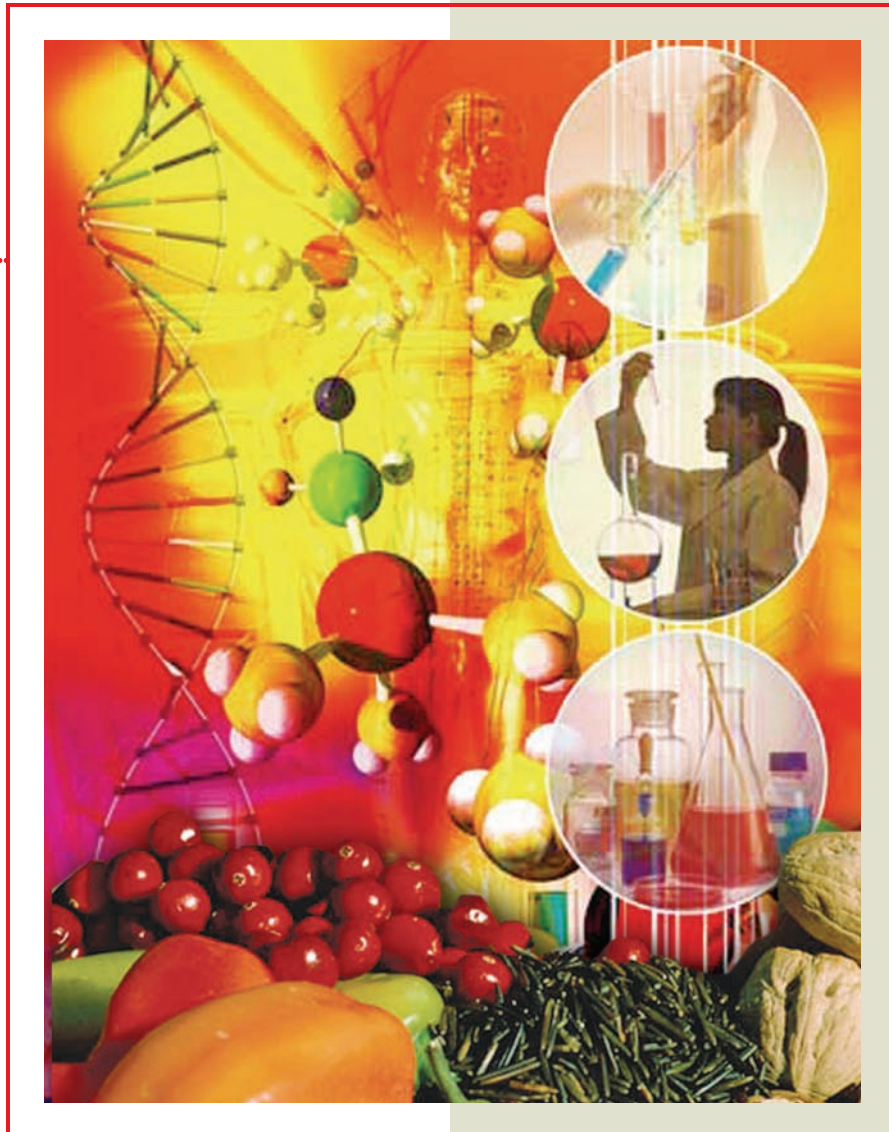


# The Functional Foods Revolution

Market Trends and Industry Outlook



## Report Objectives

- Overview of how the industry is growing in Minnesota
- Define functional foods
- Explain functionality for the consumer
- Describe benefits for the food processor and manufacturer
- Reveal current trends and outlook
- Outline broad impacts

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### Functional foods—a continuously growing industry in Minnesota

“Minnesota is uniquely positioned for functional foods because of the commodity producers, processors and large food companies with their wealth of research facilities.” The seizure of such opportunities is well characterized by the movement of large food processing and manufacturing companies toward the consumer-driven functional food market. Recently General Mills Inc. launched the “Whole Grain” campaign which increased sales by 11%. Cargill Inc., the world’s largest handler of grain products has a division specifically dedicated to Health and Food Technologies. Minnesota is also the home of many smaller companies that are capitalizing on changing consumer habits. Examples include Helios Inc., a yogurt company and Telios, a company specializing in the extraction of healthful components from unique plants.

### Definition of functional foods

Functional foods are defined as food or food components that have been demonstrated to provide specific health benefits beyond basic nutrition. The health benefits are often derived from components of the food not considered nutrients under traditional definitions, for example, lycopene from tomatoes or  $\beta$ -glucans from oats. These healthful components may be derived from conventional food sources such as antioxidants and fiber in fruits and vegetables; soluble fiber in whole grain breakfast cereal; or isoflavones derived from soybeans. Other sources of healthful food components may be from foods not common in the American diet such as flaxseed, a source of essential fatty acids, or yogurt, a source of nutrients that feed beneficial bacteria in our stomachs. In other cases, the functional food component is added to a traditional food product, such as calcium to orange juice or vitamins to wheat flour. In this mode, the delivery options for functional food components are greatly increased. Food biotechnology will continue to provide new means for functional food development.

### Functionality for the consumer

The increased awareness of food functionality parallels the consumer trend of whole life care, wherein the consumer recognizes that food can provide health benefits that co-exist with traditional medical approaches to disease. Foods play a primary role in disease prevention by reducing risk through a healthier lifestyle. As the link between food and health is strengthened through research, the link between specific food components and specific health risks are also strengthened. This will lead to diets and foods tailored to meet the needs of specific populations according to age, sex, health goals, lifestyle and genetic disposition to specific diseases.

### Functionality for the food processor and manufacturer

Consumers are coming to expect functional ability in food. Food processors must meet this demand by finding this functionality in their current products; adding this functionality to their current products or developing new products with added functionality. In many cases, the functionality of existing foods need only be promoted. The move toward new types of foods or new processes in food manufacturing may at the same time open the door to components or food sources that will improve the food processing procedures, such as the use of non-traditional corn starches that have been shown to be easier to process, but required the building of new procedures and equipment that was not previously economically feasible.

### Current trends and outlook

Consumer knowledge of the relationship between diet and health is increasing. For example, in a recent survey by the American Dietetic Association more than 50% of consumers identified foods such as soybeans and berries as having positive health related effects, and in

a survey by the International Food Information Council, more than 94% of consumers understood the potential health benefits of food beyond meeting the basic nutritional requirements. In another survey consumer's specifically identified weight loss, digestive health, women's health and immunity enhancement as specific issues that might be addressed through diet.

Most significantly, the change in consumer diets is to *add* specific foods for the healthful benefits rather than remove foods for the healthful benefits. Such awareness is reflected in increased consumer buying of products promoted as functional foods. General Mills' sales increased by 11% after their whole grain promotion began; Welch's grape juice sales increased by 33% in 1997 after validation of the health benefits flavanoids, and Tropicana Pure Premium orange juice sales increased by 173% after fortification with calcium (Refs). In 2003, 115 new products promoting heart related benefits were launched in the US and Canada.

The consumer demand for functional foods will only increase as scientists gain a better understanding of links between nutrition, normal body function, and disease. Scientists are working to identify new bioactive substances present in foods, establishing ideal levels, and gaining a better understand of the role and optimum levels of traditional nutrients for specific segments of the population. Understanding the role of nutrients at the molecular level will result in even more specific recommendations for different population subgroups. Such demand will increase the need for more specialized marketing strategies by food processors and manufacturers.

### Broad impacts

Increased demand and highly specialized markets will spur the development of improved processing technologies, the use of non-conventional food sources, and increase the options for delivery of functional ingredients. One such option is biotechnology. While

benefits to the producer are the focus of current biotechnology products, benefits to the consumer and to the food processor will be found in the next generation of biotechnology products. Plants are the most common source of bioactive compounds. Plants can be bred to have increased levels of the naturally occurring compounds, or plants can be relatively easily modified to produce bioactive compounds that they do not normally produce. Biotechnology may also provide a means to reduce potential natural toxins or allergens often found in plants.

The use of traditional breeding techniques to improve the productivity of non-conventional food crops at the University of Minnesota has been supported by two major food manufacturing companies in Minnesota. Additionally, fermentation technologies to produce food additives from microorganisms are an increasing focus of our research institutions and companies. Increased consumer demand for functional foods will provide new growth in many sectors of the bioscience industry. The scientific link between specific bioactive compounds and their benefit to specific subpopulations for specific purposes will increase the diversity of business opportunities for current food processing and manufacturing companies. Additionally, the growth in the functional food industry will lead to new opportunities in supporting industries such as DNA technology companies that can modify plants or bacteria to produce specific bioactive compounds. Companies involved in fermentation or the growing of plants will also benefit from the demand for specialized products which will bring above-commodity level pricing. Finally, the new demand by consumers for specialized foods will require an ever increasingly sophisticated marketing and sales program that is scientifically based and highly diversified.

## Summary

Consumers can already select from a wide variety of food that inherently contain functional components or have been fortified. The benefits of functional foods may be achieved by increasing the amount of certain substances already in the diet or adding new substances. Functional foods are not necessarily a new class of foods. However, the term functional food is useful to convey to the consumer both the unique characteristics of the food and the associated health benefits.

From a food processing and manufacturing viewpoint, most all foods have functional properties that will provide a healthful benefit beyond meeting normal nutritional needs. As scientists continue to discover new relationships between food components and a healthy body, the functionality of food will continue to increase if only in the way we perceive them.

The increased demand by the consumer for foods to fit their specific health needs and lifestyle will continue to increase and will have impact all sectors of food processing and manufacturing, in addition to the supporting industries. A means to identify and communicate the functionality of your food product is an essential tool in meeting evergrowing consumer demand.

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