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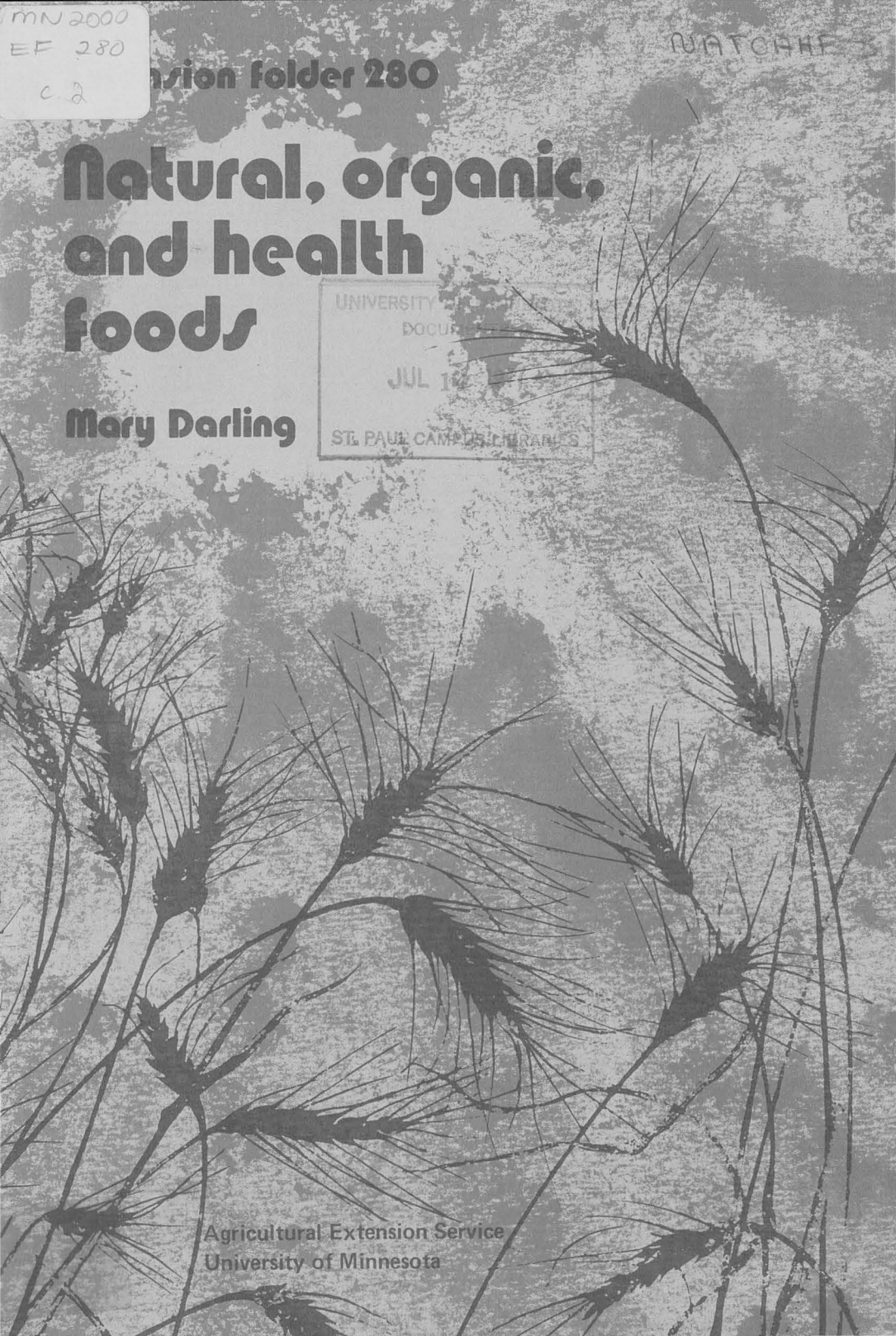
WATGHEE

Natural, organic, and health foods

Mary Darling

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The writer would like to thank the many people who contributed their expertise to this pamphlet. The subject requires a multi-discipline approach and this pamphlet was possible because of their cooperation.

The demand for “natural” foods in the United States in the past few years has caused sales of such items to more than double since 1970. The number of stores specializing in organic or natural foods has increased from 1,200 in 1968 to more than 3,000 today. And, many major food chains have added natural food sections in their supermarkets.

Why the interest in organic, health, and natural foods?

Factors leading to a wide-spread desire for organic, health, and natural foods include an increased interest in ecology, the back-to-nature lifestyles, a consumer demand for quality in the marketplace, and concern about additives, pesticides, and drug residues in foods. Some people are raising and preserving their own food, or depending upon merchants to supply them with organic, health, or natural foods.

What does organic mean?

Organic chemistry is the study of the chemical properties of natural products, “organic” referring to the carbon chain upon which life is based. Recently many people have associated “organic” with the earth or nature, and chemistry has become associated with synthesized laboratory materials.

What are organic foods?

There is no legal definition for organic foods. Producers, manufacturers, and retailers may use the term loosely in advertising and labeling these foods. Consumers expect organic foods to be grown without commercial fertilizers and pesticides and to be free of additives, hormones, and antibiotics. For example, organic meats would be described as coming from animals raised only on organically-grown pasture and not given hormone implants or feed with antibiotics.

Organically grown foods

This refers primarily to the way certain foods are raised, since all food could be called “organic” in the chemical sense. The plowing, irrigation, insect and pest control,

and fertilizing methods used in raising organic food take advantage of natural relationships between organisms and their environments. Soil deficiencies are corrected by using decaying natural matter and so-called nonorganic fertilizers like limestone, granite, and rock phosphate. No commercial pesticides or fertilizers are used.

Large amounts of organic materials can improve the physical properties of soil by increasing soil aeration and the development of soil organisms. Contrary to some claims, organic methods do not guarantee improved nutritional composition of crops.

Comments that tired, depleted soil has created human nutritional deficiencies are unfounded. The only known example of a relationship between soil and human nutritional deficiency is endemic goiter. Because iodine is needed to prevent endemic goiter but is not needed by plants, goiters are avoided by using iodized salt; it is not necessary to add iodine to the soil.

To understand how a plant uses organic or commercial fertilizers, we need to know how it takes simple substances from the soil. Manure and compost must be broken down by bacteria into chemicals before they can be absorbed by the plant's root system. Commercially produced fertilizers provide the same minerals and nitrogen compounds as do organic fertilizers. When soil conditions and weather are optimum, the conversion of organic nutrients to inorganic nutrients by microorganisms in the soil is rapid.

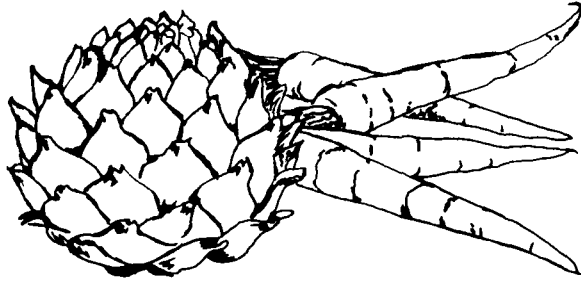
A study by scientists of the United States Plant, Soil and Nutrition Laboratory at Ithaca, New York, shows that vitamin C and carotene (a precursor of vitamin A) content of seeding rye in plots receiving large quantities of manure over a 25-year period was the same as that of the rye from plots fertilized with chemical fertilizer for the same period. Similarly, the vitamin C, iron, and copper content was the same for potatoes grown in manured soil or in chemically treated soil.

Fertilizer, organic or otherwise, can improve the nutritive value and vigor of a plant if the soil is deficient in nutrients. Soil testing is important so you can determine which nutrient is in short supply and then add it to the soil. The protein content of grain can be increased with nitrogen from either fertilizers or manure. However, the major result of adequate fertilization is to increase the size or yield of the crops. It does not greatly affect the nutritional value of the plant.

A plant's nutrient content depends primarily on its genes. Just as plants vary in their insect and disease resistance, the vitamin or protein content of a food, such as a carrot or orange, can vary with the plant's genetic nature. Through breeding, strains of corn with a higher lysine (an amino acid) content have been developed, improving the quality of corn protein. Efforts to obtain redder tomatoes have decreased the beta-carotene content (vitamin A precursor). Many crops could be genetically improved to increase their nutrient content, but some people would argue whether this is necessary.

Other factors affecting a plant's nutrient content are the amount of sunlight it receives and how it is handled and stored.

Raising your own food is an economical way to get fresh, tasty fruits and vegetables as well as exercise and recreation. But we cannot rely on using organic methods in small gardens to feed the populations in our metropolitan areas. There is not enough organic compost and manure to go around. Oriental countries devote their resources to organic cultivation and agriculture to such a degree that forests and wildlife shelters have been destroyed and the hill country has eroded because the land has been stripped of its organic or compost materials.



American food producers are vulnerable to weather and disease in plant and animal life. Eliminating the use of chemical fertilizers, antibiotics, food additives, and preservatives probably could mean less or more expensive food rather than better health.

Natural foods

Natural foods might be defined as those foods that are not processed. Processed foods are foods that have been modified after agricultural production. Fresh fruits and vegetables are not considered processed; frozen fruits and vegetables are.

Some people relate natural foods to a cycle of returning the organic waste materials of plant and animal life to the soil so that they can decompose and then be returned to man in the form of plant and animal food. Although this may sound like a safe, enclosed environment, there is nothing intrinsically safe about nature.

Toxicants occur naturally in foods such as mushrooms, almonds, and spinach. Peach pits can be poisonous if consumed in large quantities (10). Concentration rather than mere presence of a substance is responsible for the toxic properties of many foods. For example, amylicetate is a paint solvent, yet the chemical, in much smaller amounts, is partly responsible for the natural flavor of bananas.

There are many unknowns about the chemical make-up of our natural food resources. The plants and animals that we use for food are a mixture of compounds appropriate to the functioning or propagation of that species. They do not reflect a sacred natural design for human nutrition.

What are health foods?

Sometimes advertisers claim that certain foods can prevent or cure a disease, maintain youthful vigor, or give superior health. Actually all foods are "health" foods, each supplying a variety of nutrients needed by humans. Health foods offer the same nutritive qualities expected in any wholesome food product. It is the unproven health claims made for these foods that are questionable, not the foods themselves. It is interesting to note that the health claims are found in magazines and pamphlets or given verbally. Rarely are they found on the labels, thus avoiding prosecution from the Food and Drug Administration.

Most foods contribute to our nutritional health. Some are regarded as good sources of vitamins, some are good sources of minerals, others contribute protein. If you select a variety of foods in the proper amounts, a balance of vitamins, minerals, and protein will be supplied for good nutritional health.

The relationship between diet and chronic diseases needs much more research. For example, the relationships between fat in the diet and heart disease or bulk in the diet and cancer of the bowel are not agreed upon by leading nutritionists. Much has to be learned about the long-term effects of nutrients on health. Taking excessive amounts of nutrients "just in case" may be just as detrimental as a deficiency of a nutrient. The nutrients in a balanced diet are right for most people. Good overall health and weight control will reduce the chances of getting some illnesses.

Clerks in health food stores frequently act as health advisors even though they have not studied the science of nutrition. Customers frequently ask the clerks for advice on health matters and the clerks tell customers what they want to hear, whether it is accurate or not.

People often turn to health foods or supplements for relief from pain or because they are anxious about their body functions. Usually physicians treat people who are already ill; some people who buy health foods hope to prevent the diseases. The big problem is, at whose expense. More often than not the individuals who profit are the proprietors of health foods, not the customer.

What about the use of pesticides?

Many people do not understand that there is a difference between indiscriminate pesticide use and controlled application. Recent data show that total pesticide residues are down by 25 percent in the last 3 years. Safe use of the proper pesticide is a must. The levels or amounts of pesticide residues that will be tolerated are being defined.



Proper applications of pesticides can mean that chemicals will disintegrate to harmless compounds before the crop is harvested. The chemicals also need to be used far enough ahead of harvest so that disintegration is complete.

At this time the known health risks from being overweight or from bacterial contamination of food are greater than the risks from consuming pesticide residues or food additives.

What about food additives?

Since the beginning of time, man has had to devise ways to preserve his food before it is spoiled. Drying, fermentation, or using salt-brine or sugar syrup have been used to preserve food. Today consumers demand a product that will have the same quality time after time. Older preservation methods often do not maintain constant quality. Therefore, man devised new methods to preserve food, many of which require food additives.

The food industry uses additives to maintain flavor, texture, or color, to block oxidation or rancidity, to prevent emulsion breakage, to add nutrients to foods, or to inhibit mold. Other tools of the food industry are heat and sterilization (canning), refrigeration, freezing, and drying. These methods do not require the use of additives.

Federal investigations into the safety of food additives, banning some, approving others, have made some people suspect almost every food they eat.

The 1958 Food Additives Amendment to the Federal Food, Drug, and Cosmetic Act created a category of substances "generally recognized as safe," called the GRAS list. The Food and Drug Administration (FDA) currently is evaluating this list of substances and other regulated food additives. For a food additive to be approved, its use must be justified and safe, and the amounts must be correct to fulfill a need. Testing involves feeding different levels of the additive to two or more species of animals. The cost of these feeding studies will be passed on to the consumer.

What are enriched foods?

Enrichment means that some of the nutrients that have been removed in the processing of food are returned. When flour is milled, the wheat berry is broken into three sections: (a) the bran, husk, or outer skin; (b) the endosperm or the main part of the berry consisting of starch and protein, and (c) the germ, embryo, or the part of the berry which starts new life. White flour is largely the endosperm of wheat. Because the bran and germ are not used in white flour some of the vitamins and the iron found in bran and germ are added to white flour to enrich it. Whole wheat flour contains many micronutrients that are not available in enriched white flour.

During World War II enrichment was federally controlled. After the war, states could choose whether they wanted an enrichment law. Minnesota does not have a law requiring enrichment of white flour or bread. Because many of our state's millers participate in interstate trade, they add nutrients to the white flour. Use of enriched flour in commercially baked sweet rolls, cookies, and cakes, and in packaged mixes has been limited until the recent interest in the nutritional quality of these products. "Enrichment" of flour, bread, rice, cereal, spaghetti, and macaroni products refers to the addition of the B vitamins (thiamine, riboflavin, and niacin) and the mineral iron.



Advocates of organic and health foods sometimes say that the vitamins used in enriched or fortified foods are worthless. However, the difference between the molecule of the vitamins from laboratory sources or natural sources seems to be insignificant to the body. The vitamins and minerals used in enriching bread and flour are in forms used by the body.

Another term seen on labels is the word "restored." This is applied to processed or refined cereals to which have been added iron and the B vitamins to bring the cereals up to the level of the average concentration of nutrients contained naturally in whole grains.

There are also several classes of fortified foods to which specified amounts of certain vitamins and minerals may be added. The FDA has designated the following food classes for fortification: processed cereal, fruit juices and fruit drinks, infant formulas-infant food products, alimentary pastes, whole fluid and powdered milk for drinking, fluid skim milk and fluid low-fat milk for drinking, and salt. The nutrients are added to carefully selected staples in the American diet in order to improve public health.

Nutritionists do not always agree about the value of adding nutrients to staple foods. For example, some nutritionists question adding vitamin B₁₂ to cereals because it is not found in plant products and there is no evidence of a shortage of it in the average diet. Others question adding vitamin A to instant potatoes; fresh potatoes are not a source of vitamin A. Nutritionists also are concerned about the prevalence of anemia among young women, children, and senior citizens, indicating a need for more iron. The amount and the form of iron salt to be used in the enrichment of breads, flours, and cereals is being debated.

Basically there are two thoughts about enrichment. One is that government and industry should provide nourishment by enriching and fortifying various staples. This is especially important when it is not possible for people to buy a variety of foods. On the other hand, when a variety of food is available and people intelligently select and eat nourishing food, it is not necessary to add a lot of nutrients to staples. Both a nutrition education program and enrichment of food staples are important to meet people's varying lifestyles and food choices.

Why is the vitamin supplement business so big if our food is nourishing?

The appeal for vitamin and mineral supplements, organic or synthesized, is largely based on the argument that a person might have a deficiency that doctors cannot detect. This sales pitch leads to much self-prescription. Advertisements for supplements suggest that if you are concerned about your health, you will take vitamin pills, or that you cannot possibly select nutritious food and so the only way you can be sure you get an adequate amount is to take supplements.

It is possible to take excessive amounts of vitamins, especially vitamins A and D which are stored in the body. Usually this happens when a person takes excessive numbers of pills or drops each day. The symptoms of toxicity from too much vitamin A or D are strikingly similar to the deficiency symptoms.

If you decide to use vitamin pills without consulting a physician, remember that some contain nutrients out of proportion to the body's needs, or contain nutrients that the body can make itself or that are generously supplied in foods.

Food can provide the nutrients needed for the functioning of a healthy body. Select milk and dairy products, meat, eggs, fish and fowl, enriched and whole grain cereals and breads, and fruits and vegetables to provide the minerals, vitamins, protein, carbohydrates, and fat you need.



If you are concerned . . .

If you are sincere about avoiding pesticides, insist on knowing the origin of the food that is claimed to be grown organically. Does the proprietor know his supplier? What evidence can he offer you that the food he sells is actually grown organically? It has been said that much more organic food is being sold than grown. Efforts are underway to establish certification programs.

Stick to stores that appear neat and clean. Spilled grain or seeds attract rodents or insects. Stores should be well lighted and shelves and produce free of dust.

Remember that the freshness of fruits and vegetables is the most important quality. Note how deliveries are handled. If you want the maximum amount of vitamins, buy produce from a refrigerated display case.

Be wary of foods that have a separate sticker or label that reads "organic." It may have been put there as an afterthought. Remember that organic food has not been legally defined and it may be used loosely.

You can do a great deal to get the most nutrition value from the food you buy. Plan your shopping so that you take your food home promptly. Grocery shopping should be your last errand before you go home. Food left sitting in a grocery cart in a store or in a hot car will deteriorate rapidly.

Cool (65 degrees) dry storage is necessary to maintain nutritional quality of canned foods, root vegetables, and grains.

Foods containing the fresh germ of grain, like wheat germ, need to be refrigerated to delay rancidity. Vacuum packed wheat germ should be refrigerated after it is opened.

All vegetables that are eaten raw or unpeeled must be washed thoroughly. Washing helps reduce the risk of bacteria or parasitic infestation. Organically fertilized soils may not contain pesticides and chemicals but they may be rich in salmonella and other sources of food-borne diseases that often inhabit the intestinal tracts of animals and are present in manure.

Wash vegetables but don't soak them. Plan to use them within 2 or 3 days. Drain well before refrigerating. Too much moisture may cause them to rot.

Wash fruits and vegetables before you cut them. Don't rinse cut fruits or vegetables such as green beans, shredded cabbage, or sliced berries. Strawberries lose their vitamins very quickly after they are capped, so prepare them just before serving.

Clean, raw fruits and vegetables are good nutritionally, but cooked foods are good for you, too. Cooking reduces the risk of food-borne diseases. Also, cellulose is broken down so that food is more easily digested and some of the nutrients are more available.

Cooking grains, rice, and beans in too much water so that they have to be drained means a loss of nutrients. All the water should be absorbed.

The B vitamin thiamine is vulnerable to dry heat. Long, dry toasting of cereals or grains reduces the thiamine content and is not recommended.

Because of the longer cooking time, so-called waterless cooking does not preserve more nutrients than does cooking with water.

A carefully timed pressure cooker is recommended for cooking food to retain nutrients.

Steaming, braising, and baking vegetables are recommended to conserve nutrients.

Preparing food in aluminum cookware is not harmful to your health. There is no scientific basis for claims that the minute traces of aluminum found in food or cooking water can cause cancer. This false idea arose because unscrupulous salesmen wanted to sell utensils made of other materials. Teflon[®] Cookware is also safe to use.

Cooking time for vegetables should be minimal. Put them into boiling water. The shorter the time it takes for the water to return to boiling, the faster the enzymes stop oxidizing the ascorbic acid. This means that vitamin C will be retained.

Use a covered pan for yellow vegetables. Use an uncovered pan for strong-flavored vegetables or green vegetables. Leaving the cover off allows some of the acids to volatilize resulting in a more appetizing color and better flavor. A few vitamins may be lost but if a vegetable does not look or taste good it won't be eaten, and it won't nourish anyone.

Use the liquid from canned vegetables in cream sauces, soups, and vegetable juices.

Because vitamin A is vulnerable to the ultraviolet rays of the sun, sun-dried peaches or apricots are not as good a source of vitamin A as fruit dried artificially. Sulfur dioxide, used to dry fruit, prevents discoloration and prevents destruction of the vitamin A precursor, carotene. It is used in very small amounts and is not harmful.

Blended fruit and vegetable beverages may be tasty but raw fruits and vegetables are good, too. The detergent action of cellulose on the teeth and gums is a healthy cleaning action. Blending the fruits and vegetables tends to expose the nutrients to air, oxidizing some of the vitamins.

Pasteurization of milk does not reduce the nutritional value. Raw milk can be a source of the brucella organism that causes undulant fever and other organisms that cause diphtheria, TB, strep throat, rheumatic fever, and many, many more diseases.

Milk is an important source of riboflavin. Because riboflavin is destroyed by sunlight, milk in clear glass bottles or pitchers should be put in a dark refrigerator. If you are concerned about recycling containers, one can purchase some plastic milk bottles that can be recycled. Cardboard containers are biodegradable. Keep milk clean and cold.

Keep meat in the coldest part of the refrigerator at 32° F.

Raw meat is not more nutritious than cooked meat. Raw meat may be a serious health risk. Toxoplasmosis and tapeworm result from eating raw meat. To roast safe and tasty meat, use a meat thermometer to check the internal temperature of the meat. Meat drippings or juices contain iron and the water soluble B vitamins. Use them when possible.

Eating eggs from infected birds has caused salmonellosis in humans. Using cracked eggs or eating raw eggs is not recommended.

Throw moldy legumes, nuts, and grains away. Don't try to salvage moldy peanuts or beans. A toxin or poison may have been formed.

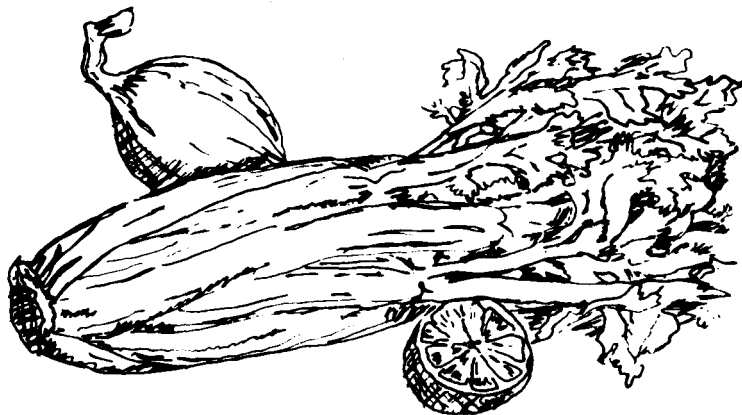
Anyone following a vegetarian diet that excludes dairy products, eggs, and fish should have a working knowledge of amino acid distribution in cereals, legumes, nuts, and vegetables so these foods can be combined for maximum protein synthesis. A vitamin B₁₂ supplement might be recommended if you follow this strict vegetarian diet for several years.



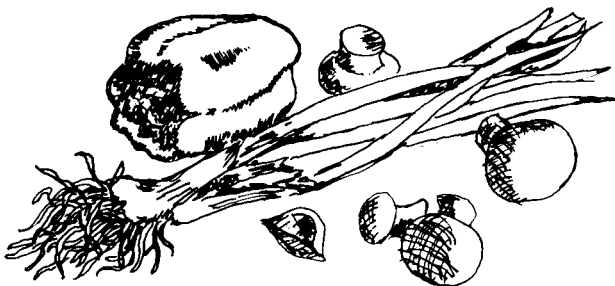
Glossary

Much of the mystique of health foods is that they are unfamiliar or have foreign names. The following glossary briefly describes certain foods that may be termed health, natural, or organic foods, depending upon how they are raised and where they are sold.

1. **Acerola cherry**—A tropical fruit known for its high ascorbic acid content. Citrus fruits and juices, which are more readily available than the acerola cherry, also can provide recommended amounts of ascorbic acid in the diet.



2. **Alfalfa**—A legume used as animal fodder. Some people claim that alfalfa roots grow deep into the earth and, therefore, are able to probe out minerals and trace elements that more shallow-rooted plants cannot reach. This claim is false, especially if you consider that the subsoils are lower in nutrients than the top soils.
3. **Apple cider vinegar**—This product got its boost from Dr. D. C. Jarvis, 1958 best-selling author on folk medicine. He promoted the importance of potassium in vinegar. Potassium is essential, but it is widely distributed in foods so is not necessary to take it in the form of vinegar. A potassium deficiency is unlikely, except when a person is on certain medications such as digitalis or diuretics.
4. **Bean sprouts**—Sprouts are added to salads, soups, or casseroles, and are excellent as fresh vegetables. Mung bean sprouts are sweet and crunchy and tender enough to be used raw and substantial enough to stand sauteing. The beans can be used unsprouted just like other dried legumes in soups and stews. Some people like to sprout seeds and beans at home to add variety to their meals. The high vitamin or protein content of sprouts may be fleeting. Eaten at the right moment of germination they apparently are very nutritious. One analysis of mung bean sprouts indicates that you have to eat about a quart of sprouts to provide the same amount of vitamin C as an orange.
5. **Bone meal**—This is a source of calcium, phosphorus, and fluoride. For people allergic to milk, bone meal may be useful. Most of these people can digest cheese, yogurt, and buttermilk and may choose these instead of bone meal.
6. **Brewer's yeast or nutritional yeast**—A nonleavening yeast grown for human consumption, this is a good source of protein and B vitamins. It comes in powder, flake, and pill form. The powder is more concentrated and it can be added in small amounts to breads, soups, stews, and meatloaves. Store in a tightly covered jar away from light. Don't confuse Brewer's yeast with baking yeast. Baking yeast is a live substance that may continue to grow in the intestines with deleterious results if it is eaten raw. Problems with protein (nitrogen) metabolism, such as gout, might develop if one eats too much Brewer's or nutritional yeast.
7. **Brown rice**—Brown rice is more nutritious than polished white rice, but the claim that brown rice alone is an adequate diet (the claim in macrobiotics) because it contains the same ratio of potassium to sodium as found in the blood is not valid. Brown rice is not a source of complete protein either.
8. **Carob**—A dried and powdered seed pod also called St. John's bread, carob tastes something like chocolate and is used as a substitute for cocoa or chocolate. Chocolate sometimes is frowned upon because it contains the stimulant caffeine, like coffee and colas. Carob is called "St. John's Bread" because it is believed that these flat leathery pods were the locusts that St. John ate in the wilderness. The carob tree is native to the Mediterranean area.
9. **Desiccated liver supplements**—Taking liver supplements may conceal a borderline case of pernicious anemia, making it hard to diagnose. Liver extract only supplies a portion of the nutrients in fresh liver. Claims that liver supplements provide materials from which the body manufactures vitamin B₁₂ are unfounded.
10. **Eggs**—To be organic, eggs should be from hens that eat pesticide-free food and have not been fed appetite stimulants. Nutritionally, eggs are similar—brown or white, fertile or not.
11. **Garlic**—According to folklore, garlic will cure intestinal disorders, gas, worms, respiratory infections, skin diseases, symptoms of aging, high blood pressure, TB,



whooping cough, and all sorts of chronic illnesses. Garlic oil capsules are a staple of health food stores. The substances in garlic and onion that cause "bad breath" are absorbed into the blood stream and exhaled from the lungs. Mouthwash cannot remove the taste.

12. **Honey**—In honey you get some plant material and an excellent flavor, along with very small amounts of trace vitamins and minerals. Jam, jelly, orange juice, and ice cream labels that say "contain honey" could mean just one drop of honey to a container. The contents of these products are set by government standards; manufacturers are not required to disclose the percentage of ingredients on the label. Honey producers sometimes feed their bees sugar and water, but food laws do not permit the sale of honey produced in this manner. Antibiotics are used to keep bees disease-free, however honey does not contain the antibiotics. Supposedly organic honey is heated to a lower temperature than regular honey before filtering, thus conserving nutrients. Health food stores do carry many varieties of honey that are a welcome change of flavor. Claims that honey will cure arthritis and may be used without restraint as a sweetening agent by diabetics are not true.
13. **Lecithin**—A natural emulsifier found in egg yolks milk, soybeans, and corn, it is frequently sold in health food stores in capsules. It is not an antidote to cholesterol and cannot dissolve the fatty accumulations in the blood vessels to help prevent heart attacks. Claims are made that it will eliminate liver spots and be beneficial in cases of dry skin and psoriasis. These claims are not proven.
14. **Milk**—Do not use raw milk. Many diseases can be transferred by raw milk. The process of pasteurization makes no significant nutritional difference and it is important protection for your health. Cheese made from raw milk is safe if aged more than 60 days.
15. **Raw sugar**—Raw or Turbinado sugar is a common choice of people who want to avoid refined sugars. However, it is not "raw," but a highly refined product that has molasses covering the crystals. There is no significant difference in the mineral content of raw and refined sugar. People may want to use honey, raw corn syrup, or un-sulphured molasses, which do have a small amount of minerals in them. Products made with raw sugar are not worth the extra amount of money.

16. **Rose hips**—Rose hips are a good source of ascorbic acid. The wild rose has a seed pod that is richer in vitamin C than cultivated roses. Rose hips can be used to make tea, jams, syrup, and soup. If rose hips are available in your woods, take advantage of them. Rose petals, also edible, have a delicate flavor that can be used in everything from preserves and omelettes to cakes and candies. Rose water, which is distilled from the rose petal, is widely used in the Middle East.
17. **Sea salt**—Unrefined salt from evaporated sea water contains trace minerals, but because of other contaminants it is unacceptable to the FDA. The white sea salt sold in markets has been refined. The additive (sodium silico aluminate) in ordinary table salt makes it flow and keeps it from clogging the salt shaker. It is not a dangerous chemical.
18. **Seeds**—Seeds of all sorts (pumpkin, sesame, sunflower, and watermelon) are popular. Like wheat germ, seeds can be a source of valuable nutrients. However, some seeds such as peach pits or apple seeds are poisonous if they are eaten in large amounts.
19. **Soybeans**—Soybeans have been a mainstay of oriental diets for thousands of years. The western world has not yet used this little bean to any great extent. It has high quality protein, calcium, and B vitamins. It is valuable as a milk substitute. It can be used fresh or dried, in a beverage, custard, or cheese, as flour or grits, as oil or sauce, or as sprouts or roasted snacks.
20. **Wheat germ**—It contains protein, the B vitamin complex, vitamin E, iron, other minerals, and carbohydrates and fats. It is susceptible to rancidity and needs to be refrigerated. It is a nutritious cereal and adds flavor to hotdishes and baked goods.
21. **Whole grain flour and bread**—Some people are buying stone ground whole wheat flour. The wheat berry is slowly ground between millstones. Claims are made that the molecular structure of stone ground flour remains intact, thus preserving the nutrients. Claims of superior nutritional quality of stone ground over commercially ground flour are not substantiated.

If you buy whole wheat flour, look for dated packages. Because the whole berry is used in the flour, it contains the germ of the wheat. This is the most nutritious part and it also possesses an oil that becomes rancid without refrigeration. Therefore, the shelf life of whole wheat flour is limited. To keep whole wheat bread fresh, store it in the freezer or at room temperature. Refrigerated bread gets stale faster than bread that is frozen or kept at room temperature.

For variety look for whole wheat, buckwheat, bulgar, oats, brown rice, rye flour, wheat germ, or wheat bran. Enriched or whole grain, cooked, or ready-to-eat cereal, bread and flour contribute to a nutritional food intake.

Cracked wheat or crushed wheat products are made from wheat that is broken into fragments for addition to other flour or bread dough. Cracked wheat is the whole grain cracked into separate pieces and free from flour.

In the processing of white, patent flour, many nutrients are removed and in the enrichment program only four nutrients are restored. There are many reasons why the millers developed white flour. For one thing, aging, bleaching, and refining the flour improved the baking characteristics. It also reduced the risk of rancidity, helped get rid of insects that might be attracted to the stored grain, and decreased the infestation of insect eggs and other contaminants. Bakers frequently have found it difficult to sell whole grain bread products. White bread has had prestige; people have felt it was cleaner. For some people using white bread meant higher economic status. Now some people buy whole grain breads because of nutritional concern. The dark

color of some breads, such as pumpernickel, is not an indication of the presence of whole grains, but of added color.

If you want to avoid the chemicals in bleached flour, select enriched unbleached white flour. Unbleached white flour that is not enriched offers fewer vitamins or minerals than any other flour. The baking characteristics of enriched unbleached flour are similar to the characteristics of enriched bleached flour.

22. **Yogurt**—Yogurt is a fermented milk product that has the same nutritional value of the milk from which it is made (protein, calcium, many of the B vitamins). Compared to the price of milk, yogurt is expensive wherever you buy it. One way to beat the high price is to make your own using commercial yogurt as a starter. Milk must always be heated to pasteurization point before adding the yogurt culture. Claims often are made that the health value of yogurt is to change the intestinal flora or bacteria. For most people on a mixed diet the intestinal flora function well, and any change in intestinal flora is temporary, even though large amounts of yogurt are eaten.

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