Functional Food products and market

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Summary

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- Definition and categories
- Some example of products
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- Market segmentation
- Market key players
- Product development
- Consumer preferences
- Iran Market

Introduction

- In the last decades consumer demands in the field of food production has changed considerably. Consumers more and more believe that foods contribute directly to their health.
- Today foods are not intended to only satisfy hunger and to provide necessary nutrients for humans but also to prevent nutrition-related diseases and improve physical and mental well-being of the consumers
- The term ‘‘functional food’’ itself was first used in Japan, in the 1980s, for food products fortified with special constituents that possess advantageous physiological effects

Introduction cnt…

- There is no doubt that the Japanese interest in functional foods has also brought awareness for the need of such products in places like Europe and the United States. Experts in these countries realized that besides being able to lower the cost of healthcare of the aging population, functional food might also give a commercial potential for the food industry.

Definition

- There is no unitary accepted definition for this group of food.
- In most countries there is no legislative definition of the term and drawing a border line between conventional and functional foods is challenging even for nutrition and food experts
- Functional foods and beverages are those that provide an extra health benefit to the consumer beyond basic nutrition. Examples include foods that have been fortified with beneficial nutrients or foods that are free from certain components such as lactose or gluten-free.

Functional food categories

Prominent types of functional food (Kotilainen et al., 2006; Spence, 2006)

Type of functional food	Definition	Example
Fortified product	A food fortified with additional nutrients	Fruit juices fortified with vitamin C
Enriched products	A food with added new nutrients or components not normally found in a particular food	Margarine with plant sterol ester, probiotics, prebiotics
Altered products	A food from which a deleterious component has been removed, reduced or replaced with another substance with beneficial effects	Fibers as fat releasers in meat or ice cream products
Enhanced commodities	A food in which one of the components has been naturally enhanced through special growing conditions, new feed composition, genetic manipulation, or otherwise	Eggs with increased omega-3 content achieved by altered chicken feed

- I. Siro´ et al. / Appetite 51 (2008) 456–467

Conventional functional foods

- Fruits: berries, kiwi, pears, peaches, apples, oranges, bananas
- Vegetables: broccoli, cauliflower, kale, spinach, zucchini
- Nuts: almonds, cashews, pistachios
- Seeds: chia seeds, hemp seeds, pumpkin seeds
- Whole grains: oats, brown rice
- Seafood: salmon, sardines
- Herbs and spices: turmeric, cinnamon, ginger
- Beverages: coffee, green tea, black tea

Prebiotics

- These products have a growing strong scientific basis of positive health effects on gut health directly through dietary modulation of the human gut microbiota
- Prebiotics are non-digestible food ingredients that beneficially affect the host by stimulating the growth and/or activity of one or a limited number of bacteria in the colon, thus improving host health
- Prebiotics are recognized for their ability to manipulate host microbiota to the benefit of the host

Probiotics

- live microorganisms, as they are consumed in adequate numbers confer a health benefit on the host
- Lactic acid bacteria (LAB) and bifidobacteria, the most studied and widely employed bacteria within the probiotic field
- Among probiotics dairy products are the key product sector
- Probiotics are the fastest growing group of dietary functional food supplements world-wide

Postbiotics

- A further emerging field within functional food development is the concept of postbiotics.
- Also known as ‘parabiotics’ are claimed to be inactivated probiotics or ‘ghost probiotics’ and refer to non-viable bacterial cells
- postbiotics have shown significant immunomodulatory effects
- They could be an interesting alternative strategy for use in functional food products as they have a favorable safety profile as there is reduced opportunity for antibiotic resistance genes to be passed via horizontal transfer mechanisms that can occur in some probiotic strains

Functional beverage

- Functional beverages are nonalcoholic drink containing nontraditional ingredients like minerals, vitamins, amino acids, dietary fibers (DFs), probiotics, added raw fruits, etc. Energy drinks, sports drinks, and functional bottled water are among the functional and fortified beverage category that is showing immense growth in the recent years.
- North America is the largest market with its innovative varieties of drinks customized for all age groups and strata; followed by Asia-Pacific and Europe, and other countries.

Functional cereals

Cereals, in particular oat and barley, can be exploited in different ways leading to the design of novel cereal foods or cereal ingredients that can target specific populations.

They can also selectively stimulate the growth of lactobacilli and bifidobacteria present in the colon and act as prebiotics.

Baked goods as functional foods

- There is a considerable body of scientific evidence on the development of baked goods as a vehicle for development of functional food products. These products range from bread; biscuits; cakes; cookies; snack bars and dry crackers. The popularity of these products continues to grow on a global scale as consumers are looking for convenience of nutritional snack products that fit their lifestyle.

Functional food market

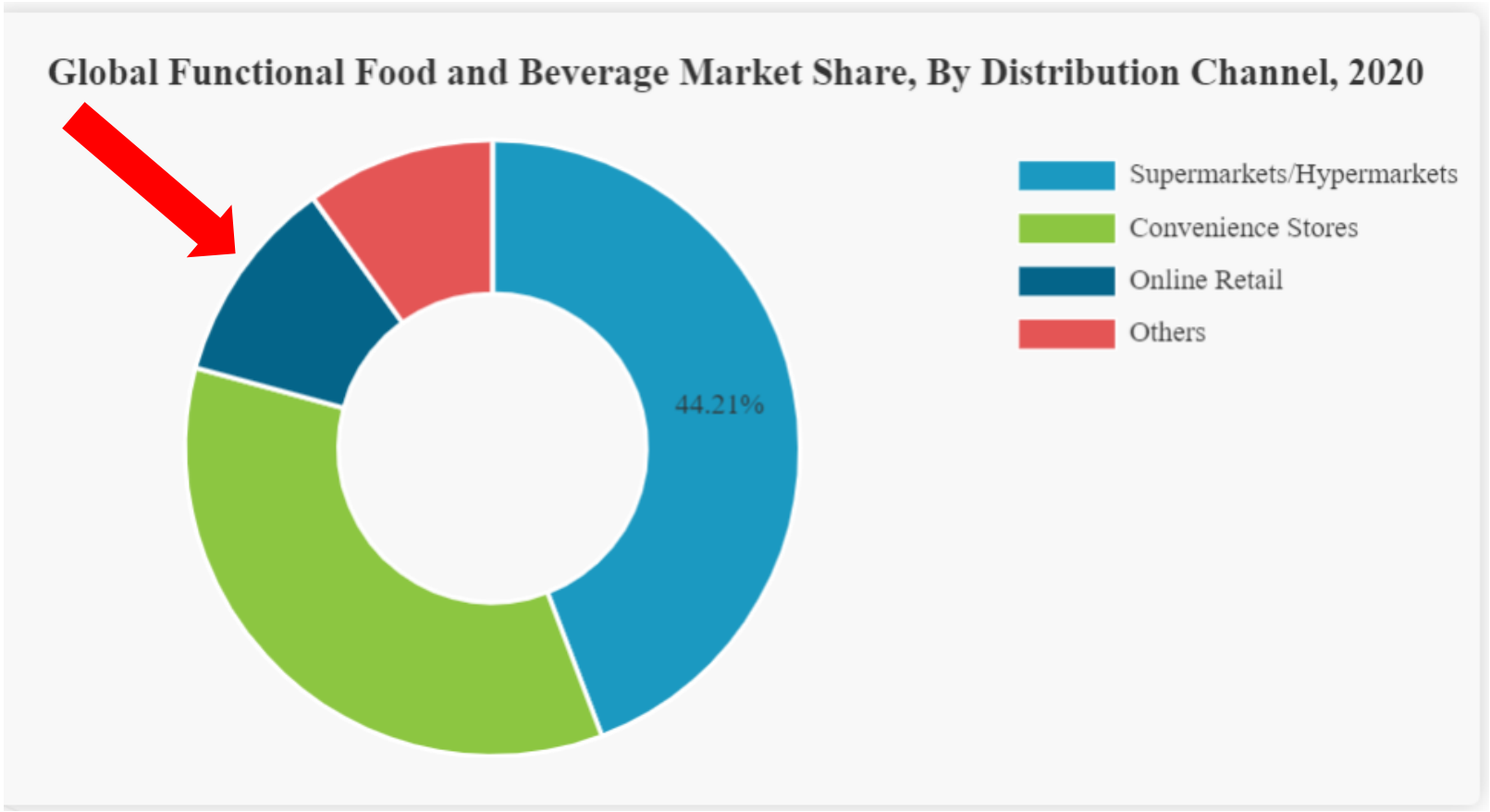
- As it is not clearly defined which foods are considered as functional, therefore, it is rather difficult to estimate the market of these products and depending on whether a broader or a more specific definition is applied various data might come out.

Global market

- The global functional food and beverage market size was USD 258.80 billion in 2020.
- The global impact of COVID-19 has been unprecedented, with functional food and beverage witnessing a positive demand shock across all regions amid the pandemic
- The market exhibited an impressive growth of 11% in 2020.
- The market is projected to grow from USD 281.14 billion in 2021 to USD 529.66 billion in 2028 at a CAGR of 9.5% in the 2021-2028 period.
- The rise in CAGR in attributed to this market's demand and growth returning to pre-pandemic levels and even exceeding once the pandemic is over

Market segmentation

- The Functional Food Market is segmented by product type, distribution channel, geography, application and ingredients.


Global Functional Food and Beverage Market Share, By Distribution Channel, 2020
44.21%
Supermarkets/Hypermarkets
Convenience Stores
Online Retail
Others

Asia Pacific & Europe market

- Asia-Pacific is the major markets for functional food products. The Asia Pacific market value stood at USD 100 billion in 2020 and is projected to register a CAGR of 10.04% during 2021-2028, owing in the rising health awareness and increasing discretionary incomes in the region
- In Europe, the demand for foods with functional benefits is progressing at stable pace owing to the increasing investments by market players in research, innovation and marketing products.


Asia Pacific Functional Food and Beverage Market Size, 2017-2028 (USD Billion)
89.84
100.00
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
www.fortunebusinessinsights.com

Product types

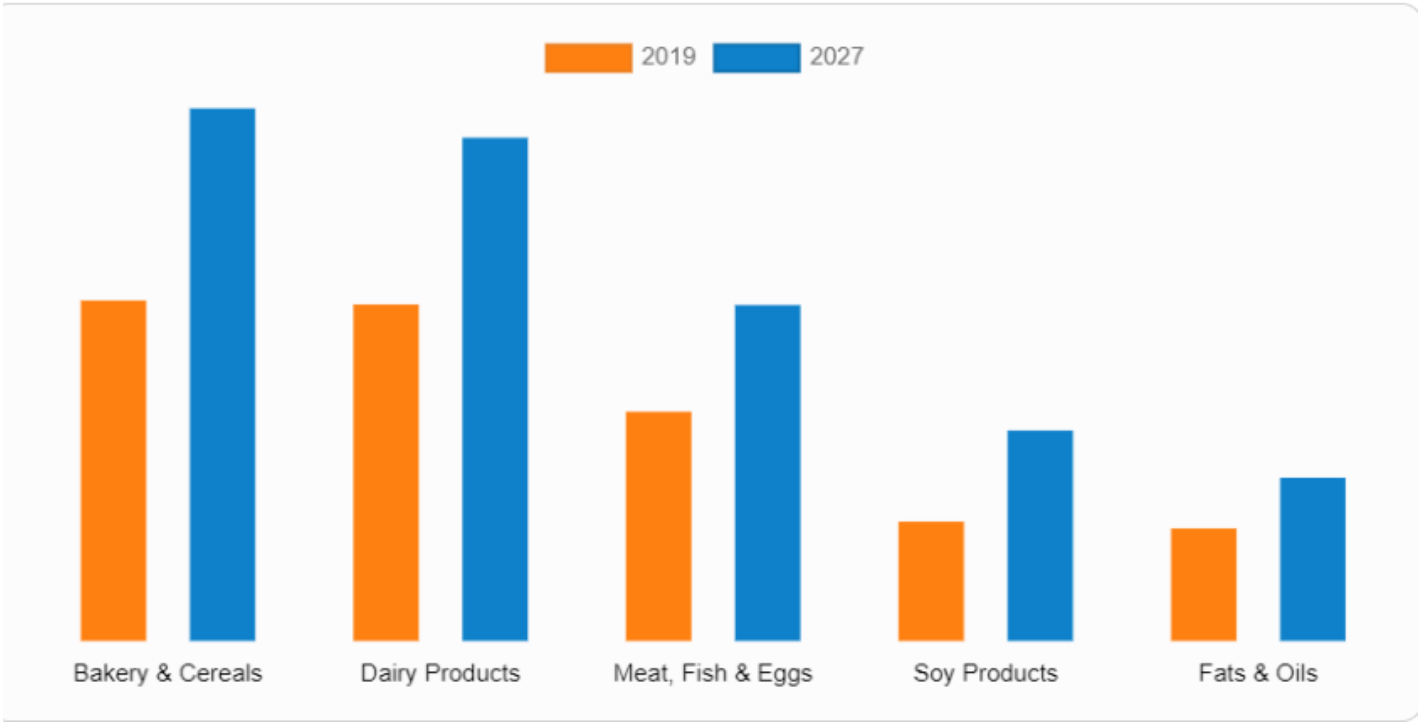
By Product Type	Bakery Products	
	Breakfast Cereals	
	Snack/Functional Bars	Sports Bars
		Energy Bars
		Protein Bars
	Dairy Products	Yogurt
		Other Dairy Products
	Baby Food	
	Other Product Types	

https://www.mordorintelligence.com/industry-reports/global-functional-food-market

Product types cnt…

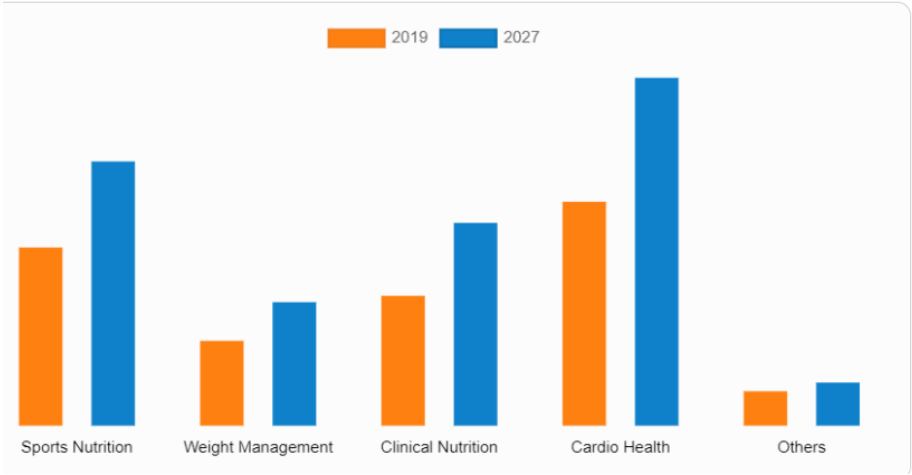
- Depending on product, the dairy product segment was valued at $48,831.8 million in 2019, and is expected to grow to $73,030.0 million by 2027, with a CAGR of 6.6%.
- Milk is considered as a nearly complete food as it is a good source of protein, fat and major minerals.
- Dairy products includes any food made from milk, including butter, cheese, ice cream, yogurt, and condensed and dried milk.
- People are increasingly consuming dairy products as it is important for building healthy bones and for maintaining a healthy weight.
- Yogurt is majorly used as functional food owing to its high nutritional value and enormous health benefits.

Product types cnt…



Product application

- Sports nutrition emerged as the second largest segment after cardio health applications of the functional food owing to increasing commercialization of these sport nutrients and availability of wide product range including creatine and whey protein-based functional food.

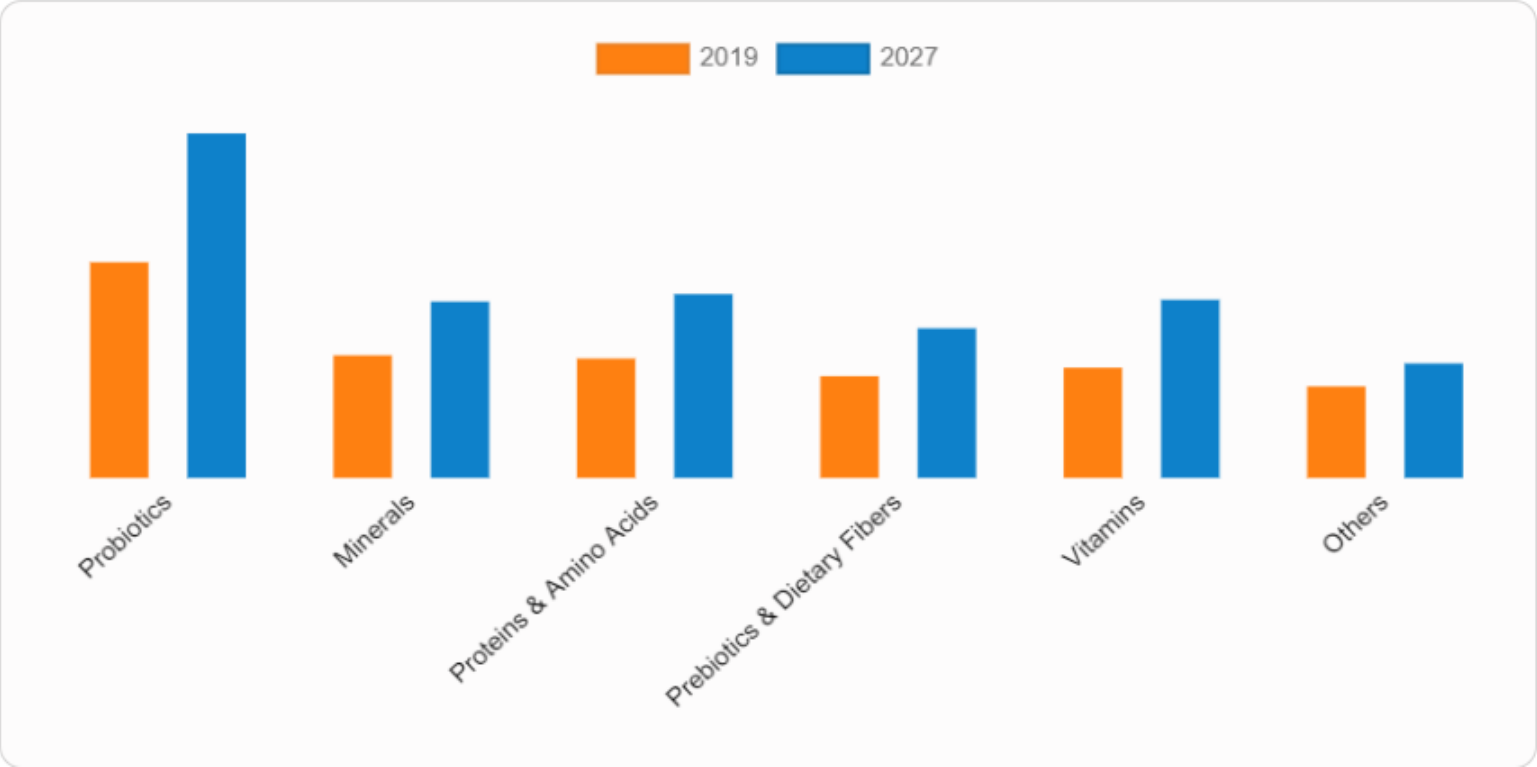


https://www.alliedmarketresearch.com/functional-food-market

Product ingredients

- According to Functional Food Market Analysis, On the basis of ingredients, the probiotic segment accounted for the around one-third half of the global functional food market share in 2019, and is expected to sustain its share during the forecast period. This is majorly attributed to increasing awareness regarding the benefits of the probiotics contained food, Benefits includes help to balance digestive system, prevent & treat diarrhea and supplements to improve mental health conditions.

By Ingredients



https://www.alliedmarketresearch.com/functional-food-market

Market drivers

- Socio-demographic trends
- Both experts (such as e.g. medical doctors, nutritional advisers) and consumers have accept that a close connection between nutrition and state of health exist
- Health-oriented changes in eating habits
- Hectic life style and increasing stress
- Increasing consumer awareness
- Higher prices
- Increasing R&D activities to introduce innovative functional foods

Suppliers

- In general the total cost of developing a of functional food products may exceed the level for conventional foods by far. In addition to resources and know-how in nutritional and food technology research, the proof of efficacy of functional food products requires knowledge in the medical field as well.
- Not only food manufacturers, but also the pharmaceutical industry has become interested in this field. In consequence of this has led to the so-called grey area which describes the overlapping of the interests of food and pharmaceutical industries

Suppliers cnt…

- This latter is represented by several companies such as Novartis Consumer Health, Glaxo SmithKline, Johnson & Johnson or Abbott Laboratories.
- One important motivation for such companies to invest in functional food is the shorter development times and lower product development costs compared to pharmaceutical products. In addition, these companies have intensive experience in organizing clinical trials to substantiate health claims of a specific product

Market key players

- The market is moderately consolidated with a few prominent players, such as Danone, General Mills, Nestle, and Glanbia operating internationally.
- The key companies are focused on R&D to meet growing consumer demand for innovative products.

Product development

- Development and marketing require significant research efforts.
- Identifying functional compounds
- Assessing their physiological effects
- Developing a suitable food matrix (form, flavor)
- Taking into account bio-availability and potential changes during processing and food preparation,
- Consumer education
- Clinical trials on product efficacy in order to gain approval for health-enhancing marketing claims

Product development cnt…

- It is a multistage process that requires:
- input from commercial
- academic and regulatory interests
- a critical need to achieve acceptance by the consumers
  - one of the first steps of product development, it is necessary to explore which diseases consumers are concerned about so that the product could be successful in the market

Market impediments

- Functional ingredients, such as botanical extract and herbs, when added to foods and beverages, generally impart an off or bitter taste to the products.
- Taste is a critical factor in the purchase decision, even when a consumer are looking for healthy products.

Functional food clinical trials

- Clinical trials to test the efficacy of functional food products are limited by the considerable financial investment required. Furthermore, the criteria for interventional clinical trials of functional foods also provide significant challenges, not least in obtaining ethical approval for studies on participants with diagnosed disease states.
- Additionally, government regulatory bodies and health and safety agencies require stringent conditions to be met including, double blinded; randomized; placebo-controlled, wash-out periods, cross-over studies and complex inclusion and exclusion criteria

Table 2 Challenges for Functional Food Clinical Trials [Adapted from Brown *et al.* (2018)]

Challenges for Functional Food Clinical Trials Challenge	Solution
1: Difficulty in obtaining industrial funding	Collaboration with University Research Centres could lead to funding proposals
2: Technical support may be lacking	Use of University expertise
3: Placebo identification challenges	Detailed development of alternative products without active ingredients
4: Difficulty in delivering fresh products to participants	Home delivery service
5: Compliancy by participants	Trust – Develop a range of products to maintain interest
6: Identification of appropriate biomarkers	Plasma biomarkers must be unique to functional food active ingredient
7: Accidental intake of bioactive ingredient by placebo group	Identify sensitive biomarker in plasma
8: Statistical analysis	Careful planning of study design in early stages
9: Response of general public	Publication of study results in learned journals to increase trust in results
10: Response of medical community	Well-designed studies lend credibility

Consumer preferences

- Price, taste, health claims, packaging and branding, as well as sensory attributes, also influence consumer behaviour and adoption practices
- Consumers may ignore nutrition information for fun foods, such as candy because these foods meet hedonistic (as opposed to health-related) needs.
- However, consumers see products that are intrinsically healthy – such as yogurt, cereals, bread and juice – as credible carriers of functional messages.
- Attitudes towards enrichment were generally more positive when the base product already contains the enriched substance (like calcium in milk).

Consumer preferences cnt…

- Several authors accredited key role to socio-demographic factors.
- Most of these studies identified typical functional food consumer as being female, well educated, higher income class and older than 55. It seems obvious, that the higher socioeconomic groups have higher willingness or ability to pay a price premium, as well as better knowledge and higher awareness

Iran Market

- Developing countries have recently started to implement such foods for their health benefits. In Iran many clinical studies have been conducted to investigate the effects of functional foods in prevention of various chronic diseases.
- The data from many well-designed clinical studies suggest that appropriate applications of functional foods or bioactive components of foods may significantly reduce the incidence of several chronic diseases, and thereby improve quality of life of both patients and general population in Iran

Iran Market cnt…

- Given the growing market for health-enhancing or functional foods in Iran, the consumption rate is low
- The most important barriers to the consumption of functional dairy products were undesirable sensory and non-sensory characteristics, lack of physical and economic access to the product, the existence of product competitors in the market and inappropriate promotion strategies. Furthermore, personal barriers identified as a new dimension and included lack of knowledge about the product and its benefits, a negative attitude toward the product and personal taste and preference.

Thanks for your attention