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Popular Article

Traceability in meat industry

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Abstract

Traceability of meat and meat products is a major issue in the meat industry with the two main drivers being food safety/risk management and authentication. Increasingly, the world marketplace is indicating that traceability systems for food products derived from individual animals (e.g. steak, chops etc.) is required now or will be required in the near future. Traceability requirements for compound products, such as ground beef, are usually less strict and are frequently limited to date and place of manufacture. As global competition increases it is imperative that technologies are available that protect against, and deter, fraudulent labelling of inferior product. Traceability offers more than marketing advantages. It can be applied at every stage of the meat production continuum and can be just as valuable to farmers and processors as it is to marketers and consumers.

Keywords: Traceability, Identification of animals

Introduction

Livestock traceability refers to the capability and system established to track an animal product throughout every stage of the production process, all the way back to the original holding of the live animal from which the product was sourced. The production of animals encompasses a series of interconnected and networked activities. When these activities are overseen by a centralized system, the resulting network can facilitate the scientific production of livestock products. The development of the traceability concept has arisen from a long history of advancements aimed at enhancing food quality and safety management. Recently, it has emerged as a new standard of quality and a foundation for trade. Traceability is an interdisciplinary approach that fosters documented transparency in sustainable agriculture. The term "traceable meat" indicates that the meat comes from a specifically identified animal raised on a registered farm, complete with information regarding its origin and processing.

Benefits of implementing a livestock traceability system

The benefits of implementation of the farm-to-fork livestock traceability system are as follows:

I. Ownership ascertainment: Once the animal is registered and ear tagged it will be easy for the livestock owner to prove his ownership. Apart from controlling theft, it will also help reduce the inconvenience associated with getting clearance for the transportation of animals.

II. Effective implementation of disease control programs: If any disease-causing agent is detected in meat or during slaughter and packing, traceability will help track the farm of its origin. Once the source is identified, focused disease control programs can be implemented and farmers in the surrounding area can be alerted regarding the threats of the outbreak. Focused bio-security measures can yield better results in disease control than a blanket approach covering the entire area.

III. Implementation of developmental schemes: In India, several schemes are being implemented by government agencies to promote animal husbandry thereby livelihood support to farmers. Often, a lack of information regarding livestock owners leads to arbitrary selection of beneficiaries which affects the effectiveness of the scheme. The centralized availability of information on farms/ premises and contact details will help in the effective formulation and efficient implementation of the government schemes.

IV. Food quality assurance: Traceability-based quality assurance programs can help record the physical, chemical & microbial quality of the meat in the abattoir. The information thus collected can help all stakeholders down the value chain to implement the required quality control system. It will also help in evaluating the efficacy of the animal health and disease control programs practiced in livestock rearing.

Methods for identification of animals

Identification coding of animal or batch of animals by a suitable method and maintaining data of corresponding animal(s) to enable tracing trail of animal product is the core requirement of the traceability system. Retention of the code onto the animal throughout its lifetime is one of the challenges of the traceability system, especially in India where animals travel long distances for grazing. It must be ensured that the identification system followed must be resistant to varying environmental conditions, must be economical, easily applicable, and tamper-proof. Keeping these requirements in mind several animal identification methods are used across the world. Some of the methods used are branding, tattooing, visual tags, bar code tags, radio frequency identification devices (RFID) tags or implants, etc.

Components of a livestock traceability system

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The livestock value chain is a complex network of livestock rearers, traders, veterinary authorities, abattoir managers, retailers, consumers, etc. Integrating and networking all the players of the value chain is the basic requirement for implementing a livestock traceability system. Advanced information and communication technologies can support efforts in the networking of all stakeholders. Understanding different components for the effectiveness of traceability systems is a prerequisite for conceptualizing and implementing traceability. This chapter provides brief information about different components and t

Conclusions

India possesses the largest livestock population globally and ranks first in total milk production. The nation must now prioritize quality to cater to both domestic and export markets, ultimately enhancing farmers' income. Implementing a traceability system based on the production-to-consumption model can foster a culture of quality within the country. The integration of user-friendly information technology modules, easily accessible to stakeholders, will serve as the foundation of this entire system.

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