

HISTORY OF FOOD QUALITY STANDARDS

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Summary

Food laws can be traced back to times of the earliest societies. Ancient food regulations are referred to in Egyptian, Chinese, Hindu, Greek, and Roman literature. In the Middle Ages, the trade guilds exerted a powerful influence on the regulation of food trade and the prevention of falsification of food products. Later, the initiative in food control was taken on by the state, municipal, or other local authorities. The big changes in food production and distribution because of the industrialization and rapid growth of urban population, together with public health problems, resulted in the production of many food laws in industrialized nations during the latter part of the nineteenth century. Following examples of the introduction of early food control measures by developed nations, some of the larger, more established, nonindustrialized societies also took steps to set up measures of control. During the latter nineteenth and early twentieth centuries, a general consolidation of earlier rules took place, but more important, this period saw the creation of a separate branch of law relating to foods. Most of the national standards organizations were established in Europe in the 1920s. The need for improved health and food control and the rapidly expanding international food trade stimulated cooperation on an international level. After World War II, activity in international standardization started intensively in the framework of ISO. A Joint FAO/WHO Food Standards Program was established in 1962, and a joint subsidiary body was created: the Codex Alimentarius Commission (CAC). The trend in the field of food regulation is characterized by growing efforts for harmonization at an international level.

1. Introduction

According to “Glossary of terms”—published in 1976 by FAO/WHO—food standards may be defined as a body of rules or legislation defining certain criteria, such as composition, appearance, freshness, source, sanitation, maximum bacterial count, purity, and maximum concentration of additives—which food must fulfill to be suitable for distribution or sale.

In public opinion, the word standardization is often connected to the trend of unification with an activity by which some people want to impose their ideas on others. However, this term covers a much wider and more colorful range of human activity.

As a matter of fact, standardization is the result of spontaneous development. Looking at uniformity, nature itself does a lot of “standardization” by offering a number of repetitions: days after days, seasons after seasons, and years after years, which are nearly equally short or long (but never exactly of the same length). They also provide us with an environment in which we see many different animals and plants, and all of them seem to belong to species or families of similar basic characteristics (but in which each individual has its own special features).

In the history of human development, mankind found similar solutions for recurring problems. When humans wanted to communicate with each other; they developed gesticulation, and produced sounds that could express meaning, such as fear, hunger, or pain. It took quite a long time before they could attribute a permanent meaning to a specific gesture or sound. A sound used repeatedly to indicate the same thing (e.g., danger), could be considered an intuitive form of spontaneous standardization.

This is the way speech developed, and the same tendency can be observed in the field of ceremonies, in the establishment of ethical rules, and in the organization of the life of tribes, which gave birth to juridical rules.

The transition from the spontaneous stage to conscious unification has been taking place over a long period. Along the way, measurement units were defined based on the human body; some of which are still used in various countries (e.g., foot, inch as measures of length, and so on).

Uniform and accurate weights and measures are essential to trade with any goods. About 2500 years ago, the prophet Amos denounced those who used a large weight for silver and a small container to measure the grain given in exchange for the silver.

Standardization in the field of food production and trade is part of the effort to protect the consumer.

The practice of food adulteration and the development of control services have drawn attention to the possibility of food control since the beginning of modern society. A review of past experiences, and an understanding of the lessons learned from history, will help to indicate how and why food laws have evolved and how best to deal with emerging situations. A study of this type also indicates the spectacular changes and

advances made in the fields of agriculture, food science, and technology, especially over the twentieth century, which are now helping to provide food for a rapidly expanding world population.

Food laws were among the earliest of enactments known to man. Governments over many centuries have endeavored to provide for the safety and wholesomeness of man's food by legal provisions and appropriate punitive action. Over the years also, rude forms of fraud, such as adding worthless substances to food or extracting valuable constituents from it, have been followed by sophisticated methods of adulteration more difficult to detect. The birth of modern chemistry in the early nineteenth century made possible the production of materials possessing properties similar to normal foods which, when fraudulently used, did not readily attract the attention of the unsuspecting purchaser. Later, better analytical methods were used in food control work to detect adulterants. When scientists demonstrated that some adulterants were dangerous to health, the aroused public demanded laws that would both protect their health and prevent fraud.

“Food Laws” in one form or another, such as religious tenets or prohibitions, were inherent in all ancient civilizations and have come down to us from early times. It was not until the late nineteenth and early twentieth centuries—with the urbanization of societies and the depopulation of rural areas—that food laws, as understood today, were prepared. This process was hastened by pressure that developed as the public rebelled against the generally unhygienic conditions of the period.

Since the end of World War II, there have been major changes in the food industry, and this development continues today; at the same time, our knowledge of the risks, actual and potential, has considerably increased. Reorientation and further consolidation of food laws have therefore become necessary to protect the health of the consumer from the many new risks to which he has become exposed and over which he has little personal control. Some of these new dangers include:

Chemical hazards:

- (a) Food additives (direct and indirect)
- (b) Pesticides and herbicides
- (c) Veterinary drugs
- (d) Radiological hazards
- (e) Toxins of natural origin
- (f) Other chemical contaminants

Biological hazards:

- (a) Increased hazards from microbiological agents
- (b) Growing of and use of genetically modified organisms
- (c) Centralized large-scale production of food
- (d) Expanded food trade
- (e) Increased tourism

As the production of food stepped out from family homes and restaurants, and more and more became a new sector of the industry, many other aspects of foods came to public

attention. Food producers demanded generally accepted technical descriptions of the important properties of their raw materials, intermediate, and final products. They wanted to receive guidance related to the storage conditions and as adequate methods for the prediction of the acceptance of their products. These industrial demands have led to the development of standardization, first at the national level, later at regional and international levels.

2. Early History

Consumer protection, in the field of adulteration and falsification of food, represents one of the earliest forms of government regulation of commercial enterprises. Mosaic and Egyptian laws included provisions to prevent the contamination of meat. In excess of 2000 years ago, India had regulations prohibiting the adulteration of grains and edible fats.

The Laws of Moses contain decrees on food that are similar to certain aspects of modern food laws. Books of the Old Testament prohibited the consumption of meat from animals that died from other than slaughter. They also regulated weights and measures in foods and other commodities. Other ancient food regulations are referred to in Chinese, Hindu, Greek, and Roman literature. In early records, classical writers also referred to the control of beer and inspection of wines in Athens, “to ensure purity and soundness of these products.” Rome provided for state control over food supplies and, according to records available, protected consumers against bad quality and fraud. This form of food control apparently endured in Rome until the end of the seventh century.

Cato in his treatise *On Agriculture* included a method “to determine whether wine had been watered.”

Under Roman civil law, the rules concerning the sale of food were as complicated and detailed as modern legislation. Documentation relating to the first century AD describes the falsification of olive oil by a product made from wood, leaves, and berries of trees, and the falsification of wine by a substance made from a variety of plants. Probably this is the origin of the term “made wine,” which is used in the common nomenclature that classifies products for customs purposes.

Arab scientists, such as the physicist and chemist Al Chazini, paid attention to the control of commodities, including food. He constructed a high-sensitivity balance for measuring purposes.

Early food laws were designed to protect purchasers from fraud; this was the predominant legal concern. It was fortunate, therefore, that health protection happened, in many instances, to be almost synonymous with protection against fraud. Any action taken against offenders, however, was based specifically on fraudulent transactions; there was no stated intention to protect public health.

Although most traders prefer to deal honestly and fairly, history has shown the need for laws to protect purchasers and honest traders against those who refuse to adhere to accepted codes of good practice. It has been found, as with most other commodities,

that when a food was scarce and demand for it great, fraudulent practices were prevalent. Although bread, fish, milk, wines, beer, and some other foods were known to have been adulterated, information is also available on other foods that were extended with cheaper or less nutritive substances.

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Biographical Sketches

Radomir Lásztity, D.Sc., Professor of the Department of Biochemistry and Food Technology at Budapest University of Technology and Economics, was born in 1929 in Deszk, Hungary, and finished his studies in 1951 at the Faculty of Chemical Engineering of the Technical University of Budapest. Dr. Lásztity received his M.Sc. degree in Chemical Engineering in 1951 and his D.Sc. degree in Chemical Science in 1968.

Dr. Lásztity is honorary president of ICC (International Association for Cereal Science and Technology). He was acting chairman of the Codex Committee on Methods of Analysis and Sampling of the FAO/WHO Food Standard Program in the period 1975 to 1988. Dr. Lásztity is a member of the Food Division of the Federation of European Chemical Societies and a member of the editorial boards of several international scientific journals. He was acting Vice-Rector of the Technical University from 1970 to 1976.

Among other awards, he has received the Bailey and Schweitzer Medal of the ICC, the State Prize of the Hungarian Republic, and the Golden Medal of the Czech Academy of Sciences.

Dr. Lásztity's main research activities are chemistry and biochemistry of food proteins, food analysis, and food control. The results of his research work were published in more than 700 papers in international and Hungarian journals. He is the author of more than 20 books and textbooks (among them: *Chemistry of*

Cereal Proteins, First and Second Editions in 1984 and 1996, respectively; *Amino Acid Composition and Biological Value of Cereal Proteins*, 1985; *Use of Yeast Biomass in Food Production*, 1991; *Gluten Proteins*, 1987; and *Cereal Chemistry*, 1999).

Dr. Márta Petró-Turza, a chemical engineer, graduated in 1996 and received her doctor's degree in 1975 at the Budapest Technical University, Hungary. Between 1966 and 1990 she has worked as a researcher for the Central Food Research Institute, Budapest. In the last 13 years of this period, she was the head of the Analytical Chemistry Division of the Institute. Her main research areas were flavor research and the detection of adulteration of fruit juices. Between 1990 and 1995 she was the director of quality assurance of the Canning Research Institute in Budapest.

Since 1996 she has worked for the Hungarian Standards Institution as secretary of the ISO Technical Committee, TC 34, "Food Products," and its Subcommittee, SC 4, "Cereals and Pulses."

Tamas Földesi was born in 1920 in Budapest, Hungary. An electrical engineer, he graduated in 1942 at the Technical University in Budapest. He worked at a design office, then in foreign trade, and since 1957 in the Hungarian Office for Standardization (transformed in 1995 into the Hungarian Standards Institution, MSZT). He retired in 1983 but continued to work at the same office as a senior advisor. In the meantime, from 1974 to 1980, he worked at the ISO Central Secretariat in Geneva, dealing with standardization and certification issues. Back in Budapest, from 1983 to 1991, he was responsible for the secretariat of the Hungarian National Committee for EOQ.

During the past five years Dr. Földesi's activities were focused on training in the fields of standardization, quality, certification, and accreditation. He is a certified quality system manager, author of numerous articles and some textbooks on standardization, quality, and certification. He won the IIASA-Shiba award in 1998. IIASA is the International Institute for Applied System Analysis.