

Applications of Management Practices in Food Processing Industries: An Overview

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Received: May 20, 2024; Published: May 31, 2024

Abstract

The food processing sector is indispensable for the overall development of the economy of a nation because it provides an effective and mutually advantageous relationship between the agriculture and food processing industries. About 14% of India's overall food distribution and 15% of the manufacturing GDP are derived from the food processing industry. Currently, food processing industries have complex and evolving food quality and safety management systems. It is necessary to design, improve, and guarantee the production of healthy, reliable, and delicious food that is safe for consumption through the use of quality management systems and food safety management systems that are focused on a wide range of public (means legally prerequisite) and private (through industry) guarantees guidelines and standards (like HACCP, BRC, SQF, GLOBAL GAP, ISO22000). This is due to the constant pressure from various factors, including competitive markets, private and public safety, consumer trust, global trade, quality requirements, emerging hazards, and climate changes. This research overview highlights the concept of good manufacturing practices (GMP), best management practices, and quality management in the food processing industries. The food processing industries have been noticed to consume a substantial quantity of water and ultimately resulting into environmental. This overview provides new insights into investigating novel management devices in the food processing sector towards assured quality control and the impression of green revolution.

Keywords: British Retail Consortium (BRC); Food Processing; Food Production; Food Safety Management System (FSMS); Gross Domestic Product (GDP); Hazard Analysis Critical Control Point (HACCP); Quality Management; Safety Quality Food (SQF)

Introduction

Food processing is known for transforming physico-chemically the raw resource materials into specific food or their forms, revealing a joint accountability of everyone in the complex food chain, and thus providing harmless and worthy food to customers. It is mandatory to strengthen an energetic connection between the agriculture and industrial segments of this sector in view of value addition to agricultural products, making definite lucrative values to farmers concomitant with generating advantageous demand for Indian agriculture-based foodstuffs in the worldwide market. Food plays a pivotal role associated with improved human health and life expectancy. In the former times, due to much smaller size of human population and quite plentiful natural resources there was reduced amount of concern of food processing as well as storage of food products based on their shelf life. But consequent to gradual population rise in proportion to limiting

food processing and storage methods led to enforce individuals in view of devoting rather more efforts and time manually on daily basis for their livelihood. In a series of demand and transformation of life style, industrialization deviated a huge part of the human population toward numerous doings fashioning the requirement for an industrialized food sector to feed a day-by-day growing urbanized population [1]. It has been noticed that food processing industries largely track the following food concerning statutes in view of the technology upgradation as well as value addition to food processing and resultant food products:

1. **Research and development, quality control, quality assurance, codex and promotion:** Outline for research and development, quality control, quality assurance, codex and certain profile-raising doings to figure infrastructure of food testing laboratories. To establish an efficient quality monitoring system for food processing, it is quite mandatory to implement HACCP/ISO 22000, ISO 14000/GHP/GMP and supplementary quality management schemes.
2. **Execution of HACCP:** The goal of this specific system is to boost-up the food processing industries to implement food safety and quality assurance devices such as total quality management together with HACCP, GHP, GMP, ISO 14000, ISO 22000 to make them to face universal competition to advance product acceptance by overseas buyers and to retain Indian industry technologically up-to-date of international best performs.
3. **Food testing laboratories:** The aim of this system is to ensure the safety and quality of resultant food products supported by an efficient investigation of the samples received from food processing industries and certain stakeholders.

Many farmers in developing countries have started to apply good agricultural practices (GAP) through sustainable agricultural methods and best management practices (BMP) agriculture. Changing lifestyles, food habits and tastes, increased income, and the transition of food culture have 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. To be more health conscious, a food pyramid is required which shows the recommendation for intake in each group.

Fundamental requirement of the study

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

Principal research methodology

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

Aims and objectives of the overview

1. To comprehend the perception of food management systems in the food processing sector.
2. To understand good manufacturing practices (GMP) in the food processing sector.
3. To work on the concepts of several government entities implementing measures to encourage food safety.

To comprehend the perception of food management system in the food processing sector

ISO 22000: The standard ISO 22000 describes the necessities for food safety management schemes. It stipulates least needs for company concerning risk management and associates the ideologies of the system of hazard analysis and critical control points (HACCP) with the application stages advanced by the codex-alimentarius commission. Absolutely based on auditable necessities the HACCP plan and the prerequisite programs (PRPs) are united systematically. Significant essentials of the standard are basically the amalgamation of the

accountability for food safety into quality management as a universal management mission and the facility of communication measures to communicate with suppliers, authorities, customers and consumers. In fact, the food management system reveals an anticipatory tactic in the direction of recognizing, averting, and dropping down food-borne hazards, thus ensuring the safe quality food products to human. Suitable control measures are recognized to bridge with well-structured FSMS to aid food establishments showing specific compliance with food hygiene rules and regulations, and thus resulting in hygienic food ready for sale to consumers.

Quality management system versus the food processing sector: Food quality management schemes, using tools, such as HACCP, aid to guarantee safe food products for consumers. In this context, a food system is a system including several diverse aspects; a fundamental issue is concerning with food transport from the production hub to food mart and court [2].

Raw material control: Food products can be created by using raw materials as resource ingredients like post harvested fruit and vegetables, meat, eggs, dairy products and several other items. In fact, raw material selection and control is directly associated with process control because as raw ingredients specifically prerequisite to attain positive guidelines prior triumph processing stages [3-5].

Process control: This principle relays to the procedure of food manufacturing. Eventually, anticipatory measures are employed in conjunction with remedial measures. Nevertheless, preventative approaches can provide resolution of certain quality issues because of external factors like environment, storage and additional conditions [6] (Figure 1).

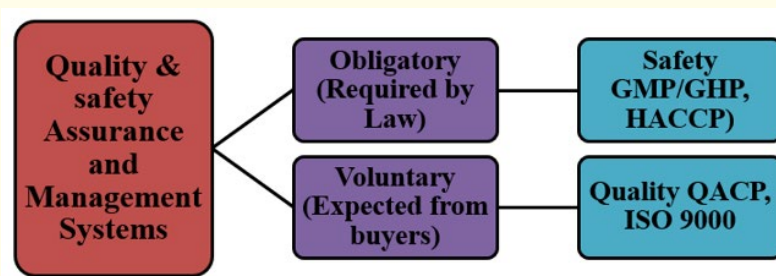


Figure 1: Relationship between food safety and quality administration system [6].

End product examination: The third principle emphasizes on the finished and polished product i.e. the packaged food after quality assurance likely to be vended to suppliers and consumers. Visual observation and physico-chemical examinations are unbiased examples of different stages. Besides, microbiological examination is very operative for defining health and hygiene controls, with a rigorous monitoring progression, which integrates data collection, records, data collection and pattern analysis. Quality administration plays a vibrant role within the food sector crosswise many different sourcing stages, processing then packaging [7,8].

To understand good manufacturing practices (GMP) in the food processing sector

Good manufacturing practices (GMPs) are the fundamental working and eco-friendly situations mandatory for the production of safe and quality foods ensuring safe handling of ingredients, products and packaging concomitant with food processing in an appropriate environment [9-11]. Despite the fact GMP principally denotes the technical features of the food production process, the attention of GHP is on the sanitation facets of food production [12,13].

Personnel: Disease control, cleanliness, supervision and appropriate relevant education and training to the personnel in food sector is always at priority as it aids to meaningful personnel inputs to the industry. Any person whose health condition is observed to negatively affect food processing and packaging, is let off from operations until the condition is recovered up to the mark.

Plant and ground: Appropriately stored equipment by eliminating waste and clearance of weeds/grass within the vicinity, maintaining streets, parking lots etc. thus ruling out a source of contamination through food exposure.

Sanitary operations: Pest control, hygiene of food-contact surfaces along with storage and handling of cleaning portable equipment and utensils are the elements employed in necessary cleaning and sanitization. Besides, in context to sanitary facilities and their controls, appropriate water supply, plumbing, sewage disposal, toilet and hand washing amenities, and rubbish disposal play significant role in sanitary operations in food industry.

To work on the concepts of several government entities implementing measures to encourage food safety

ISO 22000: ISO 22000 is a global standard defining the necessities of a food safety administration scheme covering all dimensions of all establishments throughout the food chain. Key latent paybacks of employing the standard include the capability to reliably deliver food products and services likely to be safe approaching regulatory necessities. Upgraded managing of risks in food safety progressions, and demonstration of sturdy associations with the 'United Nations' Codex Alimentarius are the key factors meant for evolving food safety strategies for governments. The ultimate aim is to correspond various national and private standards in existence and thus incorporating the administration schemes tactic of ISO 900115, personalized to food safety organization [13,14].

Hazard analysis and critical control points (HACCP): It is an administration scheme in which food safety is explained through the analysis and control of biological and physico-chemical hazards from raw material creation, obtaining and handling, to manufacturing, circulation and consumption of the end food product. HACCP is indeed a methodical tactic to the documentation, assessment and control of food safety hazards, constituted by seven major principles such as (i) Conduction of a hazard analysis; (ii) Determination of the critical control points (CCPs); (iii) Establishment of critical limits; (iv) Establishment of monitoring procedures; (v) Establishment of corrective actions; (vi) Establishment of verification procedures; (vii) Establishment of record-keeping and documentation procedures. Last but not least, it is very fascinating to highlight that currently, the Regional Food Research and Analysis Centre, Lucknow, U.P., India is progressively on the way to managing testing of various food parameters concomitant with exploring various designed foods and nutraceuticals including the development of probiotics and mushroom-based value-added food products [15,16].

Conclusion and Future Perspectives

It has been recorded that majority of people are fetching health consciousness and demanding food industries to deliver the quality of processed food. The foremost entity of key reputation that everyone in the company has the identical revelation and that it is vibrant to everyone what the vision involves therein. Besides, it is quite imperative that the quality management scheme is well-matched for the specific food production procedure. The principal advantages of food safety administration are market- concerned rather than quality or food safety- directed. This overview provides new insights into establishing a strong platform to explore the best possible and fascinating management practices in the food processing sector.

Acknowledgment

The authors are grateful to the Chairman Mr. Pawan Singh Chauhan, Vice Chairman Mr. Piyush Singh Chauhan and the Board of Directors of S.R. Institute of Management and Technology, Lucknow, U.P., India for providing the necessary facilities for accomplishing the present piece of work.

Funding Support

This research received no grant from any funding agency, although 'Institutional Research Promotion Grant' to the Biotechnology Department supported this piece of research.

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Volume 19 Issue 6 June 2024

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