Title Traceability and quality assurance systems in food supply chains

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Abstract

Purpose of the review: Over the past 5 years, numerous regulations have been drawn up and implemented, which have had a direct impact on food sale from very small and medium-sized enterprises, as well as between countries. These activities require continuous monitoring by inspection agencies on trade policy, safety and risks analysis, with stringent management practices and precaution readiness for emergencies. Food safety, quality, claim validity and proof-of-origin are important for fresh produce, both for clients and customers locally or abroad. As a result, various governmental inspection services and third-party certification agencies are available for regulating the export and import of food commodities. Today, we are facing globalisation of our food-supply chains. This article focuses on better understanding and defining food quality, entities and system components. New tools to identify failure mode and efficiency in processes, as well as practical cases of traceability are referenced and under validation.

Directions for future research: Improving technological skills and competency, as well as training in engineering, applied science and technology, computer technology, economics and logistics must become high priority in relation to food quality, safety, and failure analysis on systems relevant to traceability domains. Very little or no benchmarking is performed or accessible to the industry. More research and adaptation is needed on modelling entity-relation and quality, in combination with sensors and advanced computing. Setting up interactive associations on traceability, computer science, economics, efficient logistics, as well as sharing on a common hub, expertise and problematic cases would speed up international efforts to produce and trade safe produce. Creating and making automatic identification and data capture information technology available at regional and national centres, where producers, processors, distributors and inspection agencies would bring in or improve confidence levels and, secure access to data, know-how, and practical training and advice is of utmost importance. These are challenging prospects for all parties involved in agri-food safety.