Indian Farmer
Volume 9, Issue 02, 2022, Pp. 91-94.
Available online at: www.indianfarmer.net
ISSN: 2394-1227 (Online)

ORIGINAL PAPER

Secure Food Safety and Quality through Traceability System

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Article Received: 12 February 2022 *Published Date: 15 February 2022*

Food safety means "manufacturing, handling, storing and transporting food in such a way to minimise the risk of consumers becoming infected from foodborne microorganisms which cause contamination of food leads to food poisoning". Food quality is the "quality characteristics of food that is acceptable to consumers and contain external factors such as appearance (size, shape, colour, gloss and consistency), texture, flavour, factors such as federal grade standards (e.g. of eggs) and internal (chemical, physical, microbial)". Food safety and quality is achieved through a combination of steps which include proper cleaning and sanitisation, maintaining a high level of personal hygiene, storing, chilling and heating food correctly according to their temperature, environment and equipment, implementing effective pest control, comprehending food allergies, food poisoning and food intolerance. Regardless of best practices, food businesses cannot assure food safety and quality. So, there is an instant need and growing demand for food businesses to implement a transparent, standards-based traceability system across the food supply chain as a risk management tool.

Food traceability, "ability to track the movement of feed, food, food of animal origin or substance through all stages of production, processing and distribution" is based on "one-step-back and one-step-forward" principle i.e. means enforces food companies and authorities to quickly respond by identifying origin of raw materials, ingredients etc. used in processed foods and removing of any unsafe food or food products from the supply chain. Food Safety and Standard act 2006 (FSSA, 2006), E-commerce guidelines and APEDA (Agricultural Products Export Development

Authority) Food Safety Modernization Act (FSMA) European Union (EU 1169/2011, EU 178/2002), Food Standards Australia New Zealand (FSANZ), Quality Food (SQF), British Retail Consortium (BRC), International Featured Standard (IFS), Hazard Analysis and Critical Control Point (HACCP), Food Safety System Certification (FSSC), Best Aquaculture Practices (BAP) and International Organization for Standardization (ISO 22005:2007) are some of the regulations across India and globe that require food businesses to have a traceability system.

Traceability accomplish food companies and authorities to quickly respond by identifying and removing any unsafe food or food products from the supply chain. It also helps in identifying the origin of raw materials, ingredients etc. used in processed foods. Traceability system acquiesce an organization to document and/or locate a product, creating visibility through all stages that means operations involved in the manufacturing, processing, distribution and handling of food or food products from primary source of production processes to consumption (consumer level). It can also aid identification of the potential cause of nonconformities (deviation from a specifications, standards) in a product and improve the ability to withdraw or recall such a product, if necessary, so as to prevent unsafe food from reaching to consumers. Traceability allows food business men including their trading partners, to have complete transparency over the product's supply chain journey through capturing of relevant information at each stage.

There are following some often-recognized benefits of an effective traceability system which includes:

a) Determine the origin of a feed, food, food product or any other ingredient used in production processes.

b) Withdraw or recall defective or contaminated product, ingredient or component and resolve them.

c) Improves product quality and safety.

d) Improve customer service.

e) Build trust and confidence in food businesses.

f) Improve operating efficiencies of growers, packers, and shippers.

Some of the regulations in India and abroad that require food businesses to have a traceability system are listed below:

Food Safety and Standard act 2006 (FSSA, 2006): Food safety in India is governed by Section 28 of the Food Safety and Standards Act (FSSA), 2006. Under this act, the responsibility of the food safety majorly lies on brand owners. However, recent regulation in 2017 has widened the scope of recall (set of actions required to be taken to remove unsafe food from distribution, sale and consumption) by including all food business operators and making each trading partner responsible for food safety. The

objective of the regulation is to ensure withdrawal of food under recall from all stages of the food chain, ensure dissemination of information to concerned consumers and ensure retrieval, destruction or reprocessing of food under recall.

E-commerce guidelines in India: The online retailing of food products and items is gaining popularity in India and increasing its customer base exponentially, so as a result FSSAI (Food Safety and Standards Authority of India) has brought the online business operators under the purview of food safety law and issued separate guidelines for e-commerce companies. According to these guidelines, food companies having their e-commerce portals need to obtain license for their entire supply chain besides ensuring that delivery of products is done by "trained personnel" in order to ensure safety.

European Union, EU 1169/2011: The Regulation makes it mandatory for all manufacturers and retailers of packaged food especially those selling online, to display complete product information such as quality, nutritional value, ingredients and sometimes country of origin.

EU 178/2002: The Regulation enforce brand owners to establish a traceability system for food, feed, food producing animals and any other substance incorporated into food or feed.

Food Safety Modernization Act (FSMA): Section 201 of Food Safety Modernization Act (FSMA), published by the US Food and Drug Administration (FDA), contains several components that address food safety problems through traceability. The act aims to ensure that food supply chain is safe by shifting the focus from responding to contamination, to preventing it. It calls for enhanced food traceability and also enhances FDA's infrastructure and reporting systems to incorporate it.

China Food Safety Law, 2015: This imposes strict control and supervision on food production and management and granting more enforcement powers to regulators in addressing food safety issues. It places more emphasis on the supervision and control in every step of food production, distribution, sale and recall. Special provisions are set out for food trading activities including food sold on a third-party trading platform and food imported through e-commerce channels.

Food Standards Australia New Zealand (FSANZ): Both countries regulate food contact substances through a single bi-national agency i.e. Food Standards Australia

New Zealand (FSANZ), under the joint Australia New Zealand Food Standards Code. The code was revised in 2016 with an objective to lower the incidence of foodborne illness by strengthening food safety and traceability throughout the food supply chain, from paddock to plate.

Food retailers across the globe are demanding certifications of suppliers according to Global Food Safety Initiative (GFSI) schemes, an industry driven initiative that provides guidance on food safety management system necessary for safety along the supply chain.The GFSI standard scheme includes:

a) Safety Quality Food (SQF)
b) British Retail Consortium (BRC)
c) International Featured Standard (IFS)
d) Hazard Analysis and Critical Control Point (HACCP)
e) Food Safety System Certification (FSSC)
f) Best Aquaculture Practices (BAP)
g) International Organization for Standardization (ISO 22005:2007)

GFSI scheme covers all parts of the supply chain network from food itself, packaging process, packaging materials, storage and distribution for primary producers, manufacturers and distributors. In order to remain competitive in today's global market, companies are increasingly adopting food standards and are subjected to food safety audits on a regular basis to maintain these certifications.

CONCLUSION

Food traceability ensures food safety, food quality, product information and product protection. It enforce food companies and authorities to quickly respond by identifying and removing any unsafe food or food products from the supply chain. It also helps in identifying the origin of raw materials, ingredients etc. used in processed foods. So, it should widely enough to cover all commodities and each product available in our market. The system provides benefits to all including producer, supplier, buyer and consumer.

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