
UNIT 3 FOOD LAWS AND ASSOCIATED BODIES

Structure

- 3.0 Objective
- 3.1 Introduction
- 3.2 Food Laws and Standards
- 3.3 Indian: PFA, FPO, MPO, BIS, AGMARK
 - Prevention of Food Adulteration Act (PFA)
 - Fruit Products Order (FPO)
 - Meat Products Order (MPO)
 - Bureau of Indian Standards (BIS)
 - AGMARK Standard
- 3.4 International: AOAC, USDA, FDA, ISO, Codex Alimentarius, HACCP, GMP
 - Association of Official Agricultural Chemists (AOAC)
 - United States Department of Agriculture (USDA)
 - Food and Drugs Administration (FDA)
 - International Standards Organization (ISO)
 - Codex Alimentarius
 - Hazard Analysis and Critical Control Point (HACCP)
 - Good Manufacturing Practices (GMP)
- 3.5 Export Promotion Council
- 3.6 APEDA and MPEDA
 - Agricultural and Processed Food Products Export Development Authority (APEDA)
 - Marine Products Export Development Authority (MPEDA)
- 3.7 Food Health Authority
- 3.8 NABL
- 3.9 FRAC
- 3.10 MFPI, Ministry of Health
- 3.11 Total Quality Management
- 3.12 Product Certificate & Licensing
- 3.13 Let Us Sum Up
- 3.14 Key Words
- 3.15 Answers to Check Your Progress Exercises
- 3.16 Some Useful Books

3.0 OBJECTIVES

After reading this unit, you should be able to:

- know types of standards;
- state prevention of food adulteration act (PFA), FPO & MPO, Bureau of Indian standards (BIS), AGMARK standards;
- learn international standards organization (ISO), AOAC, USDA and FDA
- explain codex Alimentarius, HACCP, GMP;
- know about different export promotion councils, APEDA, MPEDA;
- know the organisations - NABL, MFPI, FRAC; and
- organisation describe total quality management (TQM).

3.1 INTRODUCTION

Food processing involves number of unit operations and material handling. So, there are always chances that the food may be contaminated. The food material should also contain essential nutrients. So, standards are formed and number of agencies and organizations are involved at national and international level to make the standards implement and regulate them. This unit covers Indian and international standards and implementing agencies, export promotion agencies of India, NABL, etc. The quality assurance systems like HACCP, TQM and GMP are also covered in brief.

3.2 FOOD LAWS AND STANDARDS

Food is the basic need of all living organisms. Hence, its quality should be given top priority. Processing of the food and food products is usually done at mass scale. So, there are always the possibilities of food being adulterated. The contamination of food can affect a large number of populations at a time and hazards may occur. Secondly, the consumer must get the product for which he has paid. An article of food is called adulterated if the food contains any other substance which effects, or it so processed as to affect injuriously the nature, substance or quality, inferior or cheaper substance has been substituted, prepared and packed or kept under unsanitary condition whereby it has become contaminated or injurious to health, contains filthy, putrid rotten, decomposed or diseased animal or vegetable substance or is insect infested or is otherwise unfit for human consumption etc. The processors may add any prohibited preservative or permitted preservative in excess of the prescribed limits. So, it is essential to set the minimum quantities of desirable characteristics required and the maximum quantities of undesirable components that the food should contain. This also helps to set common standards for commodities and prevents confusion among consumers. Thus, the standards are formulated. There are several ways of arriving at the standards for product quality but four methods are commonly used;

1. **Legal standards:** Standards, which are established by government bodies.
2. **Company or voluntary standards:** Set by the various segments of food industry. Voluntary standards generally represent a consumer image and may become a trademark of product quality.
3. **Industry standards:** An organized group attempts to establish given limits of quality for any food product. Normally these become effective by pressure from marketing organizations or by specific commodity groups where legal standards are not involved.
4. **Consumer or grade standards:** The consumer standards represent the consumer requirements of a product and are generally based on experience of the industry with its consumer.

Out of these, the legal standards are the most important. In fact the government has empowered several agencies and promulgated a number of acts and orders to contract the menace. Agencies and institutions have also been created to lay down standards for the quality of foods. The manner in which the food is processed and packaged is also covered by a number of regulations. Many different types of standards apply to the evaluation, production, testing, and monitoring of dietary supplements. Regulations and product standards are

used, as the “yardsticks” that define specific requirements manufacturers must follow to assure product safety and to provide accurate information to health professionals and consumers. These standards also encourage the safety and quality of products by manufacturer making sure that the product meets the standards.

3.3 INDIAN STANDARDS

The Government of India is fully aware of the possibilities of food being adulterated. It has therefore, several agencies, acts, standards and orders which have been formed to formulate standards, implement them, check the adulteration and protect the consumers. Some agencies and institutions were created to lay down standards for the quality of foods. The main agencies involved in this are described below.

3.3.1 Prevention of Food Adulteration Act (PFA)

One of the early acts to be promulgated in food laws and standards was the Prevention of Food Adulteration Act of 1954, which has been in force since June 1, 1955, amended 1964 and again in 1976. The objective of this act was to ensure that food articles sold to the customers are pure and wholesome. It is also intended to prevent fraud or deception and encourages fair trade practices.

The Act prohibits the manufacture, sale and distribution of not only adulterated foods but also foods contaminated with toxicants and misbranded foods. A central committee for food standards has been constituted under the Act and has been charged with the function of advising the Central Government on matters relating to the Food standards.

The Food Health Authority is appointed at state level who is the Director of Public Health and Preventive Medicine. He is responsible for the good quality and standards of foods available to the consumers. Under FHA are the Local Health Authority (LHA). There is a Local Health Authority appointed in each city in every state.

3.3.2 Fruit Products Order (FPO)

The Government of India promulgated a Fruit Products order in 1946. In 1955, the order was revised. The Fruit Products Order (FPO) lays down statutory minimum standards in respect of the quality of various fruits and vegetable products and processing facilities. The FPO is enforced by the Department of Health. Presently there is a little over 5198 units registered under the Fruit Products Order of 1955 distributed all over the country. Most of the units fall in the cottage or small-scale sector. A few modern processing plants have, now come up and many more are in the pipeline. The installed capacity which was 11.08 lakh tonnes, in 1993 increased to 21.00 lakh tonnes at the end of the year 1999.

3.3.3 Meat Products Order (MPO)

It provides means to:

1. Detect and destroy meat of diseased animals.
2. Ensure that the preparation and handling of meat and meat products be conducted in a clean and sanitary manner.

3. Prevent the use of harmful substances in meat foods.
4. See that every cut piece of meat is inspected before sale to ensure its wholesomeness.

The order also lays down rules and conditions for the procedure to be adopted for the selection of disease-free animals, slaughterhouse practices.

3.3.4 Bureau of Indian Standards (BIS)

Bureau of Indian Standards (BIS) is the National Standards Organization established as a Society in 1947 as Indian Standards Institution and subsequently made a statutory body as BIS under Bureau of Indian Standards Act 1986. The Bureau comprises of members representing industry, consumer organizations, scientific and research institutions, professional/technical institutes, central ministries, State Government and Members of Parliament. The functions of Bureau are;

1. Standard Formulation.
2. Certification: Product, Quality Management System, Eco Mark, Environment Management System, Hallmarking of Gold Jewellery, Hazard Analysis and Critical Control Points.
3. Laboratory: Testing, Calibration and Management.
4. Standards Promotion.
5. Consumer Affairs.
6. Awareness and Training Programs.

There are 14 Technical departments engaged in formulation of Standards. So far 17000 Standards have been formulated in different technological areas depending upon the National priority. These standards are evolved through the consensus from sectors such as industry, Consumers, testing and laboratory experts and Government organization by co-opting them in the related technical committees, sub committee and panels. The standards are reviewed time-to-time and continuously updated to match the technological changes taking place. The BIS has formulated 1133 standards which pertains to food products.

3.3.5 AGMARK Standard

The AGMARK standard was set up by the Directorate of Marketing and Inspection of the Government of India by introducing an Agricultural Produce Act in 1937. The word 'AGMARK' seal ensures quality and purity. The quality of a product is determined with reference to the size, variety, weight, colour, moisture, fat content and other factors are taken into account. It covers the following commodities:

- Pulses
- Cereals, 1966, 2001
- Makhana
- Vegetable oils
- Fruits and vegetables
- Roasted Bengal gram
- Vermicelli, Macroni and Spaghetti

The grades incorporated are grades 1,2,3 and 4 or special, good, fair and ordinary. Any officer of the Central Government or a State Government, or any authority, authorized by the Central Government, may, if he has reason to believe that any provision of this Act or the rules made there under has been, or is being, contravened, enter any premises at any reasonable time and make necessary inspection of, and search for, the agricultural produce in relation which such contravention has been, or is being made. The officer can seize and penalize the firm for not meeting the standards. The Central Government can declare that the provisions of this Act shall apply to an article of agricultural produce not included in the schedule or to an article other than an article of agricultural produce and on the publication of such notification, such article shall be deemed to be included in the schedule.



Check Your Progress Exercise 1

- Note:** a) Use the space below for your answer.
b) Compare your answers with those given at the end of the unit.

1. What do you understand by standards and how they are arrived?

.....
.....
.....
.....
.....

2. What are the functions of BIS? How standards are formulated?

.....
.....
.....
.....
.....

3.4 INTERNATIONAL STANDARDS

Quality of food is major concern worldwide. So, each country has formulated its own standards and created agencies for strict quality control measures of the food products. Some of them are internationally accepted as standards. A brief description of some these standards are given in this section.

3.4.1 Association of Official Agricultural Chemists (AOAC)

AOAC is an independent association devoted to promoting methods validation and quality measurements in the analytical sciences. It does this by reviewing and validating approved standard methods of analysis. Promoting uniformity

and reliability in statements of results, and developing and promoting criteria useful for laboratory accreditation and analysis certification.

AOAC official methods program is designed to provide methods of analysis for which performance characteristics have been determined and tested. The cornerstone of this program is the inter-laboratory collaborative study by which proposed methods are validated through independent testing in separate laboratories following the same method and analyzing the same samples. The methods can be used to determine compliance with government regulations, to maintain quality control and process requirements, to set and evaluate compliance with terms of procurement contracts, to conduct national and international trade and to support research.

The AOAC methods are recognized worldwide as an authoritative resource, because of thorough and rigorous testing characterization. They are written in U.S. Code of Federal Regulations, Product specifications, and product acceptance, relied on legal proceedings, and required as a basis of national and international trade. They are also adopted by other national and international standards organizations.

3.4.2 United States Department of Agriculture (USDA)

It is the main body of food standards in USA. Regulations and directives are developed by USDA to ensure compliance with all relevant federal laws of USA, executive orders, directives, and policies. It provides links to key Federal Regulations and public laws enacted for USDA food distribution commodity programs and food purchase programs. Regulations and policies of USDA govern food safety related programs, processed product directives, the import and export of meat, poultry, and egg products, and laboratory services. It manages the process of developing food and nutrition regulations and ensures that all the relevant food and nutrition agencies participate in this development process. These regulations provide official marketing standards for grains and oilseeds, and require that exported grains and oilseeds be officially weighed and inspected. The Department's laws also regulate the slaughter and manufacture of meat products. The regulations also protect and promote U.S. agricultural health, administer the Animal Welfare Act, carry out wildlife damage management activities, and ensure that America's agricultural exports are protected from unjustified trade restrictions.

3.4.3 Food and Drugs Administration (FDA)

The Food and Drug Administration of USA is one of the oldest and most respected consumer protection agencies. Its mission is to promote and protect the public health by helping safe and effective products reach the market in a timely way, to monitor products for continued safety after they are in use, and to help the public get the accurate, science-based information needed to improve health. FDA's regulatory approaches are as varied as the products it regulates products such as new drugs and complex medical devices, other products such as x-ray machines and microwave ovens, cosmetics and dietary supplements that must be proven safe and effective before companies can put them in the market. FDA safeguards the USA food supply by making sure that all ingredients used in foods are safe, and that food is free of contaminants like disease-causing organisms, chemicals, or other harmful substances. The agency must approve new food additives before they can be used in foods. It also monitors the safety of dietary supplements and the content of infant

formulas and medical foods. FDA regulates all medical devices, including simple items like thermometers to very complex technologies such as heart pacemakers and dialysis machines. However, only the most complex new medical devices are reviewed by the agency before marketing.

3.4.4 International Standards Organization (ISO)

ISO prepared a document called ISO 9000 series in 1987 (modified in 1994) as a guideline for all organizations on managing quality and standard. Its Indian equivalent is IS 14000 (1988). It is the principle and criteria for a management system, which will improve a company's performance. It is a media for ensuring orderly and systematic maintenance and upkeep of system. It covers quality, quality policy, quality management, quality system, quality control, quality assurance, quality improvement, product, service, process and customer. The ISO series is given below;

- ISO 9000-1,2,3,4 : Quality management and quality assurance
- ISO9004-1: Quality management and quality system elements subcontractor
- ISO9004-2: Guidelines for services
- ISO9004-3: Guidelines for processed materials
- ISO9004-4: Guidelines for quality improvement
- ISO9004-5: Guidelines for project management
- ISO9004-6: Guidelines for quality plans
- ISO9004-7: Guidelines for configuration management
- ISO 10011-1,2,3 : Guidelines for auditing quality system
- ISO 10012-1,2 : Quality assurance requirements for measuring equipment
- ISO 10013: Guidelines for developing quality manual
- ISO 10014: Guidelines for economic effect of quality
- ISO 10015: Continuing education and training guidelines

3.4.5 Codex Alimentarius

The term Codex Alimentarius is taken from Latin and means food code. The FAO/WHO Codex Alimentarius Commission was established to implement the joint FAO/WHO Food Standard Program. About 150 countries including India are member of the commission. The purpose of this program is to protect the health of consumers and to ensure fair practice in the food trade; to promote coordination of all food standards work undertaken by international governmental and non-governmental organizations; to determine priorities and initiate and guide the preparation of draft standards through and with the aid of appropriate organizations; to finalize standards and after acceptance by Governments, publish them in a Codex Alimentarius either regional or worldwide standards. It brings together all the interested parties -scientists, technical experts, governments, consumers and industry representatives to help develop standards for food manufacturing and trade. These standards, guidelines and recommendations are recognized worldwide for their vital role in protecting the consumer and facilitating international trade. As Codex Alimentarius represent a consensus of food and trade experts from around the world, these standards are more and more being used in international trade negotiations and also for setting of disputes by WTO.

The Codex contract Point in India is the Directorate General of Health Services (DGHS) in the Ministry of Health. Ministry of Food processing Industries is also closely associated with the activities of Codex Alimentarius.

3.4.6 Hazard Analysis and Critical Control Point (HACCP)

Hazard Analysis and Critical Control Point (HACCP) is an important quality assurance system. This system ensures that the products are safe and have good quality. The system is extremely desirable in view of the changing scenario in the International trade. It is science based and systematic, identifies specific hazards and measures for their control to ensure the safety of food. HACCP is a tool to assess hazards and establish control systems that focus on prevention rather than relying mainly on end product testing. The system is capable of accommodating changes such as advances in equipment design, processing procedures or technological developments. It can be applied throughout the food chain from primary production to final consumption and its implementation should be guided by scientific evidence of risk to human health. The application of HACCP is compatible with the implementation of quality management systems, such as ISO 9000 series and is the system of choice in the management of food safety within such systems. The HACCP system consists of following seven principles;

1. Conduct a hazard analysis.
2. Determine the Critical Control Points (CCPs).
3. Establish critical limits.
4. Establish a system to monitor control of CCP.
5. Establish the corrective action to be taken when monitoring indicates that a particular CCP is not under control.
6. Establish procedures for verification to confirm the HACCP system is working effectively.
7. Establish documentation concerning all procedures and records appropriate to these principles and their application.

Prior to application of HACCP to any sector of food chain, the sector should be operating according to Codex General Principles of Food Hygiene, the appropriate Codex Codes of Practice, and appropriate food safety legislation. During hazard identification, evaluation and subsequent operations in designing and applying HACCP systems, consideration must be given to the impact of raw materials, ingredients, food manufacturing practices, role of manufacturing processes to control hazards, likely end use of the product, categories of consumers of concern and epidemiological evidence relative to food safety. The application of HACCP principles consists of following tasks;

1. Assemble HACCP team. The team must comprise of all experts required for the development of an effective HACCP plan for a specific food commodity.
2. All the information of the product such as composition, physical/ chemical structure treatments etc should be described.
3. The intended use should be identified. It should be based on uses of the product by the end user or customer.

4. The HACCP team should construct a flow diagram covering all the steps in the operation.
5. On-site confirmation of the flow diagram should be done and amendments in the flow diagram should be done if required.
6. All the hazards associated with each step should be listed, a hazard analysis should be conducted and controls measures should be considered for identified hazards.

In a large food factory the team should be multi-disciplinary that is, it should include a microbiologist, processing specialist, chemist, biochemist, engineer, packaging technologist, sales and training staff and personnel managers. For medium and small scale, the quality control and production managers and few supporting staff like sales and administrative managers should be enough.

3.4.7 Good Manufacturing Practices (GMP)

GMP provides quality assurances that off-the-shelf testing cannot. It provides continual measures of quality that can uncover problems and fluctuations as they occur before the product is shipped. The need for GMP takes on further importance because the issues involved in developing test methods for dietary supplements are many and complex. Until methods are further developed, standardized, and widely accepted, GMP serves as a primary vehicle for ensuring quality.

Good manufacturing practices (GMP) lie at the heart of quality. GMP comprise a variety of practices that ensure quality including things such as:

- Raw materials quality assurance
- Record-keeping of substances throughout the manufacturing process
- Standards for cleanliness and safety
- Qualifications of manufacturing personnel
- In-house testing
- Production and process controls
- Warehousing and distribution

Virtually every manufacturer adheres to an in-house GMP standard, which varies from producer to producer. In-house GMP, while often extremely effective, does not provide a means for outside verification of quality. In order to provide such verification, many are now embracing to industry-standard GMP that is usually subject to an independent outside audit for compliance.

Check Your Progress Exercise 2



- Note:** a) Use the space below for your answer.
b) Compare your answers with those given at the end of the unit.

1. Differentiate AOAC, USDA and FDA.

.....
.....
.....
.....
.....

2. What do you understand by HACCP? How quality assurance is achieved through it?

THE PEOPLE'S
UNIVERSITY

THE PEOPLE'S
UNIVERSITY

3.5 EXPORT PROMOTION COUNCIL

The Export Promotion Council has been constituted to check the quality of a number of food materials meant for export. The council has powers to reject any food item, which does not measure up to the standards prescribed for the food. Federation of Indian Export Organizations (FIEO) is the apex body of all Export promotion councils/Commodity Boards/Export Development Authorities in India. There are 25 boards and export development authorities. The main work of these authorities is to promote the export, assure the quality of the product the international standards, formulate the standards for export etc. List of export councils related to food products are given below.

1. Agricultural and Processed Food Products Export Development Authority (APEDA)
2. Cashew Export Promotion Council of India
3. Coffee Board
4. Marine Products Export Development Authority (MPEDA)
5. Shellac Export Promotion Council
6. Spices Board
7. Tea Board
8. Tobacco Board
9. Wool and Woollen Export Promotion Council

3.6 APEDA AND MPEDA

3.6.1 Agricultural and Processed Food Products Export Development Authority (APEDA)

APEDA is an autonomous organization attached to the Ministry of Commerce of the Government of India. The main function of APEDA is to build links between Indian producers and the global markets. APEDA undertakes the briefing of potential sources on government policy and producers along with providing referral services and suggesting suitable partners for joint ventures besides arranging buyer-seller meets. It also provides recommendations to the Trade and Industry.

THE PEOPLE'S
UNIVERSITY

THE PEOPLE'S
UNIVERSITY

APEDA offers financial assistance under various schemes, which seek to promote and develop agro exports. Financial assistance under these schemes is available to exporters, growers, and trade associations, governmental agencies.

3.6.2 Marine Products Export Development Authority (MPEDA)

The Marine Products Export Development Authority (MPEDA) was constituted in 1972 under the Marine Products Export Development Authority Act 1972. The role envisaged for the MPEDA under the statute is comprehensive covering fisheries of all kinds, increasing exports, specifying standards, processing, marketing, extension and training in various aspects of the industry.

MPEDA functions under the Ministry of Commerce, Government of India and acts as a coordinating agency with different Central and State Government establishments engaged in fishery production and allied activities. The plan schemes of the Authority are implemented under four major heads:

1. Export production - Capture Fisheries
2. Export production - Culture Fisheries
3. Induction of New Technology and Modernization of Processing Facilities.
4. Market Promotion

It implements developmental measures vital to the industry like distribution of insulated fish boxes, putting up fish landing platforms, improvement of peeling sheds, modernization of industry such as upgrading of plate freezers, installation of IQF machinery, generator sets, ice making machineries, quality control laboratory etc.

3.7 FOOD HEALTH AUTHORITY

The Food Health Authority is appointed at state level that is the Director of Public Health and Preventive Medicine. It is responsible for the good quality and standards of foods available to the consumers. Under FHA is the Local Health Authority (LHA). There is a Local Health Authority appointed in each city in every state. The food Inspector is appointed by the Central or State Government by notification in official gazette. The main work of this authority is to take a random sample of any food article from any person selling such article, or who is in the course of delivering or preparing to deliver such article to a purchaser or consignee or a consignee after delivering of any such article to him. Then these samples are sent for analysis to the Public Analyst (PA) of local area.

3.8 NATIONAL ACCREDITATION BOARD FOR TESTING AND CALIBRATION LABORATORIES (NABL)

The concept of Laboratory Accreditation was developed to provide a means for third-party certification of the competence of laboratories to perform specific type(s) of testing and calibration. Laboratory Accreditation provides formal recognition of competent laboratories, thus providing a ready means for customers to find reliable testing and calibration services in order to meet their demands. It enhances customer confidence in accepting testing / calibration reports issued by accredited laboratories.

National Accreditation Board for Testing and Calibration Laboratories (NABL) is an autonomous body under the aegis of Department of Science & Technology, Government of India, as a registered Society. NABL has been established with the objective to provide Government, Industry Associations and Industry with a scheme for third-party assessment of the quality and technical competence of testing and calibration laboratories. Government has authorized NABL as the sole accreditation body for Testing and Calibration of laboratories.

NABL provides laboratory accreditation services to laboratories that are performing tests / calibrations in accordance with ISO/IEC 17025. These services are offered in a non-discriminatory manner and are accessible to all testing and calibration laboratories in India and abroad, regardless of their ownership, legal status, size and degree of independence.

NABL has established its Accreditation System in accordance with ISO/IEC Guide. In addition NABL has to also comply with the requirements of APLAC MR001, which requires the applicant and the accredited laboratories to take part in recognized Proficiency Testing Programs in accordance with ISO/IEC Guides. NABL has been conducting Proficiency Testing with the help of selected accredited laboratories as nodal laboratories in different fields.

NABL accreditation is a formal recognition of the technical competence of a testing or calibration laboratory for a specific task following ISO/IEC 17025 Standard. This is based on third party assessment.

NABL Accreditation is currently given in the following fields:

Testing laboratories	Calibration Laboratories	Clinical Laboratories
<ul style="list-style-type: none"> • Biological • Chemical • Electrical • Electronics • Fluid-Flow • Mechanical • Non-Destructive • Photometry • Radiological • Thermal 	<ul style="list-style-type: none"> • Electro-Technical • Mechanical • Fluid Flow • Thermal & Optical • Radiological 	<ul style="list-style-type: none"> • Clinical Biochemistry • Clinical Pathology • Haematology • Microbiology and Serology • Histopathology • Cytopathology • Cytogenetics • Immunology • Nuclear Medicine • Blood bank and transfusion services

3.9 FOOD RESEARCH AND ANALYSIS CENTER (FRAC)

The Food Research and Action Centre (FRAC) is a leading national organization working to improve public policies to eradicate hunger and under-nutrition in the United States. Founded in 1970 as a public interest law firm,

FRAC is a non-profit and non-partisan research and public policy centre that serves as the hub of an anti-hunger network of thousands of individuals and agencies across the country.

- FRAC engages in a variety of activities at the national, state and local levels to form a comprehensive strategy for reducing hunger in this country.

3.10 MINISTRY OF FOOD PROCESSING INDUSTRIES (MFPI)

The Ministry of Food Processing Industries, set up in July 1988, is the main central agency of the Government of India responsible for developing a strong and vibrant food processing sector; with a view to create increased job opportunities in rural areas, enable the farmers to reap benefit from modern technology, create surplus for exports and stimulating demand for processed food. The subjects looked after by the Ministry are:

- Fruits and vegetable processing industry
- Food grain milling industry
- Dairy products
- Processing of poultry and eggs, meat and meat products
- Fish processing
- Bread, oilseeds, meals (edible), breakfast foods, biscuits, confectionery (including cocoa processing and chocolate), malt extract, protein isolate, high protein food, weaning food and extruded/other ready to eat food products
- Beer, including non-alcoholic beer
- Alcoholic drinks from non-molasses base
- Aerated waters / soft drinks and other processed foods
- Specialized packaging for food processing industries

The scope of the Ministry has been very much enlarged. It includes development of fruit & Vegetable processing and promote food-grain milling including dairy products and processing of poultry, eggs & meat products. Processing of fish including canning & freezing and technical assistance to the industry also form a very important part of its activity. In addition planning & developing of industries relating to bread, oilseeds, breakfast food, biscuits, confectionery specialized packaging, including non-alcoholic beer, aerated drinks also fall within the scope of this Ministry.

3.11 TOTAL QUALITY MANAGEMENT

Total Quality Management is a process, which explores the formation of management and employees into a “team-concept” approach to production of quality products. It is a structured system for satisfying internal and external customers and suppliers by integrating the business environment, continuous

improvement, and breakthroughs with development, improvement, and maintenance cycles while changing organizational culture.

One of the keys that are most important to the successful implementation of Total Quality Management is the idea that it is a structured system. It is basically a strategy derived from internal and external customer and supplier wants and needs that have been determined through daily management. The implementation of Total Quality Management requires the help of the following eight key elements.

1. Ethics
2. Integrity
3. Trust
4. Training
5. Teamwork
6. Leadership
7. Communication
8. Recognition

Total Quality Management is built on a foundation of ethics, integrity and trust. It fosters openness, fairness and sincerity and allows involvement by everyone.

3.12 PRODUCT CERTIFICATE AND LICENSING

Product certification and licensing in India is done by number of organization. BIS operate product certification under the rules and regulation of BIS Act 1986. A manufacturer is granted license to use the standard mark after assessment of his infrastructure facilities for manufacturing and quality control checks to produce goods in consistent with quality control. The conformity to standard is further ensured by regular surveillance at licensee's performance by surprise inspections and testing of samples from the factory and market. BIS offers certification schemes to food industries on

1. Food safety certification against IS 15000:1998
2. HACCP based quality system certification for two certification
 - a) Audit certification of quality system against IS/ISO 9000, and
 - b) Certification of HACCP against IS 15000:1998.

The BIS has brought 1435 items and over 7500 factories under its fold. Items affecting health and safety of consumer have been enforced through compulsory certification. In 1991 Government of India introduced "ECO" mark for environmentally friendly products.

The Directorate of Marketing and Inspection (DMI) issues "AGMARK" certificate to the notified food products. It enforces the Agriculture Produce Grading and Marketing Act 1937. Grading under this provision is voluntary. It involves sorting of commodities according to their quality followed by inspection to verify the correctness of grade assigned to them. It is also enforcing MPO.

Ministry of Civil Supplies, Consumer Affairs and Public Distribution is responsible for standardization of weight and measures. They regulate the quality of the vanaspati vegetable oils and fats through solvent extraction

plants. The new act contains provision for regulation to pre-packed commodities, which are intended to establish fair-trading and price discipline for commodities sold to consumers in packed form with levelling.

For export materials, APEDA issues the certificate. . The authority feels that the products complying with the basic quality and safety requirements should carry a mark that remains sacrosanct across categories and communicates the adherence to quality assurance measures. With this in view, a system for grant of the Certification mark i.e. “Quality Produce of India” has been developed by APEDA for agricultural products being exported. The Certification Mark will be granted on the basis of compliance with hygiene standards, implementation of Quality Assurance System such as ISO 9000, Food Safety System such as HACCP, backward linkage, residue testing of pesticides and contaminants, laboratory facilities and nature of complaint etc. Initially, the proposal is to launch this scheme for few products like meat, rice, fruits and vegetables. This Certification Mark is owned by APEDA. Only such exporters whose produce/products conform to the prescribed parameters are allowed/ licensed to use the trademark for exports.

Check Your Progress Exercise 3

- Note:** a) Use the space below for your answer.
b) Compare your answers with those given at the end of the unit.

1. What are APEDA and MPEDA and what are their functions?

.....
.....
.....
.....
.....

2. Why accreditation is required? Define the role of NABL.

.....
.....
.....

3. What do you understand with Total Quality Management?

.....
.....
.....
.....
.....

3.13 LET US SUM UP



Consumers expect certain qualities from their food. To arrive the quality character tics, different types of standards are made. Food science determines and uses methods to measure food quality factors. Number of agencies and organizations are involved at national and international level to make the standards implement and regulate them.

PFA is implemented in 1955 to ensure that food articles sold to the consumers are pure and wholesome. FPO and MPO were also enforced to lay down statutory minimum standard for fruits, vegetables and meat. BIS is a body responsible for laying down policy guidelines for formulating standards.

International agencies like AOAC are involved in promoting methods validation and quality measurement of food products. USDA and FDA are the agencies for formulating and implementing standards. ISO is the organization on managing quality and standards codex Alimentarius was established to implement the food standard programme into member countries in post WTO era. HACCP and GMP are quality assurance systems.

Different export promotion councils are constituted in India to promote export like APEDA, MPEDA etc. NABL was developed to provide means for ratification of the competence of laboratories to perform specific type of works. MFPI is the main control agency in India for food processing.

3.14 KEY WORDS

- AOAC** : Abbreviation for Association of official Analytical chemists.
- Certificate** : A document providing evidence of status of qualification.
- Critical control point** : Any point in the process where loss of control may result in a heath risk.
- Food safety** : A judgment of acceptability of the risk involved in eating a food; of risk is relatively low, a food substance may be considered.
- GMP** : Good manufacturing practices guidelines that a company uses to evaluate the design and constriction of food processing plants and equipment.
- HACCP** : Hazard Analysis Critical Control Point; a preventive food safety system.
- Standards** : Set up and established by authority as a rule for the measure of quantity, weight, extent, value, or quality. Set by different agencies to specifically describe a food; to be labelled as such, a food must meet these specifications.
- TQM** : Total quality management.

NABL : National Accreditation Board for Testing and Calibration Laboratories.

Food Laws and Associated Bodies

FRAC : Food Research and Analysis Centre, an organization to improve public polices in USA.

3.15 ANSWERS TO CHECK YOUR PROGRESS EXERCISES



Check Your Progress Exercise 1

1. Your answer should include following points:

- Definition
- Legal, company, industry, and consumer standards

2. Your answer should include following points:

- BIS
- Function of BIS
- Formulation process

Check Your Progress Exercise 2

1. Your answer should include following points:

- Associations information, functions
- Status and regulations

2. Your answer should include following points:

- Quality assurance system, need
- Principles, tasks

Check Your Progress Exercise 3

1. Your answer should include following points:

- Purposes, structure
- Functions

2. Your answer should include following points:

- Concept of accreditation
- Need, functions of NABL

3. Your answer should include following points:

- Need, importance
- Key elements

3.16 SOME USEFUL BOOKS

1. Fellows, P.J. (1998) Food Processing Technology, Principles and Practices. Woodhead Publishing Limited. Cambridge, England.
2. Parker, R. (2003) Introduction to Food Science. Thomson Learning Inc. New York.
3. Potter, N.N. and Hotchkiss, J.H. (1995) Food Science, 5th Edition. Chapman & Hall Publishing Inc, New York.
4. Potter, N.N. (1987) Food Science. S.K. Jain for CBS Publishers & Distributors, New Delhi.