better than casein" group would be the traditional high quality proteins from meat, fish, eggs and dairy products. Other protein products such as vegetable proteins and mixtures of cereal and animal proteins would be expected to fit the 65 gram value.

The regulation is also written so that protein that has a value less than 20 percent of the PER of casein cannot be counted as contributing protein at all. Basically, this would include a protein like gelatin which is of little value as a protein contributor. Generally speaking, the common vegetable proteins such as those present in soy, lentils, wheat and the like would have a U.S. RDA of 65 grams. Actually, the penalty is not large and recognizes the large contribution such vegetable sources make to the daily protein supply.

Nutrition labeling has had a very beneficial effect on the amount of information on nutrient content that is being determined for foods. Major food producers had programs to analyze most of their products even before the regulations were final. Groups of smaller producers combined, with the help of their trade associations, to obtain analytical results on their foods.

The milk industry formed a task group to develop a working plan and accumulated detailed data. Their efforts were aimed toward complete updating of the information on the nutrient content by seasons of the year, by geographic location, by species and other factors. They also provided a logical way of using nutrition labels on most dairy products. An example is shown in the Whole Milk label.

One of the major stimuli for establishment of nutrition labeling was consumer groups who desired more information on what is in foods they buy and eat. These groups wanted up-to-date information on nutrient content of each brand, and not just representative nutrient values based upon years of survey averages. Consumers emphasized that they were not only interested in learning whether products were appetizing and attractive, but wanted to know whether or not food products contained vitamin A, vitamin C or other nutrients.

A few kinds of foods with added nutrients are exempted from "Nutrition Labeling." These include infant formulas which are regulated under foods for "Special Dietary Use."

Other baby and junior-type foods marketed and promoted for infants or very young children are being labeled in accordance with "Nutrition Labeling." For such foods, the "serving" means a reasonable quantity for an infant or a child and the nutrient content information is based on one of two special sets of U.S. RDA's for infants and children under four, instead of the adult allowances.

Other exemptions are foods that are represented for use as the sole item of a diet—not the sole item of a meal,

and a food product that is represented for use under medical supervision for the dietary management of specific diseases.

Use of iodized salt does not require nutrition labeling as long as neither iodine nor iodized salt is otherwise referred to on the label or in labeling.

A nutrient included in a food solely for technological purposes may be declared simply on the ingredient statement without the invoking of nutrition labeling. Also, a standardized food containing an added nutrient—for example, enriched flour—may be included in another food as a component and may be listed simply in the ingredient statement by its standardized name without invoking nutrition labeling, provided no other claims are made.

Food products shipped in bulk form also do not require "Nutrition Labeling." Foods containing an added vitamin, mineral or protein or for which a nutritional claim is made require "Nutrition Labeling" *unless* the product is supplied only for institutional purposes. In addition, the manufacturer must supply the nutrition information required by this section directly to the institution on a current basis.

Vitamin and/or mineral supplements in the form of a food (for example, a breakfast cereal) must conform to labeling established in both "Nutrition Labeling" and that governing dietary supplements, which are classified as "Foods for Special Dietary Use."

The regulations covering "Foods for Special Dietary Use" have been changed markedly. As we mentioned above, common foods which contain added nutrients formerly were labeled using requirements for "Special Dietary Foods"; they now will be labeled under "Nutrition Labeling."

These regulations establish the U.S. Recommended Daily Allowances (U.S. RDA) as a replacement for the "Minimum Daily Requirement" (MDR) as the official measurement of nutrient content. Four sets of U.S. RDA values are now established. These include values for infants, children under four years of age, adults and children over

four years of age, and pregnant and lactating women (see table in first chapter). Also published for the first time is a table of chemically identifiable "reference forms" of vitamins.

A standard of identity has been finalized for dietary supplements of vitamins

limit is 150 percent of this value for each nutrient. Dietary supplements are classified as foods, but at nutrient levels above 150 percent of the U.S. RDA they are classed as over-the-counter drugs.

Two exceptions are vitamin A and D

## *Meat and Poultry Products*

J. C. DEHOLL \*

**F**EDERAL Meat and Poultry Inspection laws outline U.S. Department of Agriculture (USDA) responsibilities to control the processing and labeling of meat and poultry or their products.

Regulations require that labels for these products be approved before they are used. Thus, everything which appears on the label must be reviewed and approved by a representative of the Secretary of Agriculture whether the information be voluntary or mandatory.

Nutritional labeling of meat and poultry products is voluntary. However, those who elect to nutritionally label their products must follow specific labeling requirements providing for uniform format and ease of consumer evaluation.

Label approval is granted only after it is determined that the required information is presented in the proper manner, that declared values are supported by adequate analytical data, and that the processor has a control program to ensure that products comply with their label

claims. The consumer can be confident, after such critical review by both processor and the USDA, that nutrition information on the label is factual and reliable.

All products nutritionally labeled must contain label information which declares the nutrition information on an "as purchased" basis. Products requiring cooking before they are eaten, and which are nutritionally labeled, are required to declare the nutrition information on an "as purchased" and "as prepared" basis. A specific method of cooking must be shown in a statement adjacent to the nutrition information.

This proviso that certain meat and poultry products be labeled on an "as prepared" basis is required because in many instances cooking results in significant nutritional changes, especially in fat and caloric values, which are of such widespread consumer interest and concern.

Raw poultry, uncooked red meats, and bacon are examples of products which will be required to present the nutrition information on the "as purchased" and "as prepared" basis with preparation instructions.

Nutrition labeling on an "as purchased" basis aids the consumer in making value comparisons prior to purchase. Nutrition labeling on an "as prepared" basis aids the consumer in making value comparisons of the product as it may be consumed. Presentation of nutrition information in this manner will assist the consumer in making

\* With Meat and Poultry Inspection Program, Animal and Plant Health Inspection Service, USDA.

and minerals, under the "Special Dietary Foods" regulations. Upper and lower limits for the vitamin and mineral contents of dietary supplements are specified in terms of U.S. RDA levels. Generally the lower limit is 50 percent of the U.S. RDA value and the upper

that are classed as prescription drugs at 200 percent and 100 percent of their respective U.S. RDA values. This distinction is made because of the proven toxicity of these two vitamins at high dosage levels.

Certain kinds and combinations of

vitamins and minerals are specified. A dietary supplement may consist of:

1. All vitamins and minerals.
2. All vitamins.
3. All minerals.
4. All vitamins and iron.
5. Any single vitamin or mineral.

the best selection of products to meet particular needs.

USDA also requires that companies which nutritionally label products must maintain a USDA approved, plant operated quality control program ensuring that all products being shipped will meet all label claims. Intent of this control program is to ensure that mislabeled products do not reach the market place.

It is USDA's belief that nutrient composition can be controlled through effective ingredient, processing, and distribution control programs carried out by the companies involved.

Nutrition labeling is a program under which consumers will be able to learn more about the quality and character of meat and poultry products. Consumers are encouraged to read and study the information available on nutritionally labeled products. Increased understanding of the nutritional quality of foods will be of inestimable value to the consumer in evaluating new foods for family feeding.

USDA believes the nutritional character of meat and poultry products will become a more significant factor in the marketing and purchasing of foods in the future.

Growing shortages in the world supply of animal protein will focus more and more attention on the nutritional character and importance of meat and poultry products. Nutrition labeling will be a key aid in providing the consumer with this vital information.

Thus, the standard provides that a wide variety of vitamin and mineral supplements will be available.

Besides establishing nutritional labeling rules for foods and dietary supplements, the Food and Drug Administration has also issued Nutritional

Quality Guidelines for several food products.

The purpose of a guideline is to prescribe a basic level of nutrient composition for a class of food.

When the nutrient composition of a product complies with the prescribed guideline, the product's label may make the statement, "This product provides nutrients in amounts appropriate for this class of food as determined by the U.S. Government."

The product must carry the common or usual name provided for in the guideline, present nutrition labeling on the product, and make no special claim for nutrients that were added to permit the product to meet the prescribed guideline. Any nutrients added, however, are to be included in the ingredient statement and on the "Nutrition Label."

The first of the nutritional quality guidelines to be published is for "Frozen 'heat-and-serve' dinners." To qualify as a dinner, the product must consist of three parts which include: 1. One or more protein sources from meat, poultry, fish, cheese or eggs; 2. One or more vegetables or vegetable mixtures other than potatoes, rice or cereal products; and 3. Potatoes, rice or cereal products or another vegetable or vegetable mixtures. Other items of food that may be included, such as soup, bread, beverage or dessert, are not counted as fulfilling any part of the basic nutrient requirements of the components specified, but must be included in "Nutrition Labeling."

This first regulation on "Frozen 'heat and serve' dinners" also prescribes the use of iodized salt, if technologically feasible. It provides for maintaining a calcium-to-phosphorus ratio of 1 to 1, and suggests that wherever possible calcium should be added and phosphates should be minimized within technological restrictions.

Although there is still much more to do in providing information on the nutrient content of foods, the first major steps have been taken with the advent of nutritional labeling of conventional foods, updating labeling of foods for special dietary purposes, including die-



tary supplements, and the development of guidelines for different classes of foods or meals.

"Nutrition Labeling" resulted from consumer interest in nutrition and has led to an unprecedented opportunity for nutrition education. Nutrition has become of major interest in food marketing as shown by the various approaches used by food manufacturers and distributors. It is vital that these efforts be conservative, correct and coordinated with several operating programs of governmental and academic organizations. It is also essential that these programs be brought up to date with rapidly expanding nutritional knowledge and awareness.

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## *Organic, Inorganic: What They Mean*

**T**HE WORDS "organic", "chemicals", "natural", and "health" are among the most misunderstood, misused, and maligned in our vocabulary, especially when they are applied to our food.

All organic materials are complex combinations of chemicals and contain one chemical element in common. That element is carbon. But not all chemicals occur in the form of organic material. All of our usual food supply is in organic form because it has come from animal or plant sources. Most man-made foods are also in the organic form.

Today our chief concern about things organic and chemical relates to how foods are grown and processed. There are no precise, official definitions for these but some have been proposed for legal use and can be useful here:

"The term 'organically grown food' means food which has not been subjected to pesticides or artificial fertilizers and which has been grown in soil whose humus content has been increased by the addition of organic matter."

"The term 'organically processed food' means organically grown food which in its processing has not been treated with preservatives, hormones, antibiotics, or synthetic additives of any kind."

Organic material or humus used in growing the plants which we eat directly, or which are fed to the animals that furnish our meat, includes manures, plant composts, and other plant residues such as peat moss and aged sawdust.

These are all made by the living cells in animal or plant tissues. They contain the nutrients, nitrogen, phosphorus, potassium, sulfur, magnesium, and other essential minerals in complex combinations with carbon, hydrogen, and usually oxygen.

Inorganic or commercial fertilizers contain the same chemical nutrients but in simpler forms and not always in combination with carbon. It is not accurate to refer to inorganic fertilizers as "artificial" just because they have not been made by living cells.

A plant is not aware of the type of fertilizer, organic or inorganic, that is furnishing the chemicals for its growth. It does demand that these building blocks for its nutrients be in the inorganic form. Cells of the plant itself synthesize the complex materials needed for growth rather than absorbing them ready-made from the soil.

When organic fertilizers are used, they are first decomposed by the microorganisms in the soil. This converts nutrient materials to the inorganic form which can be used by the plant.

Organically raised animals are fed on organically grown pasture and feed. They are given no growth stimulants, antibiotics, or synthetic materials. But it is not likely that an animal's cells are aware of whether the many essentials for their growth and repair are being furnished by feed in the organic or inorganic form.

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AUTHOR *Ruth M. Leverton* is a Science Advisor, Agricultural Research Service.