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## Food Standards: A Gentle Introduction

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**Abstract** Standardization is a process of ensuring uniformity in products and services by use of appropriate standards. A standard is a document that provides requirements, specifications, or guidelines that can be followed to ensure that products and services are fit for their purpose. Food standards are basically a set of principles or criteria that a food must meet if it is to be suitable for human consumption. They are mandatory for international trade. This paper provides a brief introduction to food standards.

**Keywords** food standards, food regulations, international food standard

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### Introduction

Food is a basic human necessity. It is any substance, whether processed or unprocessed, which is intended for human consumption. Food is an essential commodity which is sold and bought for financial gain by individuals and companies. The recent wave of food globalization is unprecedented in human history. The annual trade value in agricultural products has grown tremendously over the past decade, largely due to emerging economies and developing countries. For example, in Asia, the majority of the population is actively engaged in agriculture, especially small-scale farming.

There has been increasing concerns by food consumers about the safety and quality of the food that they eat. But food safety is a shared responsibility of all operators in the food chain. Local, national, and international food safety regulations and standards are a fundamental part of that food control system. The need to protect the health and safety of consumers translate into a massive volume of local, state, national, and international food standards [1]. In order to participate in the international trade, producers must be able to meet food standards.

In every nation, food is governed by a comprehensive system of laws and regulations which set out the requirements that the government expects the food chain operators to meet in order to ensure the food is safe. Food standards are usually established by regulatory authorities and enforced by governments, food companies, and retailers.

### What is Food Standards?

Generally speaking, standards are a way of defining what is socially desirable and what is not. Food standards are essentially sets of rules that cover many facets of food including the preparation, composition, and labeling of food supplied for human consumption. They are legislative instruments, otherwise known as “food laws,” which are designed to protect consumers against unsafe products, adulteration, and fraud. These include standards on vegetables, fishery products (smoked fish, abalone), animal feed, fresh and processed fruits. Businesses, manufacturers, producers, and caterers must make sure that they do not mislead consumers when they describe the food they sell. This implies that for businesses to remain competitive they must increasingly adopt standards.



Some food standards cover all foods as well as drinks. Standards should be based on science in order to have weight and evidence behind them. Countries have often developed standards that were essentially non-tariff barriers to trade, but were not based on science. Standards are at once technical, political, economic, social, and ethical phenomena. Regulators provide a single set of uniform standards for their region, which may be local, state, or national.

Food standards are important for the following reasons [2]:

- Safeguards the health of consumers
- Ensure confidence of consumers in the food systems
- Enable consumers to make informed decisions concerning the food they purchase
- Used to differentiate food products
- Used to communicate product quality and safety to consumers
- Used as a competitive strategy to enhance product marketing

The current food network is governed by a set of standards, laws, and regulations that reflect differing local, national and international interests. Organizations that contribute to food standards include US Food and Drug Administration (FDA), UK Food Standards Agency (FSA), Food Standards Scotland, World Trade Organization (WTO), Food and Agriculture Organization (FAO), World Health Organization (WHO), Codex Alimentarius Commission (CAC), International Food Standard (IFS), and International Commission on Microbial Specifications for Foods (ICMSF), and US Institute of Medicine (IOM).

### Types of Food Standards

Food standards may be classified as mandatory/compulsory standards or voluntary standards. For example, food standards are mandatory for international trade. Food standards are designed to cover several aspects of food, resulting in different standards. The common types of food standards are the following:

- *Food Safety Standards:* These standards cover all aspects of food safety and product compliance. Food safety is a shared responsibility of the government, companies, and households. It ensures that food is acceptable for human consumption according to its intended use. There can be no food security without food safety. Failure in food safety can have catastrophic consequences for human life and public confidence. A food business must ensure that food is processed in a way that will ensure its safety. The food safety standards seek to lower the incidence of foodborne illness. The FDA produces enforceable safety standards for food manufacturers, food businesses, consumers, other government agencies, and the international community. It realizes that food safety requires partnership with industry, consumers, governments, and the international trading partner. FDA can halt imported food not meeting US standards and inspect foreign food safety practices. A company may be asked to stop operations until the FDA makes sure that its operations are in full compliance with the food safety regulations [3].
- *Food Industry Standards:* These are government standard for the food industry specifying the requirements for production, manufacturing, distribution, processing, labeling, and packaging of all types of food.
- *Food Quality Standards:* These are laws to ensure quality compliance. For food quality the judgements are often based on taste, health, convenience, labelling, packaging, environmental friendliness, and innovation. Quality experience delivered by a food business should match quality expectations of a consumer. Above-average quality is generally assumed in enforcement on a wider scale.
- *Food Process Standards:* These standards specify that certain processes must be followed in manufacturing a product. A typical example of food process standard is ban on goods made with prison labor. Environmental standards are also good examples of process standards. For environmental reasons, a nation may decide that some specified processes be employed when manufacturing a product [4].
- *Food Hygiene Standards:* These standards often consist of exhaustive lists, reports, charts, manuals, and books, which dictate limits on the maximum microbial counts permitted in the final product. The



standards set hygiene habits for those in contact with the food, such as laborers who work in the farm [5].

- *Food Packaging Standards:* These are used to ensure the safety and quality of packaging materials for the food industry. Food packaging is a part of the food product, which serves to protect the food quality and safety and inform the user through proper labelling. Every nation should set down the objectives that packaging legislations and packaging standards should achieve [6].
- *Food Labeling Standards:* These standards ensure that food contains whatever the label claims. The labels on food items should help them make the right choices, not confuse or mislead them. Food must be accurately and truthfully labeled to ensure consumers can make an informed choice. Manufacturers and food businesses can ensure that their food products are safe for human consumption by ensuring their labels meet the labeling standards. Consumers have a right to know that the foods they purchase are accurately described on the label.
- *Organic Food Standards:* The price attached to organic food contributes to the popular notion that its consumption is an elite practice. Farming and growing certain crops must comply with organic standards. The heart of organic certification is verification that producers are in compliance with organic standards [7].
- *Children/School Food Standards:* The World Health Organization (WHO) has stated the vital role food in schools can play in any public health policy. WHO recommends that adults and children should reduce their daily intake of sugar. School food is a way of addressing dietary disparities between children of different socio-economic background and also the problem of obesity in childhood, which is fast becoming a global epidemic [8]. A new set of standards for all food served in schools was launched by the Department for Education in 2015. They become mandatory in all schools. Some school food standards target vending machines and snacks.
- *Private Food Standards:* These are emerging privately driven food safety and quality standards. They are private standards based on voluntary regulations established by non-governmental organizations such as supermarkets. They can incorporate standards for human, animal, and plant health as well as standards relating to labor conditions and environmental protection. Privately initiated food quality standards are becoming important in the marketing of food and agricultural products in Western Europe. They are playing an increasingly important role in determining market access in international trade. There has been a significant increase in the application of private standards in the agri-food trade [9]. Private food standards are useful for food safety, market access, poverty alleviation, sustainable rural development, and other national and international goals.
- *Fast Food Standards:* These standards deal with public health aspects of food hygiene and sanitary regulations of eating establishments and surroundings. Restaurants must make sure that they do not mislead consumers when they describe the food they sell. It may be wise to ask your favorite restaurant if they have good hygiene standards and ask for their rating.
- *Ethical Food Standards:* These standards address a wide range of ethical concerns associated with food production and marketing. Food has an ethical or moral dimension. Organic farming relies on a set of ethical values. Organic food standards relating to food safety are established purely on ethical values [10].

Other food standards include food service standards, food production standards, green food standards, and standards of identity. Governmental agencies help in the standard formulation process and prescribe what is required to meet a certain standard, protecting the interest of farmers, processors, distributors, traders, and consumers [11].

### International Standards

A nation cannot export its food safety standards. It must abide by the international standards when trading with other nations. Food inspections may be required on both sides of the border (e.g. between US and Canada). International standards facilitate the movement of goods between nations by providing a common lexicon for food quality and safety.



International organizations promote trade and market development based standards created primarily by developed nations. Global harmonization of food safety legislation has received great attention because it plays a crucial role in the promotion of safe food and facilitation of international trade and economic development. Major milestones were the establishment of the Codex Alimentarius Commission (CAC) in 1963, which is a joint intergovernmental body of the Food and Agriculture Organization of the United Nations. CAC has been working since 1963 to create international food standards to protect the health of consumers and ensure fair trade practices. With 181 member states, Codex standards have a considerable influence on the way our food is produced, processed, and traded across the globe. Codex standards are science-based and has almost worldwide coverage. The European Union (EU) abides by CAC and is the world's largest food importer as well as exporter [12].

Another initiative is the International Food Standard (IFS), which has been developed by a group of European supermarkets in 2002. The IFS is a common food safety standard which helps retailers ensure the food safety of their products. It is an international standard for auditing retailers and wholesalers. The purpose of the standard is to reduce costs and make whole food chain transparent. The Global Food Safety Initiative (GFSI) recognizes IFS standards. The rules governing food safety and quality in international trade are provided within the Sanitary and Phytosanitary (SPS) committee and Technical Barriers to Trade (TBT) agreements of the WTO. Figure 1 shows TBT committee's six principles for developing international standards [13].



Figure 1: Six principles for developing international standards [13]

### Benefits and Challenges

Having a common standard for evaluating safety and quality reduces the need for second party audits. It reduces the overall costs of the process, and increases the level of safety for suppliers and consumers. Food standards protect consumers from nutritional and economic fraud by establishing standardized characteristics of food products. They are essential for regional and international trade agreements. The food-based standards for children have undoubtedly improved the provision of school food.



Standards have been criticized for a variety of reasons such as the possibility that standards may hurt the consumers' interests that they are designed to protect. Other reasons include limiting product variety, erecting barriers to the entry of new products, stifling new technology, and hindering manufacturers' ability to make more nutritious foods [14]. There are some unintended consequences and paradoxes of standardization. For example, hygienic and environmental protection standards adapted by British retailers have imposed unrecompensed costs and uncomfortable levels of surveillance. Food standards can be used as disguised restrictions on trade to protect farmers from international competition; Global harmonization of food safety legislation remains a great challenge, especially in developing countries. The level of awareness of the food standards and regulations on the part of the consumers is low and depends on age, income, and sex.

### Conclusion

We need good food standards to protect public health and sustainability. Over the years, governments have attempted to provide guidelines for food safety through legal provisions and appropriate punitive action when necessary. Today, every consumer deserves a safe and healthful food supply. Food standards are fast becoming a key test for public health in international trade. Efforts should be made in educating the customers about food standards. More information on food standards can be found in books [15,16] and journals on food standards such as *British Food Journal*.

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