

# Management Practices in Food Processing Industries

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**Abstract:** Food processing sector is the absolutely necessary for the overall development of an economy and it provides a vital linkage and synergy between the agriculture and industries. Food processing sector contributes to around 14% of manufacturing Gross Domestic Product (GDP) and 13% of India's total food exports. Nowadays food quality and safety management system in food processing industry are complex and dynamics. Because the continuous pressure of various factors such as competitive markets, private and public safety, consumer trust, global trade, quality requirements, emerging hazards and climate changes. These pressure increases the need to design, improve and assurance to produce healthy, authentic and palatable food that is safe for consumption using quality management system and food safety management (FSMS) based on wide range of public (means legally requirement) and private (by industry) assurances guidelines and standards (like HACCP, BRC, SQF, GLOBAL GAP, ISO22000). This paper highlights on the concept of good manufacturing practices, best management practices use in food processing industries. Quality management is equally important in the food industry. Food processing is a capital intensive, water consuming and a polluting industry. Therefore this paper studies the various management practices in this industry to ensuring food quality using quality management practices so the concept of green growth can be achieved.

**Keywords:** Food Processing, Food Production, Quality Management System and Food Safety Management (FSMS)

## 1. Introduction

Food processing is the transformation of raw ingredients, by physical or chemical means into food, or of food into other forms. Food processing is a shared responsibility of everybody in the complex food chain in providing safe and quality food to the consumers. This sector serves as a dynamic link between the agriculture and industrial segments of the economy. It is necessary to strengthen this link is to improve the value of agricultural produce; make sure remunerative prices to farmers and create favorable demand for Indian agricultural products in the global market. Food is an integral component of life and human existence. Since the beginning of time, humans have had to eat to survive. In earlier times when human population was much smaller, resources were abundant and there was less need for food processing and storage. As populations grew, limitations in food processing and storage techniques forced more individuals to devote considerable amounts of time daily to feeding themselves and their families. Industrialization

shifted a large percentage of the population toward a myriad of activities creating the need for an industrialized food sector to feed an increasing number of urbanized humans. (Joyce I. Boye). Food has to go through several processes to ensure that food reaches the consumer in a healthy and safe condition. To deliver the desired level of food quality and safety, manufacturers use modern quality management systems. But the quality of food products also depends on the quality of raw materials and the quality of transport, storage, and conditions at the point of sale. On the other hand, quality control (QC) is an essential component of any food processing industry, which protects customers and company whilst ensuring food law compliance. Quality control (QC) is not an optional extra in food processing neither is it something that is only done by large manufacturers.

Various scheme uses in food processing industry for technology up- gradation\ modernization of food processing industry are followings:

- *R&D, QA, Codex and Promotion:* Scheme for R&D, Quality Assurance, Codex and Other Promotional Activities to build infrastructure of food testing laboratories. To establish quality monitoring system for food processing, implement HACCP/ISO 22000, ISO 14000/GHP/GMP and other quality management systems.
- *Food Testing Laboratories:* The objective of the scheme is to guarantee safety and quality of food products with the analysis of the samples received from food processing industries and other stakeholders.
- *Implementation of HACCP:* The goal of the scheme is to encourage the food processing industries to adopt food safety and quality assurance mechanisms such as total quality management including HACCP, GMP, GHP, ISO 14000, ISO 22000 to prepare them to face global competition to improve product acceptance by foreign buyers and to keep Indian industry technologically up-to-date of international best practices.

Many farmers in developing countries have started to apply Good Agricultural Practices (GAP) through sustainable agricultural methods and Best Management Practices (BMP) such as IPM (Integrated Pest Management) and conservation of

agriculture. Changing lifestyles, food habits and tastes, increased income, transition of food culture has led to the growth and demand for processed food products. Food nutrition is a matter of concern because processed food products have an impact on health at large. Being more health conscious, a food pyramid is required which shows the recommendation for intake each group.

### 2. Need of the study

The concept of management practices use in every food processing industry due to health concern, safety environmental degradation, wastages in industries, food safety being a major issue because of changing habits, the study intends to highlights the importance of the best management practices in food processing industries.

### 3. Research methodology

The study is based on secondary data collected from various sources like article, journals, books conference papers and internet sources.

### 4. Objective of the paper

- To understand the concept of food management system in food processing industry.
- To study about the good manufacturing practices (GMP) in food processing industry.
- To study the various government body adopting measures to promoting food safety.

#### A. To understand the concept of food management system in food processing industry

**ISO 22000:** The standard ISO 22000 defines the requirements for food safety management systems. It specifies minimum requirements for a company-related risk management and combines the principles of the system of Hazard Analysis and Critical Control Points (HACCP) with the application steps developed by the Codex-Alimentarius-Commission. On the basis of auditable requirements the HACCP-plan and the prerequisite programs (PRPs) are combined. Important elements of the standard are the integration of the responsibility for food safety into the quality management as a general management task and the provision of communication measures to communicate with suppliers, customers, consumers and authorities; and this not only for emergency cases. Food management system is a preventative approach towards identifying, preventing, and reducing food-borne hazards, to ensure food is safe for consumption. A well-designed FSMS with appropriate control measures can help food establishments comply with food hygiene regulations, so that food prepared for sale is hygienic.

- **Quality Management System in Food Processing Industry:** Food quality management systems help to ensure that products are safe and fit for purpose. Food quality management uses tools, such as HACCP and

auditing, to describe processes, analyze what could go wrong, put procedures in place to prevent things going wrong, check the systems are working, and identify actions to take if things do go wrong.

- A food system is a system involving many different aspects; a central issue is to transport food from the place of production to where people can buy and eat the food and from there to disposal (Neff et al., 2009). This includes production, processing, distribution, preparation, marketing, access, consumption, and disposal. These processes need resources such as people, businesses, farms, communities, interventions, policies, and politics. All steps need to be coordinated for a company to make progress.
- **Principle of Quality Management in Food Industry:**  
**Raw Material Control:** Raw materials are the basic ingredients used to create food products. These could be fruit and vegetables that are farmed and harvested; cows, chickens, pigs and sheep that are farmed for their meat, eggs and dairy products and various other items. Naturally, raw material control is directly related to process control as raw ingredients will need to meet certain guidelines before reaching processing phases.
- **Process Control:** This principle relates to the process of food manufacturing. Ultimately, preventative measures are used alongside corrective measures preventative strategies can only resolve a certain number of quality issues due to outside factors such as environment, storage and other such conditions.

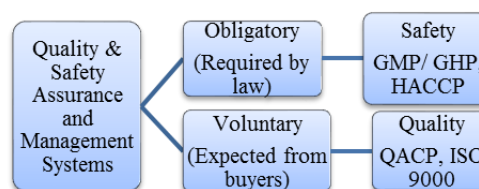


Fig. 1. Relationship between food safety and quality management system (Sikora & Strada, 2006)

- **Finished Product Inspection:** The third principle focuses on the final product – the packaged food that is then sold to consumers and suppliers. There are many forms of testing done at different stages – visual observation; physical tests and chemical tests are just some examples. Microbiological testing is very effective for determining health and sanitation controls, with a stringent monitoring process that incorporates records, data collection and the analysis of trends. Quality management plays a vital role within the food industry, across many different stages of sourcing, processing and packaging.

*B. To study about the good manufacturing practices (GMP) in food processing industry*

Good Manufacturing Practices (GMPs) are the basic operational and environmental conditions required to produce safe foods. They ensure that ingredients, products and packaging materials are handled safely and that food products are processed in a suitable environment. While GMP primarily refers to the technical aspects of the production process, the focus of GHP (good hygiene practice) is on the hygiene aspects in food production (Buncic, 2006). Both GMP and GHP are Prerequisite programs needed to be implemented prior to introducing a HACCP plan.

*Personnel:* Any person who, By medical examination or supervisory observation, appears to have, an illness, open lesion, including boils, sores, infected wounds, or any other sort of microbial contamination by which possible food/packaging contact contamination, unless adequately covered, will be excluded from operations until condition is corrected.

- Disease Control
- Cleanliness
- Supervision
- Education & training

*Plant & Ground:* Properly store equipment by removing waste and clearing weeds/grass within the vicinity. Maintain Roads, parking lots etc. so that they do not constitute a source of Contamination where food is exposed.

*Sanitary operations:* Substances used in Cleaning and Sanitizing; Storage of Toxic Materials

- Pest Control
- Sanitation of Food-Contact Surfaces
- Storage and Handling of Cleaning Portable Equipment and Utensils

*Sanitary facilities and controls:* Each plant must be equipped with adequate sanitary facilities and accommodations including:

- Water Supply
- Plumbing
- Sewage disposal
- Toilet facilities
- Hand washing facilities
- Rubbish and Offal Disposal

*C. To study the various government body adopting measures to promoting food safety*

*ISO 22000:* ISO 22000 is an international standard that defines the requirements of a food safety management system covering all sizes of all organizations throughout the food chain. Key potential benefits of using the standard include: The ability to consistently provide food-related products and services that are safe and meet regulatory requirements. Improved management of risks in food safety processes. Demonstrating strong links to the 'United Nations' Codex Alimentarius, which develops food safety guidelines for governments. The goal is to harmonize the many national and

private standards in existence and incorporate the management systems approach of ISO 900115, tailored to food safety management.

HACCP (Hazard Analysis and Critical Control Points): is a management system in which food safety is addressed through the analysis and control of biological, chemical, and physical hazards from raw material production, procurement and handling, to manufacturing, distribution and consumption of the finished product. HACCP is a systematic approach to the identification, evaluation and control of food safety hazards based on the following seven principles:

- Conduct a hazard analysis
- Determine the critical control points (CCPs)
- Establish critical limits
- Establish monitoring procedures
- Establish corrective actions
- Establish verification procedures
- Establish record keeping and documentation procedures

## 5. Conclusion

It has been found that more and more people are becoming health conscious it is very important for that industry to ensure the quality processed food produce. The first thing is that it is of main importance that everyone in the company has the same vision and that it is clear to everyone what the vision involves. It is also very important that the quality management system is well suited for the production it is applied on. The main benefits of a food safety management are market oriented rather than quality or food safety oriented. In this paper gives best management practices in food processing industry.

## References

- [1] Alexandra Forster (2013) Sustainability: Best Practices in the Food Industry.
- [2] Annual report (2016-2017), Ministry of Food Processing Industry- Government of India (www.mofpi.in)
- [3] Bright Barestus Kahindi (2016) Food Safety Management Practices of Small and Medium Sized Food Industry Enterprises in Tanzania
- [4] Carolin Liboreio Paiva (2013), Quality Management: Important Aspects for the Food Industry, International Organization for Standardization ISO Central Secretariat Ch. De Blandonnet 8 Geneva Switzerland
- [5] Jaacsens Liesbeth Frank Devlieghere and Mieke Uyttendaele: Quality Management in the Food Industry, st Kliment Ohridski University Press, 2009
- [6] Jenni Nordenskjold (2012) Implementation of a quality management system in food production
- [7] Joyce I. Boye, Yves Arcand (2013), Current trends in green technologies in food production and processing, food eng. Rev. 5:1-17
- [8] Miriam Satin-(2005), Quality enhancement in food processing through HACCP (Hazard Analysis & Critical Control Point), a report of the Asian Productivity Organization
- [9] Monica A. Wandolo (2009), Food safety and hygienic practices: A comparative study of selected technical and vocational education and training and university hospitality school in Kenya.
- [10] Carmen Socaciu and Eng. Camelia Echim: A Manual of Good Practices in Food Quality Management Concepts and Practical Approaches in Agri food Sectors.
- [11] Phil Dick, Ron MacDonald, Kenneth Boyd Alexander Keen ,Henry van Rensburg , Bob Griffin, Peter Golding Kevin Jones & Arnold Silver,

- “Implementing and planning best management practices for utility efficiency in food processing establishments: An utility management guide (2003) IDU Bulletin 004 -Utility Efficiency Best Management Practices,” Ontario Ministry of Agriculture and Food Industry Competitiveness Branch.
- [12] Phillip Seaman & Anita Eves (2006), the management of food safety: The Role of Food. Hygiene Training in the UK Service Sector
- [13] Prasanna Joshi & Uma C Swadimath (2014) Best Management Practices in the Food Processing Industry, Ushus J B Mgt 13, 1 (2014)
- [14] Food and Drug Administration (FDA), return to GMPs for the 21th food processing. (10 August 2012).
- [15] Saskatchewan Food Processing Facility Best Management Practices (2011)
- [16] Tainan Neves and Everton Drohomerski (2014), Sustainable operations management: Practices and Measures in the Food Industry.